



South Staffs Water

WRMP24 Pre-consultation South Staffs Water

January 2022

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1. Introduction to company water resources and summary of WRMP24 approach

WRMP19 delivery (supply and demand options)

We report our option delivery progress in our annual reviews.

We are on track in most areas, although demand has been impacted by Covid-19.

- Supply options

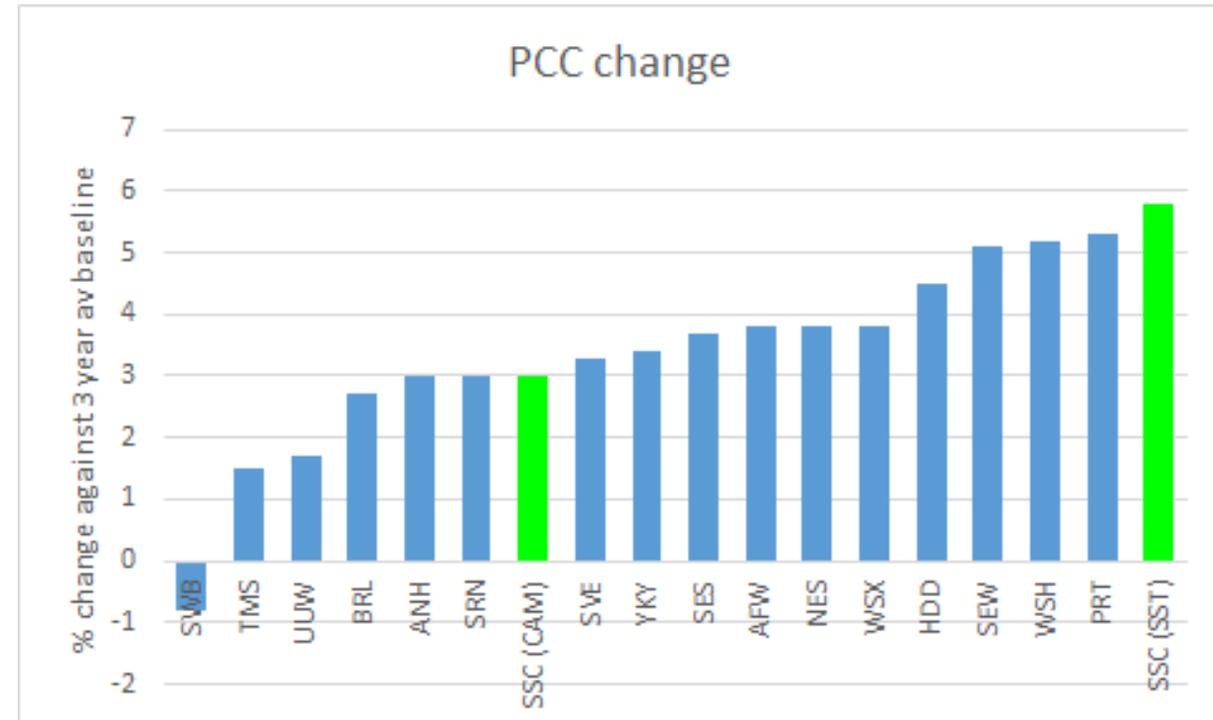
- As part of our long-term plan, we are investing in our two major treatment works to ensure high-quality, secure and reliable water supplies for our customers, for now and in the future.
- We are reducing the volume of groundwater we are entitled to take from the environment by ~6 MI/day, where necessary, to avoid the risk of causing deterioration to the environment.
- We are investing in new treatment processes at two groundwater sources, to bring them back into supply.

- Demand options

- 25% leakage reduction over AMP7.
- Encourage an average of more than 4,000 households a year to switch to a water meter over the lifetime of WRMP19. A final plan target of 76% of customers with a water meter by 2044/45.
- Reduction in baseline PCC by 1 l/p/d by 2025.

Impact of COVID-19

- COVID-19 has seen an industry wide increase in PCC as people have worked from home more, taken less holidays and increased hygiene practices.
- This is particularly acute in the South Staffs region which has seen the highest PCC percentage increase in the industry.
- Lockdowns have impacted our metering programme which is slightly behind target
- We have developed a detailed action plan to address PCC focusing on metering, customer education, customer intervention (e.g. water saving devices) and developer incentives.
- This plan was shared with Defra and the EA in December 2021
- Regional plans and WRMPs assume AMP7 target is met – risk that demand will be higher in AMP8 if targets cannot be met.



Challenges since WRMP19

- Environmental pressure to reduce licence volumes due to WFD '*no deterioration*', with changes to recent actual baseline.
- Impact of National Framework (NF) environmental destination scenarios on future licence volumes, with uncertainty around the NF data and assumptions and timescales of licence changes required by 2050.
- Impact of NF scenarios on reducing PCC and leakage targets.
- Long term impacts of Covid, on household consumption from increase in home working and likely change to hybrid home-office working.
- Covid bounce-back in commercial and industry sectors from water consumption, domestic consumption and changes in behaviour.
- Other uncertainties such as Brexit and supply chain issues on non-household consumption.
- The concept of the effect of the government's '*levelling up*' strategy is yet to be seen.

Changes for WMRP24

- Changes to supply demand balance components.
- Introduction of regional planning.
- EA [Updating the determination of water stressed areas in England](#), July 2021 under '*serious water stress*'.
- NF scenario numbers for abstraction reductions required by 2050 – potential reductions of up to 80 MI/d, a reduction in DO of 25%.
- Achieving 1 in 500 years drought resilience.
- Public interest commitments:
 - Net carbon zero by 2030.
 - 50% reduction in leakage by 2050 calculated from 2017/18 AR total leakage baseline.
 - PCC reduction in consumption to achieve 110 l/h/d by 2050.
- Climate change scenarios and impacts have been updated – now using UKCP18.
- Growth figures updated.
- Changing customer perceptions regarding environmental importance within our plans.

Key drivers for WRMP24

- Long-term planning, to assess supply and demand options to address needs, over a 25-year (2025 to 2050) & 60-year (2025 to 2085) planning horizon.
- **Levels of service** remains unchanged from WRMP19:
 - Temporary use bans – 1 in 40 years
 - Non-essential use bans – 1 in 80 years
- Aquator modelling results indicate our system is resilient to 1 in 500 year drought events.
- **Demand management ambition** - Environment Agency classification of '*serious water stress*' supports the need for compulsory metering. Strong public interest commitments need profiles and glidepaths.
- **Long term sustainable abstraction** - balancing the need to maintain customer supply by forecasting for growth, whilst fulfilling the needs of the environment.
- **Regional and national planning** - addressing issues at the macro and micro levels, ensuring a best value adaptive plan that supports all sectors.

Planning horizon for SSW WRMP24 and WRW Regional plan

Long-term planning, to assess supply and demand options to address needs, over a 25-year (2025 to 2050) & 60-year (2025 to 2085) planning horizon.

Water Resources West – working to secure long-term water supplies in the west of England and Wales



What is WRW?

Water Resources West (WRW) is one of five water resources planning regions in England and Wales. It aims to ensure the long-term sustainability of water resources across the region, while considering the wider needs of society and the environment.

WRW covers four of the eight largest city regions in the UK – Cardiff, Greater Manchester, Merseyside and the Midlands. It also includes areas of outstanding natural beauty, including the Lake District, Peak District and the Brecon Beacons, as well as extensive areas of farmland and forests.

WRW is currently considering a range of options, including water transfers and initiatives to help manage demand. Customers should see the benefits of the regional plan after 2023.



What part does South Staffs Water play?

South Staffs Water provides clean water services to more than 1.3 million people in Staffordshire, the Black Country and parts of the West Midlands. As a member of WRW, we are committed to making sure customers always have high-quality, reliable and affordable water supplies. We believe that collaborating with others to develop long-term regional plans is the best way to achieve this.

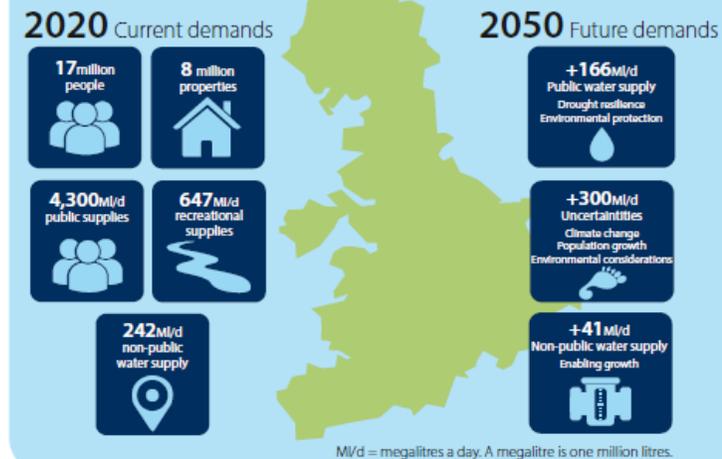


WRW's ambition

WRW has an ambitious vision for the region, built around stretching targets to reduce leakage, capturing more rainwater and helping people to use less water. It also wants sustainable water supplies that are resilient to drought in a changing climate. And it wants a cost-effective and affordable plan that delivers for all water users over the long term.

What WRW wants to achieve

We all know that water is a precious resource. WRW wants to make sure there will always be enough water available to meet the demand from all water users - including customers, agriculture and industry - while protecting the environment at the same time.



Want to know more?

You can find out more information about WRW and the role it's playing in regional planning on its website at: waterresourceswest.co.uk



How your best value WRMP will reflect the relevant best value regional plan

WRW regional group must produce a best value plan that aims to:

- set out how the supply of water will be managed across the WRW region, while trying to achieve ambitious leakage reduction and per capita consumption targets.
- understand and address the needs of the environment in a collaborative way to deliver long-term improvements.
- identify all the options needed in the region and how the plan will deliver best value.
- explore how the plan will adapt to different future scenarios while considering all opportunities for water transfers (both within and between regions, of different scales and lengths).
- Increase resilience to drought by reducing the need for rota cuts and standpipes in extreme droughts.

The WRW plan has been built using individual company data, and therefore is a direct reflection of the WRMP.



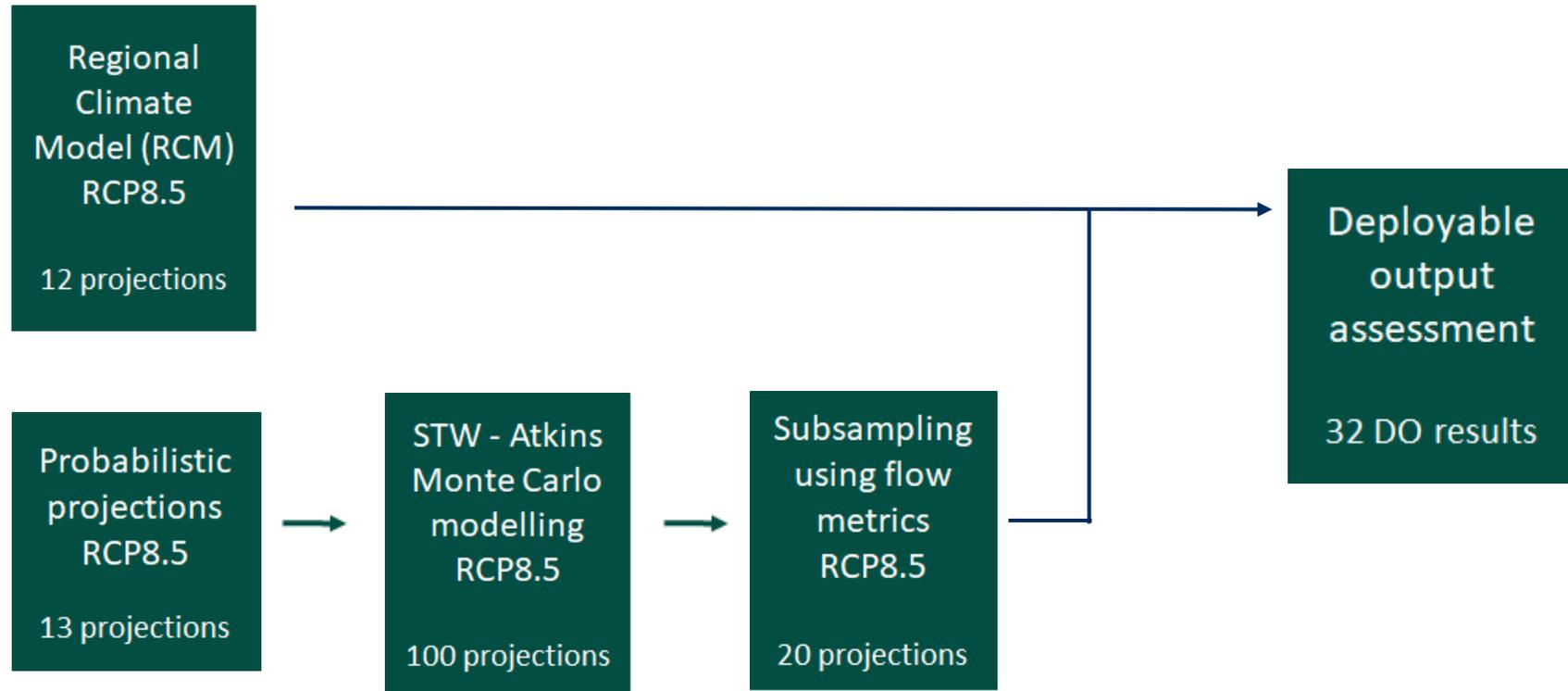
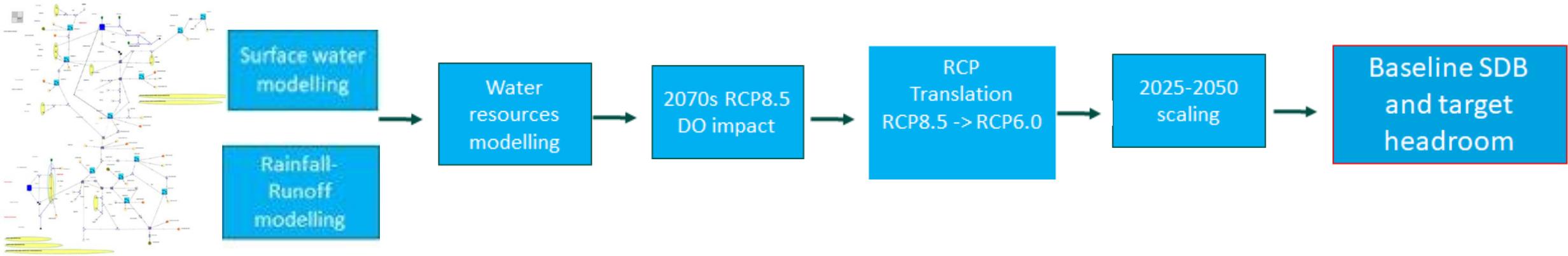
2. Supply forecast

Outage – SSW / WRW approach

- Mott MacDonald were commissioned to review Outage, in-line with WRG for WRMP24.
- A risk-based approach based on best practice principles set out in UKWIR, '*Outage allowances for water resources planning*'.
- Historic outage data (9 years) from March 2012 to March 2021 was analysed to assess baseline level of outage for the SSW WRZ.
- Monte-carlo modelling upgraded to WRSE outage modelling tool.
Providing an audit trail, with simpler processing of events and pdf's, faster and simpler model runs, and no Excel Add-ins.
- All WRW companies agreed to be consistent and use the 80th percentile.

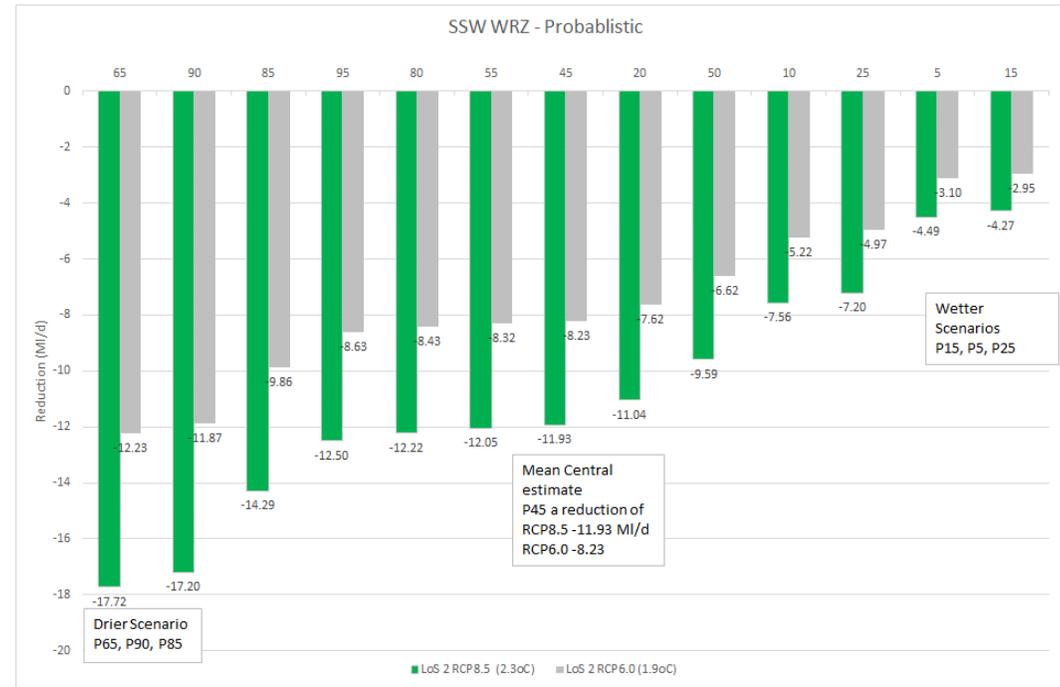
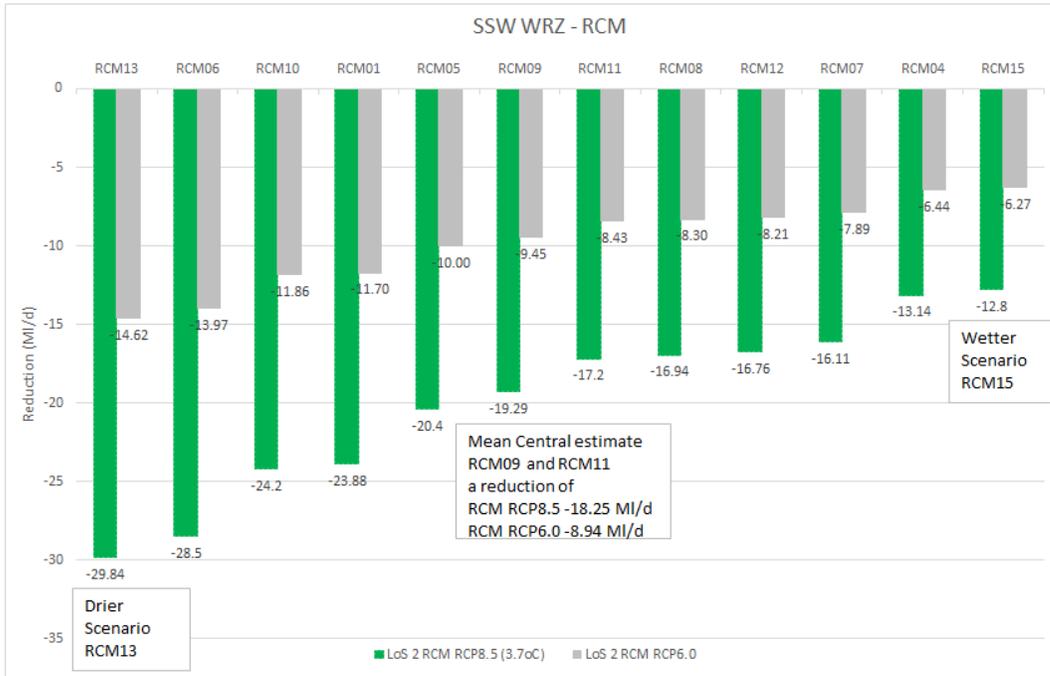
Outage	DYAA (MI/d)	DYCP (MI/d)
WRMP19	8.3	5.6
WRMP24	10.1	6.5

Climate change – SSW / WRW approach



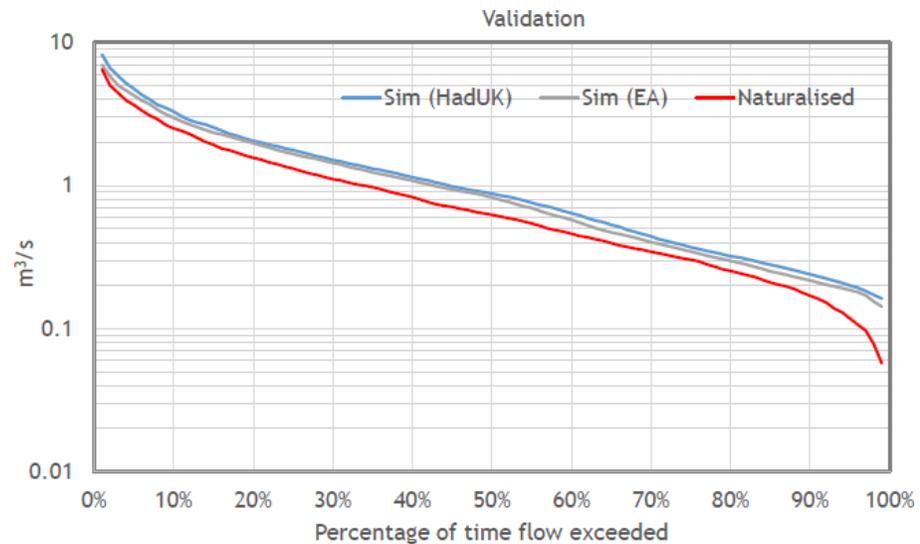
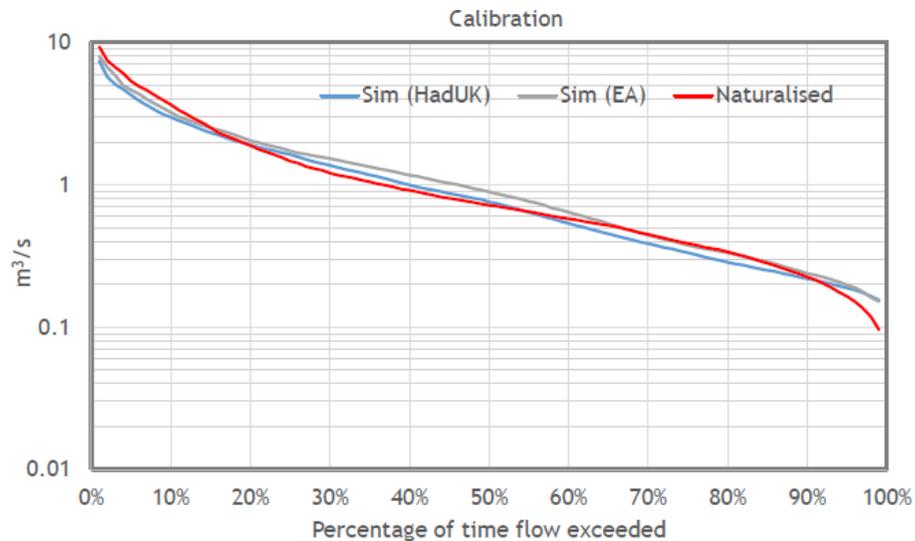
SSW WRZ change in DO due to CC

- UKCP18 Regional and Probabilistic projections to assess impacts of climate change on our resources. Reported deployable outputs are based on RCP6.0.
- 12 Regional and 13 probabilistic projections were sub-sampled and used to assess DO impacts.



EA PET VS HadUK PET dataset

- GR6J rainfall run off flow models were calibrated using HadUK rainfall and PET climatological datasets.
- EA PET dataset was released in June 2020.
- Mott MacDonald were commissioned by STW to review EA PET datasets.
- HadUK PET showed a stronger match to naturalised flows at Blithfield reservoir than EA PET.



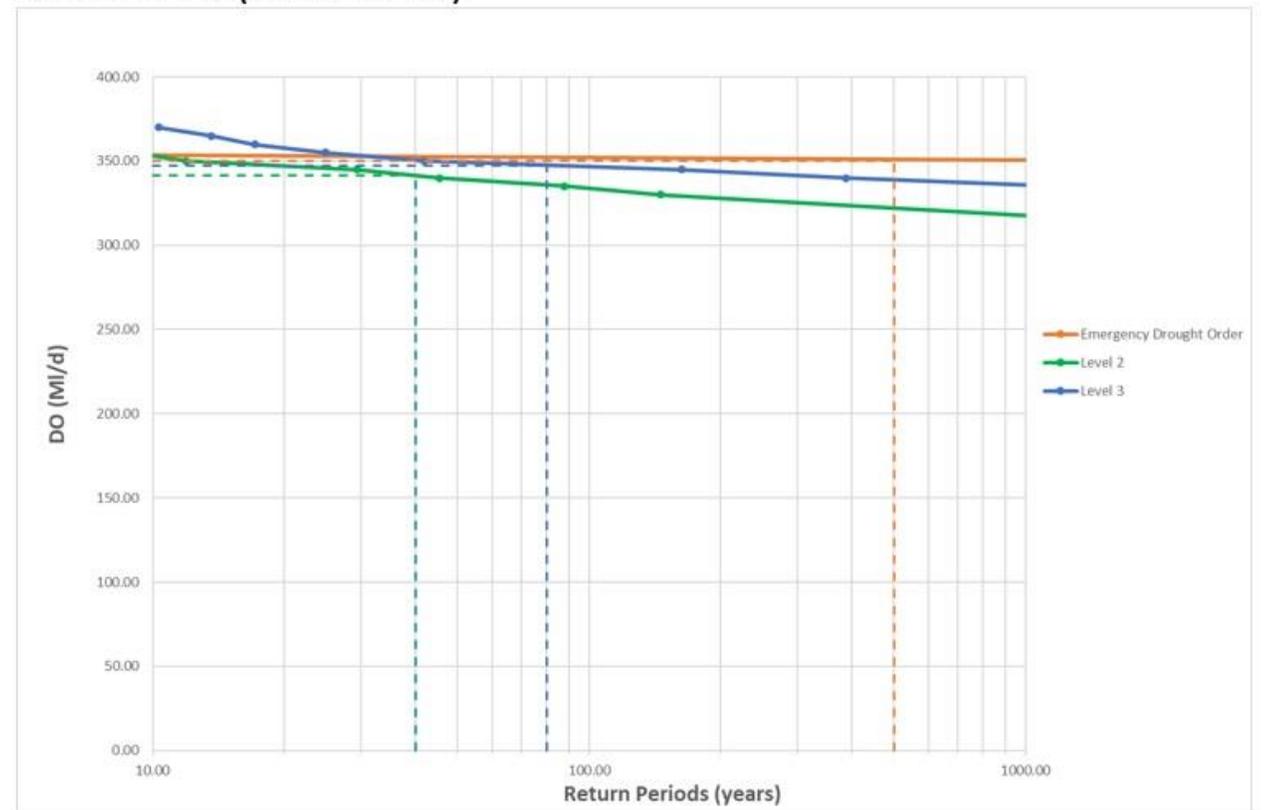
1 in 500 year DO – SSW / WRW approach

- SSW migrated our Aquator 4.3 model to XV to be able to run Scottish method DO.
Build up a relationship between demand / DO and return period of 'failures'.
Failures correspond to simulated implementation of emergency drought orders.

- Use the WRW regional stochastic dataset
Spatially coherent between all WRW WRZs
19,200 year dataset
- Emergency drought orders are implemented at emergency storage.
- Minimum DO impact continues to be LoS 2, 1 in 40 years TUBs, the constraint to the system.
- Storage continues to be a key driver for the system, we have drought orders for:

Hampton Loade and Severn Regulation linked to River Severn storage.
River Blithe pumpback, which supports Blithfield Reservoir.

Baseline BT1-BT8 (with restrictions)



Supply forecast development

- **DO** has been modelled in Aquator, in-line with the agreed WRW methodology, based on the Scottish method and a 1 in 500 level of service for emergency drought orders.
- The hydrology and climatology is based on the datasets prepared consistently for regions by Atkins. This gives a full stochastic time series of 19,200 years.
- DO provides 1 in 500 EDO resilience for the South Staffs WRZ, and continues to be defined by 1 in 40 TUBs year level of service, in-line with WRMP19
- Whilst updates to our Aquator model have been undertaken, these show no changes to our baseline DO, which remains at 398 MI/d in line with WRMP19.
- **Climate Change** - utilises UKCP18 Regional and Probabilistic projections to assess impacts of climate change on our resources. Reported deployable outputs are based on RCP6.0. 12 Regional and 13 probabilistic projections were sub-sampled and used to assess DO impacts.
- **Outage allowance** - reviewed our WRMP19 outage model to include 2020/21 outage data. Profile continues to follow P80 glidepath.
- **Headroom** - reviewed our WRMP19 headroom model, to review supply and demand components to include any changes as a result of climate changes scenario assessment. Profile continues to follow P95-P80 by 2050 glide path, this results in an increase in headroom at WRMP24 driven by D2 demand uncertainty from Artesia.

Supply forecast development

- **Water Quality** – there are no changes to water quality assumptions. However, South Staffs is participating in the WRC project reviewing the potential impact of climate change on water quality, and therefore on water resources future planning. This will conclude early 2022 and findings will be fed into the plan as appropriate.
- **WINEP reductions** - South Staffs are currently undertaking several not deterioration investigations. The outcome of these will be included in the draft plan. For regional planning purposes and reconciliation tables, the worst-case scenario of licence reduction has been included (15 MI/d from 2025); however, this is expected to reduce as we conclude our investigations and agree an approach with the EA.
- **WINEP additions** - We have two schemes for delivery in AMP7 what will provide an additional 6.5 MI/d DO. These schemes involve refurbishment and treatment upgrade to two borehole sites which are currently not in use. This benefit is included in our planning from 2025.
- **Environmental Destination** - National Framework scenarios have been modelled to understand impact on DO – these range from circa 70 MI/d (BAU) to 85 MI/d (enhanced), which represents a 22%-26% reduction in DO. Next stage of work is to look at catchment and licence level to understand localised impacts, identify potential supply options to resolve and determine appropriate level of ambition.
- All supply elements have been developed in line with the WRW methodology



3. Demand forecast

Demand forecast methodology

- The Baseline Demand forecast is driven through the bottom-up Household micro-component approach for household demand, and includes subset consumption modelling for leakage, non-household demand and minor components.
- A key step is to split population and property forecasts into metered segments, including unmeasured, existing measured, compulsory measured, optants and new properties. Assumptions are made about these segments to ensure consistency within and between the key variables such as household occupancy rebased to match the base year values.
- Micro-component modelling uses the most recent available data on micro-component use and occupancy to determine statistically significant relationships between these variables. A linear model has been developed for toilets, showers, baths, washing machines and taps based on this analysis. Trends are then added to the model to reflect likely technology developments, and to explore scenarios associated with these, over the planning period.
- Weather modelling is then used to derive normal year, dry year, and critical period factors.
- Demand forecasting best practices used:
 - WRMP24 Methods – Household consumption forecasting UKWIR 15/WR/02/9
 - WRMP19 Methods –Population, household property and occupancy UKWIR 15/WR/02/
 - EA & NRW: Draft Water Resources Planning Guideline – May 2020
 - DEFRA: Guiding principles for water resources planning – May 2016
 - UKWIR: WRMP 2019 Methods – decision making process guidance (16/WR/02/10)
 - Peak water demand forecasting methodology UKWIR 06/WR/01/07
 - Impact of climate change on demand UKWIR 13/CL/04/12
 - UKWIR An Improved Methodology for Assessing Headroom 02/WR/13/2
 - Integration of behavioural change into demand forecasting and water efficiency practices UKWIR 2016
 - Economics of balancing supply and demand UKWIR 02/WR/27/4.

Changes since WRMP19

- The Company is now working in a more extensive and coordinated way within the context of Regional Plans. For South Staffs this includes primarily Severn Trent and United Utilities to form Water Resources West and have committed to work in as a collaborative way as possible.
- Regional plans have been implemented to improve resilience and environmental protection, and to better understand how resources may be shared between companies. This is supported by sometimes sharing approaches and data sets where they overlap. As such Regional plans will be subject to scenario planning to account for scenarios that may be driven by a change in forecasts driven by Regional Planning as opposed solely by Company specific WRMPs.

Changes to non-household consumption

- Forecasts are presented for metered and unmetered properties at company level and disaggregated by industrial sector. The approach used follows existing industry best practice such as multiple linear models to produce cohorts of industrial sectors using explanatory factors that include population, gross value-added metrics, employment rates, population density and other factors.
- The intermediate AMP7 years are volatile due to unknowns such as the impact of the COVID-19 pandemic and the impact from Brexit or supply chain issues on non-household consumption.
- Baseline and scenario forecasts will be updated prior to the submission of the final water resource management plans when more will be understood, and future scenarios will be clearer.
- The unprecedented change in non-household demand in 2020, due to the policies introduced to combat the COVID-19 pandemic. This is the first year of the forecast and creates added uncertainty going forward including ongoing Government guidance which has caused uncertainty in fully understanding what the enduring impacts will be from changes in working practices, such as increased working from home.
- There are future unknowns in demand from non-households, such as Brexit, supply chain issues, climate change and how water efficiency will be delivered in the non-household sector.
- Since WRMP19, the non-household retail sector has undergone a transformation with the introduction of retail competition. We have observed a change in data quality and consistency since the change in 2017, which has complicated the modelling and has increased the uncertainty around the demand forecasts. Therefore, all these factors will be included in the scenario and uncertainty modelling.
- Non-household demand in the South Staffs Water region at the start of the planning period (2025), is predicted to be generally flat.
- Artesia produced four scenarios for non-household consumption which will be reviewed as part of our demand option selection process

Additional changes since WRMP19

- Forecasting leakage and long term glidepath for reduction:
 - The reduction in Leakage forecast will follow Demand management options and optimisation work.
 - Draft options, including costs and yields will inform the Company as to the most appropriate leakage reduction strategy.
 - This reflects the Company's commitment to meeting the National Planning Policy
- Metering impacts
 - The classification of the region of seriously water stressed opens the path to compulsory metering
 - Customer engagement is currently underway to understand acceptability and potential mechanisms for implementation
 - Best practice from across the industry to be built into metering options
- Impacts of climate change on demand
 - The impacts of climate change has been considered against the demand forecasts and follows best practice.



4. Supply-Demand balance

Our current position

- Baseline supply demand calculation includes adjustments for:
 - Potential WINEP reductions in DO
 - Policy assumption – reduction to leakage (i.e. achieving the PIC of 50% reduction by 2050)
 - Policy assumption – reduction in consumption (i.e. achieving the PIC of 110 l/h/d by 2050)
- Environmental destination was not included in the first set of tables due to level of uncertainty and we were still in the process of completing our Aquator modelling.
- WRZ in surplus until 2070-71
- By end of planning period (2084-85) deficit is 13.19 Ml/d
- Environmental destination to be included once numbers have been further developed. This will have an impact of circa 70-85 Ml/d. Depending on timing of implementation, this could bring the SDB into deficit as early as 2040.

Headroom – SSW/WRW approach

- Mott MacDonald were commissioned to review Headroom, in-line with WRG for WRMP24.
- A risk-based approach based on best practice principles set out in UKWIR, '*An improved methodology for assessing Headroom*'.
- All components of target headroom uncertainty have been assessed and reviewed, from 2022 to 2100.
- Monte-carlo analysis using @Riskmodelling upgraded to WRSE outage modelling tool.
 - 10,000 iterations of the model were run to determine a percentile distribution for DYAA and DYCP.
 - A risk profile was selected in line with WRMP guidelines and used to output TH values for SDB modelling of the SSW WRZ.
- All WRW companies agreed each company has a different level of risk based on supply/demand uncertainty.
 - Glide path and risk appetite is decided at board level.
 - Reason why Outage and Headroom don't both follow 80%ile.

WRMP19	DYAA (MI/d)			
Target Headroom	2017/18 (95%ile)	2025 (95%ile)	2029/30 (95%ile)	2045 (80%ile)
DYAA (MI/d)	7	9	10	8
DYCP (MI/d)	12	12	14	13

If TH is too small may not meet planned LoS.

WRMP24	DYAA (MI/d)		
Target Headroom	2025 (80%ile)	2050 (80%ile)	2100 (80%ile)
DYAA (MI/d)	10	13	17
DYCP (MI/d)	12	16	20

If TH is too large may drive unnecessary expenditure.

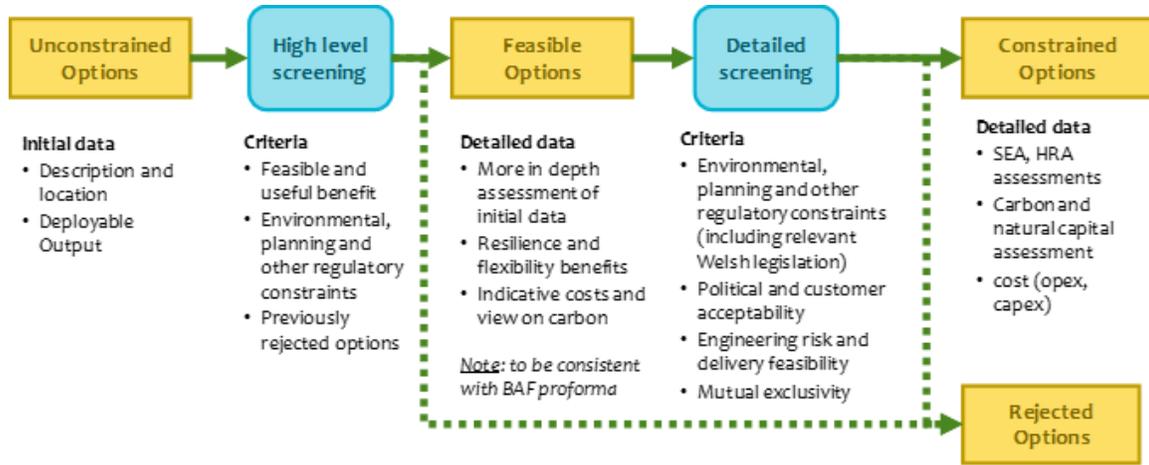


5. Options

Process undertaken

- Completed a high-level screen of the WRMP19 unconstrained options list, identifying a feasible list of options to be reviewed for WRMP24. The rejection log has been reviewed by the Environment Agency.
- Scheme WAFU benefits and costs are in the process of being updated for the final plan by third party consultants.
- SEA and NCA assessment review of WRMP24 environmental metrics have been completed.
- WFD assessment is in progress.
- WRW regional plan options have followed the WRPG and the agreed WRW methodology with common WRW screening criteria.
- The SEA, HRA, WFD assessment of options will continue through 2021 and 2022, therefore the list of feasible options will be updated if environmental assessments conclude that an option is no longer considered feasible.
- Further options are likely to be identified following consultation and third-party engagement and these will be added to options list for further versions of the plan.
- Currently no supply options are selected in plan due to deficit not occurring until 2070/71. However, once environmental destination scenario is agreed, this will move this deficit forward and require options at an earlier stage in the planning process

Option appraisal stages



High level screening criteria used to assess unconstrained options.

Unconstrained options (High level screening only)	Option benefit	Engineering risk and delivery feasibility	Environmental, planning and other regulatory constraints	Political and customer acceptability	
	Is the likely scale of supply benefit (yield) to water companies and/or other sectors relative to the supply deficiency sufficient to proceed?	y/n	Is the engineering complexity such that it is highly unlikely to deliver the benefit stated i.e. is it technically feasible? y/n	Does the option cause unmitigable damage to a European designated site (SAC/SPA/Ramsar)? y/n	Is the option politically unacceptable such that it is unlikely to gain planning approval? y/n
	Is the option in a location that makes deployment practicable?	y/n	Is the technology established with more than one example of in use at scale worldwide? y/n	Does the option cause unmitigable damage to Nationally designated site (SSSI/NNR/National Park/Ancient Woodland)? y/n	Does it cause significant negative socio-economic impact than cannot be mitigated? y/n
	Is the option likely to be granted an abstraction licence or other necessary consent?	y/n		Does the option cause unmitigable damage to Site with significant heritage or visual amenity value (e.g. Scheduled Ancient Monument or AONB)? y/n	
	Could the option offer supply / demand benefits at a regional or national scale?	y/n			

Detailed screening criteria for feasible options

Feasible options: (Detailed screening criteria)	Option benefit	Engineering risk and delivery feasibility	Environmental, planning and other regulatory constraints	Political and customer acceptability	Cost, carbon and natural capital	
	Is the scheme mutually exclusive with a lower cost, higher benefit, less environmentally damaging option?	y/n	Can the option be developed within the required timescale to meet the WR2 deficit? y/n	Does the option pass HRA compliance risks? y/n	Is the option likely to be completely unacceptable to customers? for example in terms of taste and odour? y/n	Capex Cost
	Is the option dependent on another option that has been screened out?	y/n		Does the option increase the risk of flooding that cannot be mitigated and/or is the site at risk of flooding? y/n	Is the option likely to be unacceptable to stakeholders? y/n	Opex cost
	Is the option durable / viable in the long term?	y/n		Does it breach any other legislative requirements that would render it illegal? y/n		Carbon impact (embedded and operational)
	Is the option flexible to changing circumstances in demand?	y/n		Does the option transfer raw water between catchments and represent a non mitigable DfNS risk? y/n		Natural capital value
			Does the option transfer water of a different quality that would breach DfW guidance (e.g. metaldehyde)? y/n		What if any is the net gain to the environment provided by the option?	
			Does the option lead to deterioration of any of the waterbodies classified under the WFD? y/n		Does the option provide other resilience benefits to water companies?	
			Does the option meet the social and environmental objectives of the relevant SEA? y/n		Does the option provide benefit for other sectors and is supported by them?	
			If in Wales does the option comply with Welsh Government's SMNR principles? y/n			

for use in decision making only

Supply options



Increase storage capacity
In Blithfield reservoir
8.5-12.4 MI/d

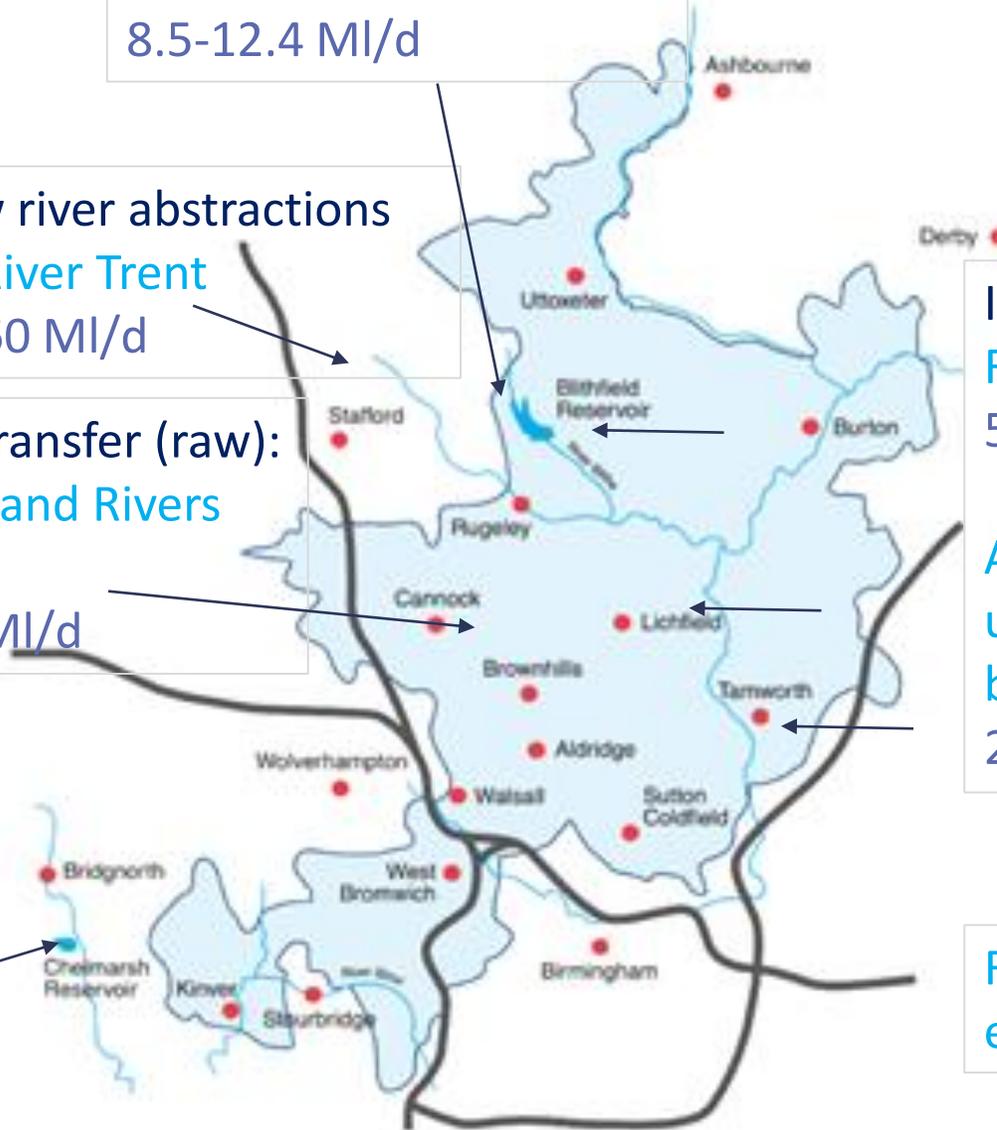
New river abstractions
on River Trent
40-60 MI/d

Bulk transfer (raw):
Canal and Rivers
Trust
5-12 MI/d

Increasing supply
Reinstate disused bhs
5 - 7 MI/d

Abstract more water from
underground sources (new
bhs at existing licensed sites)
2 - 9 MI/d

Bulk supply / transfer (raw):
United Utilities, via Severn
to Thames Transfer
15-75 MI/d



Recycle – rain, grey and
effluent water

Demand options

- Demand options currently under development with third party consultant – due for completion end January.
- Key areas of focus include:
 - Leakage – application of the PIC (company or industry based?) and profiling for this. Review of customer supply pipe leakage approach and opportunities. Impact of profile on other commitments such as carbon net zero and metering
 - Metering – undertaken customer engagement to understand acceptability. Profile of installation and level of intelligence. Impact of this profile on other commitments such as water efficiency and leakage e.g. fitting of ghost meters in high leakage areas and using data to inform customers of cost savings
 - PCC & water efficiency – household and non-household options. Impact of Covid-19 on PIC and profile required along with innovative options to create step change
 - Developer engagement – reviewing our current approach to incentivisation, working on water neutrality and water recycling
 - We are exploring the potential use of tariffs to incentivise water use reductions



6. Decision Making

South Staffs WRZ - Problem characterisation

Problem characterisation assessment		Strategic Needs Score ("How big is the problem")			
		0-1 (None)	2-3 (Small)	4-5 (Medium)	6 (Large)
Complexity Factors Score ("How difficult is it to solve")	Low (<7)	PR14			
	Medium (7-11)		PR24	PR19	
	High (11+)				

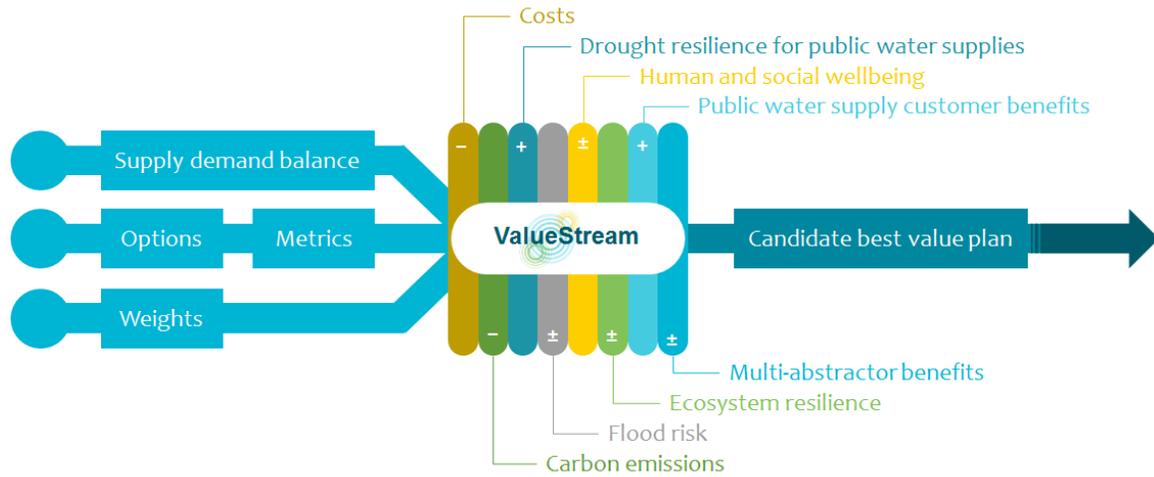
As a member of WRW, we have prioritised our catchments, combining non-PWS and environmental destination:

CAMS ledger baseline assessment		Non-PWS Score			
		Low	Low - Medium	Medium - High	High
Environmental destination score	Low				
	Medium	Dove			Tame Anker and Mease
	High	Worcestershire Middle Severn			Staffordshire Trent Valley

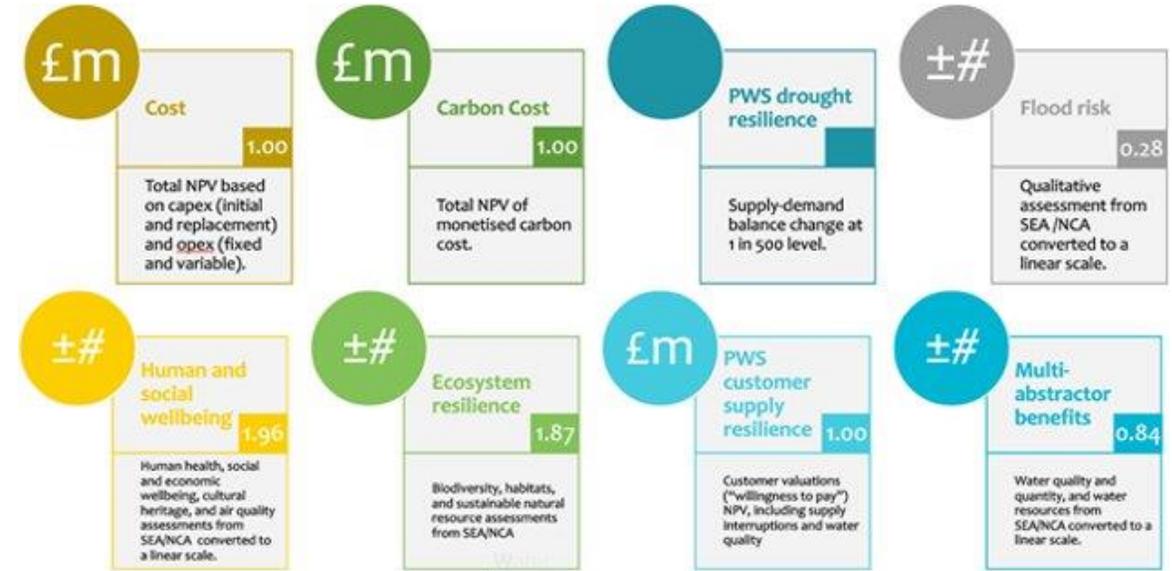
Approach to decision making

- We have adopted the WRW methodology which follows the MCDA approach set out in the UKWIR (2020) BVP framework
- It sets out that all four water company members will apply a common multi-criteria analysis (MCA) tool to inform the options selection for their WRMPs and the region plan
- The MCA method requires a set of metrics for each option. These metrics measure how well the option performs against each of the criteria to be used in the MCA
- The metrics were established using the senior management group of Water Resources West and the views of a wider range of stakeholders and a workshop was held to select the metrics in May 2020
- With environmental metrics there is the potential for positive and adverse effects to net off. It was therefore decided that for all SEA-based metrics (metrics 4, 5, 6 and 8), both positive and adverse impacts should be included as separate metrics in the MCA process
- A decision weighting workshops was held in summer 2020 with a number of stakeholders and technical experts. The stakeholders included representatives from water companies, environmental regulators from the EA, NRW and RAPID, industries such as the Canal and River Trust and the National Farmers Union, and specialists in environmental assessment from Wood and Ricardo.
- Weightings generated in these workshops are seen as a starting point for generating a best value plan, and they will be developed further following stakeholder and customer consultation on candidate plans.

ValueStream



Best value metrics



Option ID	Option name	Year of selection	Metric	BVS
1.1.3a	New BH HIPW	2029	Cost (£m)	-40.393
1.1.7	New BH SSPW	2029	Flood risk (positive effects; £m)	-32.1504
1.1.9	Warton - new gw source, treatment works, pipework to CCPW	2034	Multi abstractor benefits (negative effects; £m)	-29.8479
1.1.10	SAPW BH and upgrade treatment	2034	PWS customer supply resilience (£m)	-25.2457
1.4.5	Coven unit - new gw source and treatment works	2034		-35.0772
7.1.2.1	CRT Bham to Blithfield or Central Works via canal network.	2034		-27.3476
7.1.5	CRT Chasewater surplus to Crane Brook	2034	Multi abstractor benefits (positive effects; £m)	-27.5451
			Best Value Score	-217.607

Note: BVS likely to change as options are still under review for cost, engineering details, carbon costs and drought resilience.

Regional Plan Stress testing

- Stress testing of plans agreed at Regional Co-ordination Group (RCG) so all regions and companies take the same approach to ensure consistency
- Two scenarios were compared:
 - A reference scenario - that has common assumptions on resilience, environmental needs, demand and environment
 - A demand scenario - that shows the impact of reduced demand savings and worse climate change
- Further tests completed where key SROs are removed to understand impacts on plans

	Scenario Name	Resilience assumptions	Environment assumptions	Demand assumptions	Climate change assumptions	Summary of likely resource needs (Ml/d)			
						2029/30	2049/50	2070/71	2084/85
0	Base position (August 2021)	As regional inputs to reconciliation	As regional inputs to reconciliation	As regional inputs to reconciliation	As regional inputs to reconciliation	(0) 5.41	0 (20.00)	-0.79	-13.87
1	Reference	2025-2039 = 1 in 200 drought resilience standard >2039 = 1 in 500 drought resilience standard	BAU 2030 - 2050 (linear profile)	50% leakage reduction by 2050 Per capita consumption reduction to 110 l/p/d by 2050	RCP6.0	0 (5.41) 2032/33 - 0.28	-28.01	-48.80	-61.88
2	Demand	As August 2021 plan	As August 2021 plan	Half of demand reductions by 2050	RCP8.5	-3.14 2025/26 - 0.03	-8.89	-35.07	-51.94

Scenarios



Water company	Change in supply demand balance (MI/d)			
	Ecotropolis 100% Enhanced FP	Dirty boom WINEP/NEP	Heads in the sand 50% Enhanced	Village green 100% Enhanced FP
South Staffs Water	<5	-60	-90	<5

- Following the PR24 consultation 'Long term delivery strategies', we are looking to integrate the proposed Ofwat reference scenarios into our regional scenarios.

Adaptive Planning

- The stress test showed that in scenarios 1 and 2, SST would need some additional options to deliver a robust SDB.
- With reduced demand management (scenario 2), we would need to explore supply options.
- Our Valuestream runs indicated the Severn to Thames transfer (i.e. direct transfer of water from United Utilities) could be the preferred option in this situation.
- The scale of environmental destination also impacts on the options required within the plan.
- Following agreement on our ambition in this area, we may look at different environmental destination scenarios as part of an adaptive plan.
- This may also be true of demand management ambitions.

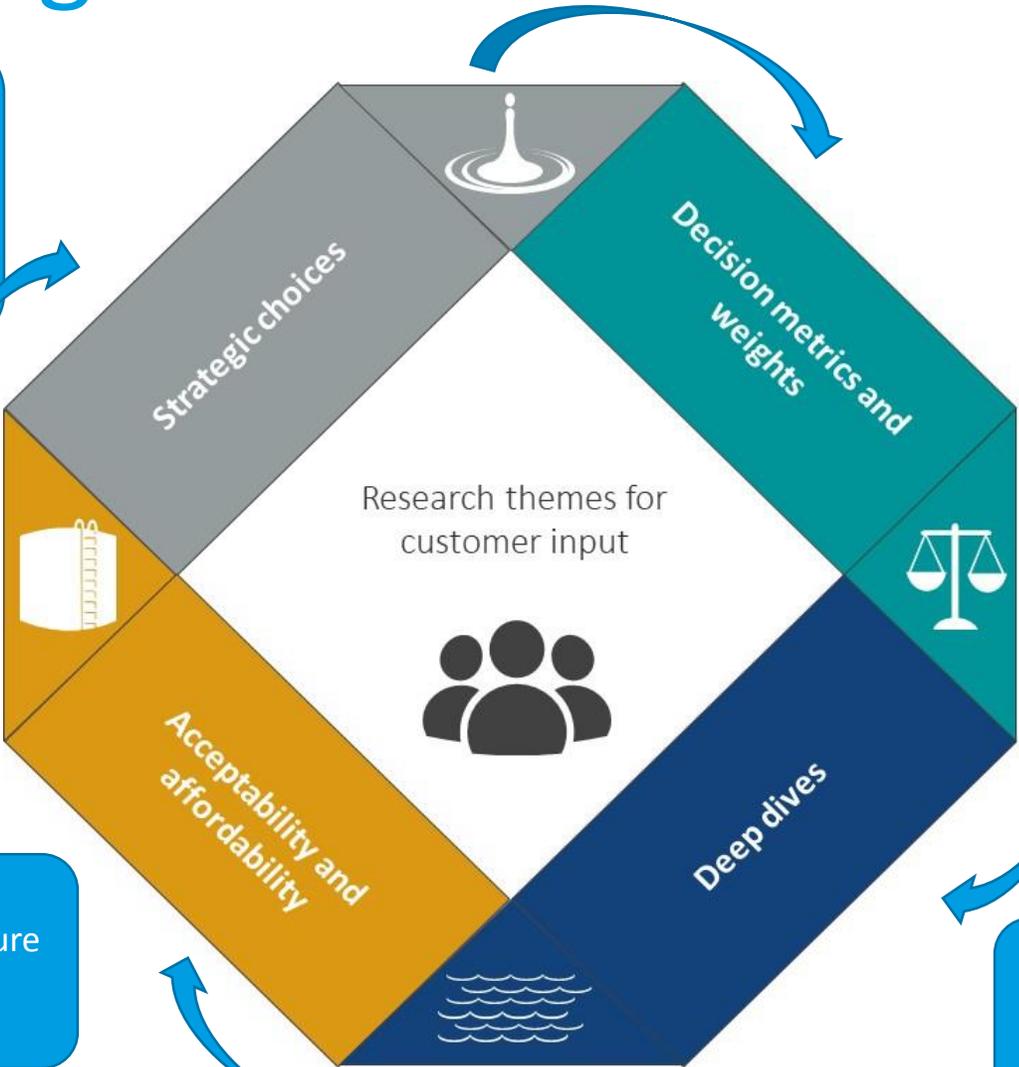


7. Stakeholder engagement

Customer Engagement

What's the vision of the board and what are customers' views on

- Environmental ambition
- Resilience ambition
- Demand / supply side stretch
- Best value planning



Obtain preferences for the options that customers would like to see implemented, given all relevant characteristics of those options (cost, environmental impact, etc).

Preferences over the metrics themselves, i.e. how customers would want to see South Staffs Water / Cambridge Water balance the impact of cost vs. environmental impacts vs. wider impacts.

Final test of plan vs alternative plans to ensure check back to the vision/objectives

Detailed workshops on key topic areas e.g. water transfers, compulsory metering

Customer engagement

- Customer qualitative forum created with representatives from the area across key demographics, including future bill payers
- Detailed 2-week forum held over summer to understand initial views on key areas such as demand, supply, options, environment and best value planning
- Deep dive sessions reviews also held online in November looking at
 - Compulsory metering
 - Water transfers
- In the new year we will be running two large quantitative studies
- preferences for the supply and demand side option available
 - validate the qualitative insights from our customer forums around preferences for bringing in universal metering, drought resilience and use of restrictions to reduce demand, the level of environmental ambition the company should aim for and the level of leakage reduction ambition
- All feedback will also be fed into regional plan

Stakeholder Engagement - Company

- Stakeholder roundtables undertaken in October 2021 – representatives from various sectors involved e.g. MPs, local community groups, wildlife trusts, Waterwise, regulators and councils
- Sessions focused on the challenges and our plans, and sought views and feedback on demand and supply options, as well as environmental destination
- Further roundtable sessions planned for early 2022
- WRW are running three webinars during consultation period for the regional plan. Each session will end with a breakout session for stakeholders to join a WRMP briefing for each individual company
- Further stakeholder engagement on strategic options will also be undertaken in 2022 i.e. Severn to Thames transfer (STT)

Stakeholder engagement - regional

- Key stakeholders are part of Water Resources West Senior group – monthly updates and feedback sessions
- Use of online platform IdeaStream to share policy documents, launch consultations and seek feedback from stakeholders. Specific consultations undertaken include options development and environmental destination.
- August data tables and methodology gave first major opportunity for stakeholder feedback, and consultation on the initial draft plan commences on 17th January
- Each workstream liaises with key stakeholders as appropriate
- Through regional planning workstreams, ongoing liaison with neighbouring companies, particularly around any changes to assumptions around imports and exports. No changes to these proposed for South Staffs

A blurred background image of a business meeting. In the foreground, a person's hands are visible, holding a document. In the background, another person is seated at a table, looking at a laptop. The scene is brightly lit, suggesting an office environment. A large blue triangle is overlaid on the right side of the image, containing the text.

8. Links to Business Plan

PR24 link

- Water Resources is a key workstream in PR24
- Head of Water Strategy workstream lead as part of PR24 Programme Board
- Head of PR24 Price Review recruited and working jointly on key policy areas e.g. demand management, scenarios
- Scale of investment regarding water resources likely to be aligned to previous business plans due to SDM position
- Key environmental theme throughout both plans and will form a strong and common narrative to both



9. Board Assurance

Board assurance

- Monthly Board report submitted that details WRMP and regional plan updates
- Previous sessions held with Board prior to August when data tables submitted for Regional plans. Sessions detailed findings to date as well as approach, timescales and future interactions
- Planned future engagement with Board on key topics

Board Session	Date
Strategic Supply Side options and Regional Planning results	Feb 2022
Environment Strategy	Mar 2022
Demand Management Strategy	Mar 2022
Sign off of plan	July 2022