south east water

Water resource management plan annual review and data return

June 2020

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What does this Annual Review do?

This report, along with its accompanying data table, represents South East Water's annual review of water resources performance compared with the forecasts contained in our Water Resources Management Plan 2019 (WRMP19) during the 2019-20 regulatory year (from April 2019 to March 2020).

It is accompanied by an Annual Review data table showing the required information for each of our eight water resource zones under annual average and critical peak conditions during the year.

Need further information?

Please email wre@southeastwater.co.uk if you require further information or wish to clarify anything in this report.

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Introduction

This report, along with its accompanying data table, represents South East Water's annual review of performance compared with the forecasts contained in our Water Resources Management Plan 2019 (WRMP19) during the 2019-20 regulatory year (from April 2019 to March 2020).

The regulatory year 2019-20 was the fifth and final year of the Water Industry's sixth Asset Management Period (AMP6).

During AMP6, we set ourselves a programme of schemes to deliver security of supply through a twin-track approach of demand reductions and development of new water sources. This programme was developed with strong engagement and input from customers and our other stakeholders. We also committed to carry out feasibility studies during AMP6 of some of the larger long-term schemes in our plan including water re-use and reservoir development.

In accordance with the guidance provided for this annual review by the Environment Agency, this review reports South East Water's annual performance against the WRMP19, published in August 2019.

Our WRMP19 built upon work done in AMP6 and fed into the Company's Business Plan for AMP7 which details the Company's programme of schemes to deliver security of supply between 2020 and 2025.

Water companies have a statutory requirement to produce an annual review and submit this to the Environment Agency and Defra as part of the WRMP process. In complying with this requirement we follow the Environment Agency's WRMP Annual Review Guidance from March 2020. This commentary covers the content required by the guidance and the data table includes annual average day and average day peak week outturns in the reporting period for all our eight water resource zones.

All our data presented in this report and accompanying data table are consistent with the WRMP19 plus actual outturn data for 2019-2. These have been subject to internal checks, reviews and approvals and have been independently audited as part of South East Water's annual performance reporting quality assurance process.

As before, we have sought to improve our Annual Review by reviewing feedback received last year from the Environment Agency in response to our 2018-2019 Annual Review, and addressing any issues raised. We have also provided a brief update on our WRMP process in this Annual Review.

Summary of the supply-demand situation for our supply area during 2019-20

During 2019-20 we received 126% of long term average rainfall across the supply area. Customer demand was in line with our predictions for a normal year, and below our predictions for a dry year. Our Customer Metering Programme concluded in March 2020 with 90% of homes now metered across the South East Water supply area. Total reported leakage was 86.40 Ml/d which is lower than the WRMP14 leakage target for 2019-20 of 88.13 Ml/d, and revised WRMP19 leakage target for 2018-19 of 87.69 Ml/d. We have met our leakage target for 18 consecutive years. During 2019-20, we have published our Drought Plan and embarked upon our preparations for WRMP24, while delivering a Security of Supply Index of 100%. We have continued to focus upon our compliance processes, reviewing abstraction compliance alarm triggers.

We have produced our 2019-20 water balance in line with the approach applied in previous years', and this has been independently audited.

Following approval by Defra, In May 2019 we published our Drought Plan. In August 2019, we published our WRMP19 (Water Resources Management Plan 2019). During the process of developing and revising these plans we met and communicated regularly with the Environment Agency, Natural England and with Ofwat. We also continued to engage with our Environmental Scrutiny Group (ESG; previously Environmental Focus Group) who continue to provide good levels of challenge and feedback to us on various aspects of our WRMP19, and who will be working with us throughout the implementation phase of WRMP19.

We have continued to review our existing abstraction flow meter replacement and verification programme. As well as improving the auditability of licence compliance and abstraction data, this also supports annual reporting and the WRMP process. This assurance review, is being undertaken in parallel to continuing improvements to the company telemetry reporting and data archiving system. To further demonstrate our regulatory abstraction compliance, we have implemented an internal process of producing pre-audit packs for each abstraction site collating all relevant documentation in a single folder ready to share with the Environment Agency abstraction auditors at site.

Through 2019-20, we have continued to review our abstraction data internally during the reporting period, and make operational adjustments to planned outputs to manage and mitigate the risk of breaching annual volumes.

Rainfall

During 2019-20 we received an average of 126% of long term average (LTA) rainfall through the 12 months reporting period, from April to March. Across the supply area, an average of 148% of LTA rainfall was received during the winter months, with 98% LTA rainfall during summer months. June was the exception, receiving 176% of LTA rainfall.

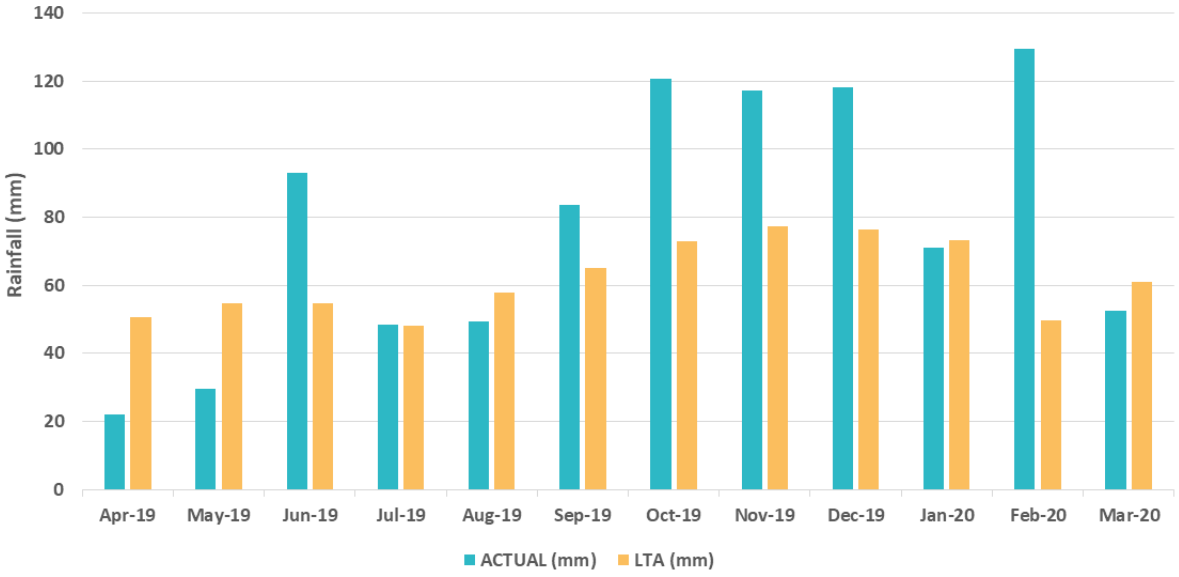
The year started off relatively dry, with only 43% of LTA rainfall during April 2019. However from June the weather was generally wetter than long term average. Only August saw rainfall

less than 100% of LTA, with 85% of LTA falling during the month. As the summer progressed, the rainfall continued, with an average of 121% of LTA rainfall between June and September.

The late autumn and early winter months continued the above average rainfall trend, with October, November and December all returning figures above 150% of LTA rainfall. The remainder of the winter continued with the wetter weather, where February stands out with 260% of LTA rainfall. This sustained wet period supported a reduction in Soil Moisture Deficits (SMD), while groundwater and reservoirs recovered to maintain healthy positions for the start of the 2020-21 reporting year.

We continue to monitor rainfall, aquifer groundwater levels, reservoir storage levels and customer demand carefully throughout the year, and convene regular water resources review meetings to implement and co-ordinate actions, as appropriate and in line with good practice and our Drought Plan normal monitoring and reporting requirements.

Figure 1: Monthly average rainfall through 2019-20 compared to long term average



Demand

Customer demand was in line with our predictions for a normal year, and below our predictions for a dry year.

Average demand for the year was 521.50 Ml/d, which is in line with the WRMP19 figure for a dry year average demand of 522.00 Ml/d.

The average day peak week demand was 574.72 Ml/d, and was recorded during the period of the 29 June 2019 to 05 July 2019, based on a rolling week maximum of the top level distribution input. The actual average day peak week figure was lower than our WRMP19 figure of 643.35 Ml/d.

Overall, demand during the year was slightly higher than the forecast for normal year. During the summer months we observed a prolonged increase in demand, driven by the water summer weather as we received 76% of long term average rainfall in our supply area (excluding the month of June) which would explain a slightly higher consumption than forecasted in WRMP19.

Figure 2: Daily Distribution Input for 2019-20

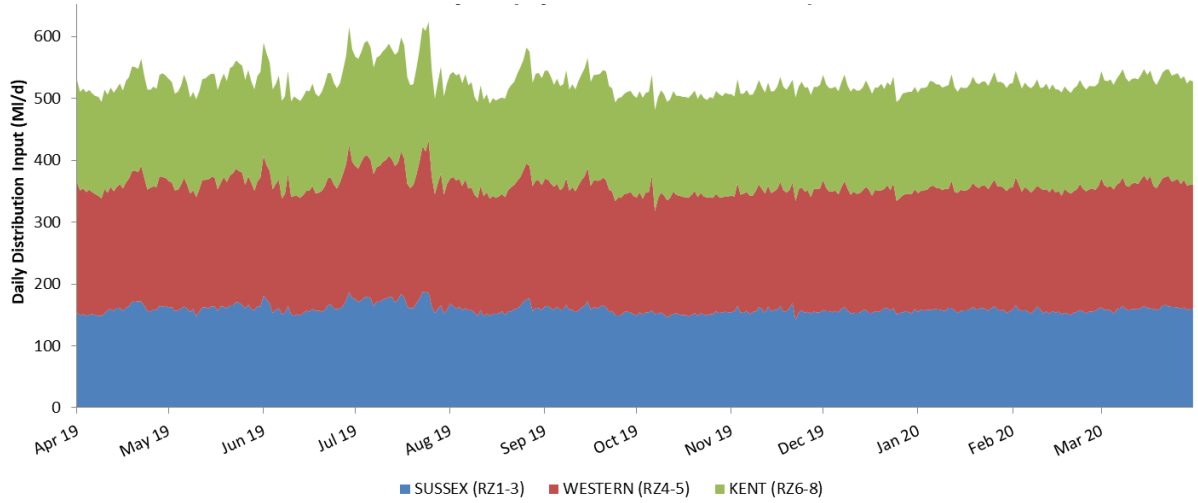
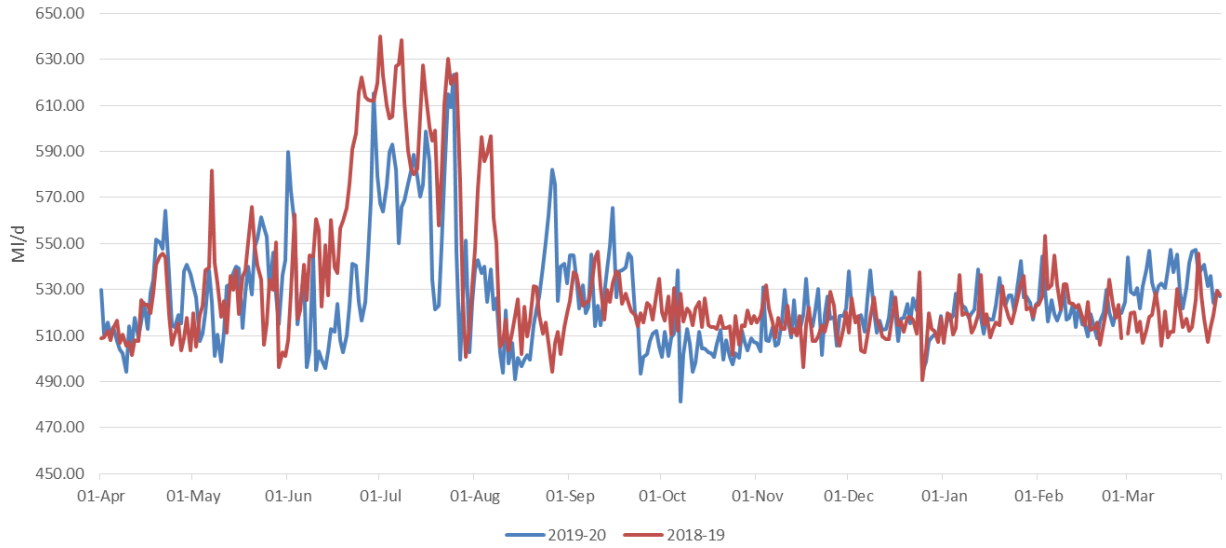


Figure 3: Daily Distribution Input for 2019-20 vs 2018-19



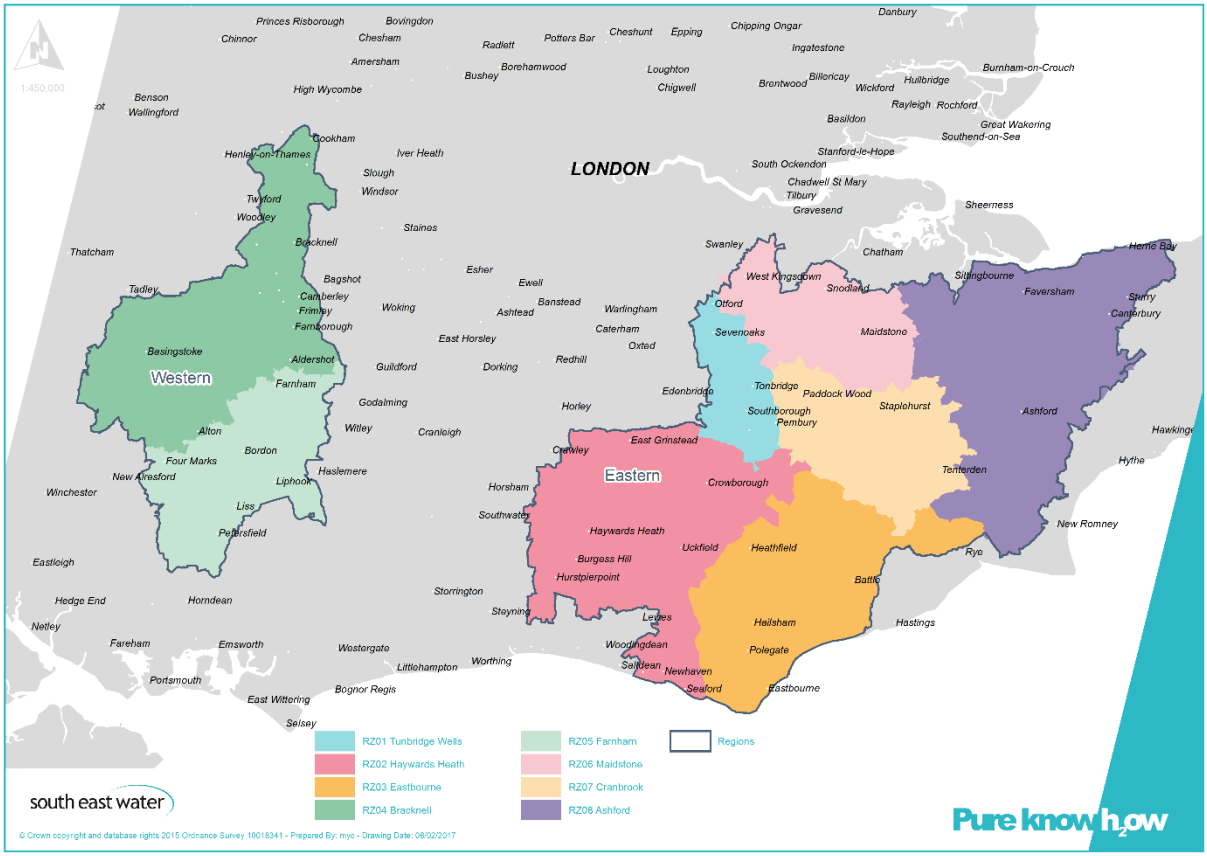
Water Resource Zones

Our operating area comprises eight resource zones within two separate regions (the Eastern Region and the Western Region).

There have been no adjustments to resource zone boundaries during the reporting year; they remain the same as reported in WRMP14 and rWRMP19. The locations of these zones are displayed in Figure below.

As we make preparation for planning for WRMP24, we are reviewing our Water Resource Zone integrity and are considering whether the zonal transfers between zones 4 and 5, and zones 2 and 3 could result in these being merged. Any decision will be proposed following any new guidance being published.

Figure 4: South East Water's Resource Zones



Levels of Service

There has been no changes to the company's declared Level of Service adopted in WRMP19.

These remain at:

- 1 in 10 years for Temporary Use Ban
- 1 in 40 years for Non Essential Use Restrictions
- 1 in 50 years for Deployable Output

Progress in achieving customer outcomes and performance commitments of the business plan relevant to the delivery of the WRMP

Security of supply

The company has maintained the Security of Supply Index of 100% on average and peak using WRMP19 demand and supply assumptions compared to out-turn data for 2019-20.

Details of the schemes and activities carried out during the 2019-20 regulatory year to ensure this are later in this report, in the section, ‘Progress against WRMP19'.

Leakage

Total reported leakage was 86.4 Ml/d which is lower than the WRMP19 leakage target for 2019-20 of 87.7 Ml/d. We have now met our leakage target for 18 consecutive years.

During AMP6 (period 2015 to 2020) we have implemented a leakage strategy focused on improving our understanding of the network, data, leakage monitoring systems and operational management, as well as finding and fixing leaks on our pipe network and continuing with the replacement of the oldest parts of our pipe network.

We have made significant progress during 2019-20 in relation to compliance with the Ofwat AMP7 shadow reporting guidance for leakage and per capita consumption. During AMP7 we will be required to transition to the shadow reporting approach, meaning a direct comparison between 2019-10 and 2020-21 will not be possible due to methodology changes. In advance, we have included a separate section on shadow reporting later in this document that allows comparison of outcomes for 2019-20 using the existing approach, and using the new shadow reporting approach.

Progress against WRMP19

The regulatory year 2019-20 was the fifth and final year of the Water Industry's sixth Asset Management Period (AMP6).

During AMP6, we set ourselves a programme of schemes to deliver security of supply through a twin-track approach of demand reductions and development of new water sources. This programme was set out in our WRMP14 and developed with strong engagement and input from customers and our other stakeholders. We also committed to carry out feasibility studies during AMP6 of some of the larger long-term schemes in our plan including water re-use and reservoir development.

Our WRMP19 builds upon work done in AMP6 and fed into the Company's Business Plan for AMP7 - setting out a forward programme of schemes to deliver security of supply during AMP6, between 2020 and 2025.

In accordance with the guidance provided for this annual review by the Environment Agency, this review reports our annual performance against the WRMP19, published in August 2019. As the WRMP19 is based upon assumptions about the schemes and activities delivered in WRMP14 in the 2019-20 regulatory year, we are also detailing progress against these.

Supply

Outage

The actual average reported outage during the 12 month period was 18.51 Ml/d (compared to 17.38 Ml/d in 2018-19), which is lower than the 27.4 Ml/d in WRMP14, and closer to the 18.36 Ml/d in the WRMP19.

The outage used in the calculations stems from operational sites only where genuine events have occurred that have interrupted output, either as planned or unplanned events. These include major power failures, treatment and quality failures, control and process failures, and other emergency situations and follows our methodology set out for WRMP19 supporting appendices.

The control room logs provide information to understand these events, and also allow for the company to improve the management and control of such occurrences. The company considers that the controls in place through the control room protocols have demonstrated an improvement in our systems to manage and reduce these events. The level of outage being recorded is a reasonable reflection of the normal operational condition of our supply system.

For WRMP19, we reviewed the outage assessment looking at a longer time series of events than we did for WRMP14, and control log events in the period since this. Over this period, we have been aiming to move towards increased planned asset maintenance, and thereby aim to reduce our vulnerability to reactive maintenance. This is in order to reduce the likelihood of failure during critical periods, and to manage outages within the company's control. Although

this risk cannot be wholly mitigated, through our assessment of the control room logs, and discussion with operational site owners, we are observing improvements in the recording of information for incidents, and reaction of field staff to address these issues.

Information from the annual outage assessment is being used by the asset planning department to assess which sites are most vulnerable, and which outages have resulted in the greatest impact on the network; and this is informing our prioritisation of future planned maintenance activities on all assets.

During the reporting year, we have been tracking a number of key outages, resulting from water quality issues at our Coombe Down and Poverty Bottom sites. There have also been some refurbishment works that they were necessarily carried out at our Cockhaise and Groombridge sites. These sites mentioned before are all part of the same water resource zone 2 (Haywards Heath) and these situations have happened within the same reporting year. We also noted that the majority of outage situations within our resource zone 6 (Maidstone) were related to our bulk supply with Southern Water being stopped. There were some outage events due to flooding at Groombridge, Tonbridge and Offham (although some sites were off for planned upgrades at the time).

Sustainability changes

We haven't had any planned sustainability changes during the 2019-20 year.

South East Water was funded to undertake 10 Restoring Sustainable Abstraction (RSA) schemes during AMP6. Maidenhead Ditch and Bewl-Darwell were Options Appraisal schemes. Itchel & Boxalls Lane Chalk was an Investigation and desk-top Options Appraisal scheme and Lasham was an Investigation only scheme. The Poynings scheme involved continued monitoring and adaptive management. Upper and Great Stour scheme was investigation and monitoring. The Darent Review and North Kent Catchment Review are schemes being investigated jointly alongside neighbouring water companies. Two scheme were planned for delivery during AMP6; Greywell and Little Stour.

Progress has continued towards ceasing abstraction at our Greywell site. Investigations in AMP5 concluded that the abstraction was having an impact on the SSSI Fen. Abstraction at Greywell will cease when this does not present an undue risk to security of supply. We are developing a surface water source in the Thames area however the potential pipeline routes to move this water to the area currently supplied by Greywell are all environmentally sensitive and the most viable option goes through a wetland SSSI. Our scientific studies are continuing to minimise the environmental impact of implementing this sustainability reduction. Because of these complications, we have agreed with the Environment Agency and Natural England that we will continue to abstract at this site until 2023 to ensure a reliable water supply for our customers in the area.

With the other 9 schemes 8 have been delivered within AMP6 and have either been signed off, closed or moved onwards to delivery in AMP7. For North Kent, a joint modelling study with Southern Water, we have developed a draft Modflow 6 groundwater model. Further refinement of this model will be required in AMP7. One of the 9 schemes, the Little Stour adaptive management scheme, being delivered by three water companies: Affinity, South East Water and Southern Water (Southern Water leading) has been delayed and will now be required to be delivered to meet a revised project scope, for the revised deadline of 31/03/2021, through the tracking process.

We have worked closely with the Environment Agency to ensure that we consider any future sustainability changes that will be required in the future in our revised WRMP19. This work is detailed in the revised WRMP19 Section 8.3.2.

Deployable output

We have continued work on two schemes during 2019-20: Coggins Mill and Forest Row.

Forest Row remains out of service but commissioning work is well advanced and the source is expected to be return to supply in 2020-21.

Work at Coggins Mill continues. A new raw main has provided some benefit of yield from the Sharnden borehole, further work is required to clean and remediate the existing onsite boreholes before a final revised deployable output is confirmed.

The 2019-20 assessment of the Security of Supply Index has taken account of the delays to Forest Row and Coggins Mill; but still demonstrate in the calculation that a supply-demand balance remains achievable through the use of current sources and existing inter-resource zone network transfers.

The Deployable Outputs of our sources are consistent with our WRMP19 Appendix 4, net of adjustments for Forest Row and Coggins Mill as discussed above.

We are currently making preparations for updating this review to support the next round of WRMP.

Existing bulk supply agreements

There have been no changes to the bulk supply agreements with neighbouring companies during the 2019-20 reporting year. We continue to work with Southern Water to review and modernise the existing bulk supply agreements and ensure they reflect current best practice. We anticipate several of our existing bulk supplies will be agreed with Southern Water using the new format in 2020-21.

Over the year, we have continued to talk to Southern Water Services about re-writing and modernising our bulk supply agreements with them.

We have also implemented preparations for the cessation of the Bewl Darwell transfer, driven by INNS regulations, in 2025.

Changes to bulk supplies planned for the future are documented in our rWRMP19 Section 9.

Other changes to our supply forecast, including any changes to assessment of impacts of climate change to supply

Our supply forecast was reviewed as part of WRMP19. This work included a reassessment of the resilience of our sources to increasingly severe drought events. No further changes have occurred during the report year.

Building this improved level of resilience into our supply forecast has ensured that we can continue to maintain our levels of service and be prepared for future droughts that may be worse than those experienced in the past.

As we prepare for the WRMP24, we are commissioning work with WRSE & HR Wallingford to update our supply forecast. Further work is planned to ensure the effects of climate change and drought on our supply and demand forecasts are robustly assessed, and data is appropriately updated and supports further enhancements to our forecasts

Our WRMP19 supply forecast is documented in the WRMP19 Appendix 4.

Demand

Overall demands were primarily impacted by a prolonged high use period responding to the warm summer; which rapidly reduced to normal year levels reflecting the mild autumn and wet winter conditions. Overall average day demand was reported at 521.50 Ml/d, compared with a dry year WRMP14 forecast of 568.80 Ml/d and a WRMP19 forecast of 522.00 Ml/d.

In preparing our WRMP19 we have undertaken a wholesale review and update of our demand forecast methodology and generating new models including population and property forecasts. No further changes have occurred during 2019-20.

The work undertaken to produce our WRMP19 demand forecast is documented in the WRMP19 Appendix 5.

Per capita consumption (PCC)

Measured household per capita consumption for a dry year average was 138.7 l/head/d, unmeasured household per capita consumption was 213.8 l/head/d and average per capita consumption 149.5 l/head/day. This compares to the WRMP19 forecast for a dry year average of measured per capita consumption 142.0 l/head/d, unmeasured per capita consumption 185.0 l/head/d and average per capita consumption 148.6 l/head/d.

In summary, average per capita consumption was slightly higher than our dry year forecast, which is reasonable given that during the summer months of 2019 (excluding the month of June) we had 76% of long term average rainfall in our supply area which would explain a slightly higher consumption than forecasted in WRMP19. We have also seen higher levels of demand towards the end of the financial year in the months of February and March with people working from home due to Covid-19. We are currently analysing this upturn in demand to see the impact on out per capita consumption compared to our WRMP19 forecasted demand forecast.

For a peak period measured household per capita consumption was 153.1 l/head/d, unmeasured household per capita consumption was 265.2 l/head/d with an average per capita consumption of 169.2 l/head/d. This compares to the WRMP19 forecast for a critical period of measured per capita consumption 190.0 l/head/d, unmeasured per capita consumption 247.0 l/head/d and average per capita consumption 197.7 l/head/d.

At the time of submitting our Annual Return, we are in the process of finalising our Annual Performance Review required by Ofwat. This includes our per capita consumption shadow reporting submission which has been independently assured as part of our quality assurance process.

The Annual Performance Report includes our compliance with the per capita consumption shadow reporting requirements (as published by Ofwat in March 2018) and summarises our plans to improve and refine consistency and compliance with the reporting requirements.

Customer Metering Programme (CMP)

In 2018/19 we completed our compulsory metering programme and achieved our aim of having 90 per cent of our household customers on a water meter (not including voids), this has seen on average a 16 to 18 per cent reduction in water used for those properties moved onto the new charges. While this has been a good result, we are now progressing our ongoing water efficiency strategy to help customers save water at home and work – we aim to reduce customer demand by a further seven per cent between 2020 and 2025.

During the 2019-20 regulatory year, we installed 963 optant meters at household properties.

Developing a water saving culture

During the year, and through our innovative smart network trial, we have continued with our focus on improving customer perception of leakage. This is often a customer perception that is heavily influenced through external media but we have continued to improve our 'In your area' messaging and specific communications with customers about leaks in their area. This will remain a high priority area for improvement but the work we have done has informed our plans in this area and enables us to track the success of future work.

As part of our smart network trail we are undertaking more detailed analysis of customer water use patterns so we can learn how different customer groups use water and tailor our future water use messaging accordingly. We plan to trial some of the messaging alongside mire detailed home water use information to our customers shortly.

More generally, we have continued to promote the importance of reducing water use amongst our customers using a range of approaches and we have increased the range of free and subsidised water saving devices we offer.

Customer satisfaction can be influenced heavily by our support to reduce usage and how customers perceive the service as good value for money and so our research and engagement with customers in this area has continued through a trial experiment of Water Use Reports with our partner Advizzo. This area forms a key part of our strategy to reduce water use during AMP7.

We continue to encourage our customers to use water wisely whatever the weather.

We do this through a variety of routes including our website, local press, attending community and education events, offering customers a range of free devices when they have a meter installed, and also through working in partnerships with other like-minded organisations.

Some examples of our work during 2019-20 include:

- Developing customer messaging throughout the year i.e. during the summer months with other water companies in our region to encourage people to use water wisely during the warm weather, and during the winter months by reminding people to check their pipework and take advantage of our free tap guard and lagging offers.
- We teamed up recently with Centrica Hive to be the first water company to trial their innovative home leak sensor device – this trial is now producing results that we are in the processes of reviewing
- During the 2019/20 year our partnership with Save Water Save Money and community engagement activities have led to customer orders for 32,886 water saving products, our ambition for AMP7 is to increase the number of free devices provided to customer closer to 100,000 per annum.

These and similar activities contribute to achieving the long term reductions in water use.

We also working in collaboration with Waterwise and other water companies to encourage water saving nationally and develop a stronger culture of water saving behaviour in the UK.

More details of these examples and others during the year can be found in our Performance, People and Planet Report for 2019-20 that will be published in July 2020.

Progress with leakage management and reductions

Leakage for the 12 months to the end of March 2020 was 86.40 Ml/d. This was lower than the leakage target for the year, included in our WRMP14 of 88.13 Ml/d and WRMP19 of 87.69 Ml/d.

The data presented here has been audited as part of our Annual Performance Reporting assurance process and is the same data as is submitted to Ofwat and used by Discover Water.

Headroom

Target headroom offsets uncertainty in the Water Resources Management Plan. For the year 2019-20 in the WRMP14, headroom was 26.75 Ml/d, compared to 32.39 Ml/d in WRMP19. No changes were made to Target Headroom during 2019-2020

Revisions to the target headroom were modelled as part of theWRMP19 process and is documented in Appendix 6A of the WRMP19 (available on our website).

As part of our preparation for WRMP24, we are reviewing methodologies used by the WRSE partnership companies to inform this process.

Options

Options selection:

A full review of feasible options has been carried out for both WRMP14 and WRMP19.

The WRMP14 options appraisal process is documented in Appendix 7 of the WRMP14 and the feasible options selected for delivery during AMP6 (2015-20) were summarised in Section 9 of WRMP14. Both are available to view on our website.

The options appraisal process for WRMP19 built on the work for WRMP14 but further developed this by proactively seeking third party options, fundamentally incorporating the Strategic Environmental Assessment into the process and utilising more sophisticated modelling techniques to select the options within the preferred plan for delivery. The details of the options appraisal and modelling process is in WRMP19 Sections 7 and 8.

When assessing which options could meet any deficit as part of the WRMP19 process, we followed a multi-stage approach that screens every option against a pre-defined set of criteria. We described the rWRMP19 process in some detail in our Annual Review 2019 report. It remained unchanged for our final published WRMP19.

The delivery of options during 2019-20:

Our WRMP14 identified several schemes to enhance supply and to reduce demand in order to achieve Security of Supply (Measured as SoSI). A summary of progress of the remaining supply schemes covered earlier in the deployable output section of this report (Coggins Mill, Forrest Row and Bray (Keleher)).

Our assessment of SoSI has made account for the status of these schemes, and we have maintained a positive supply demand balance and 100% SoSI score.

Delivering greater leakage savings than anticipated in our WRMP14 has allowed us to defer two other groundwater schemes and still maintain levels of service.

We have continued to deliver demand options to further drive down leakage levels, and promote water efficiency to our customers. Our Customer Metering Programme concluded in March 2020 with 90% of homes now metered (excluding voids) across the South East Water supply area.

Long-lead scheme investigations:

We started AMP6 considering four long lead schemes, as per our WRMP14.

- Of these, two now remain and have been carried forward as preferred options to our WRMP19 - Broadoak and Arlington Reservoirs. We continue to develop these options.
- Peacehaven effluent reuse scheme has been replaced in preference for a more ambitious demand management strategy to reduce leakage and water usage.
- Aylesford effluent reuse scheme has been replaced by the Aylesford Newsprint scheme. This site has now been purchased, and we are finalising the transfers of licences to ourselves with EA.

Both effluent reuse schemes, although no longer preferred options in our WRMP19, remain as alternative schemes and will be considered and developed further as part of our planning for WRMP24.

Aylesford Newsprint groundwater scheme:

Work is already underway to develop a major new groundwater scheme on the former Aylesford Newsprint site, near Maidstone, this is due for completion in 2024. This scheme involves the purchase of existing abstraction licences for the boreholes and stream and the construction of a new water treatment works, and infrastructure to deliver a yield of 18.2 Ml/d into our WRZ6 (Maidstone). During 2019-20, due diligence assessments for the land purchase have been completed and terms of purchase agreed with the sellers. A high level process design solution has been developed for the proposed treatment works and gap analysis has been completed for the yield sustainability studies, along with the first ecological baseline assessment.

Woodgarston Catchment Management:

During 2019-20, we engaged agricultural stakeholders in the Woodgarston catchment. A targeted catchment management scheme focused upon communication with landowners and nitrate use in field systems, which is considered to be the largest contributor in the catchment for nitrates found in the groundwater, in addition to small discharges (septic tank/cess pit) to groundwater, where applicable. On the ground advice around Nitrate Vulnerable Zone Regulations and best nutrient management practices was undertaken using catchment advisors. We also piloted trials on cover crops, and its ability to retain nitrates at ground level,

aiding in a reduction in nitrate leaching to groundwater. Research has also been undertaken to investigate alternative markets for agricultural enterprises in the catchment, with the aim of reducing high nutrient demand agricultural products.

Shadow Reporting of Leakage and PCC

Compliance with leakage consistency reporting requirements

The industry guidance, Consistency of Reporting Performance Measures (UKWIR 2017) recommends a consistent approach to the assessment of data and the estimation of leakage levels. This guidance was incorporated into the PR19 planning guidance by Ofwat for AMP7 reporting of leakage and per capita consumption. Its key aim is to provide a level playing field for regulatory comparison of leakage levels between companies. During 2019-20 we have made significant progress and have made a number of data and methodology improvements to ensure we are compliant.

Of the sixteen components that are assessed in terms of red/amber/green we are green for nine of the components, amber for six and red for one of the components. The changes are not material in the context of demand overall and the shift to the new methodology may result in some change between leakage and consumption, but will have a negligible impact on overall demand. Whilst a number of the bottom up leakage components were updated in 2019-20, the resultant water balance gap was above 3% therefore this resulted in the red component for the water balance. As a result, the top down volume components have been marked as amber, as the intention is to carry out a full review of all the top down components in 2020-21 before the first reporting year under the new methodology

Figure 5: Update on progress towards compliance with consistent reporting methodology

Component	2017-18 Component R/A/G	2018-19 Component R/A/G	2019-20 Component R/A/G
1 Coverage	G	G	G
2 Availability	G	G	G
3 Properties	G	G	G
4 Night flow period and analysis	R	A	G
5 Household night use	A	A	G
6 Non household night use	R	R	A
7 Hour to day conversion	A	A	G
8 Annual distribution leakage	R	R	G
9 Trunk main	G	G	G
10 Service reservoir losses	G	G	G
11 Distribution input	R	R	A
12 Measured consumption	A	A	A

13 Unmeasured consumption	A	A	A
14 Company own water use	G	G	A
15 Other water use	G	G	A
16 Water balance and MLE	A	G	R

Any changes in reported leakage are not material in terms of distribution input and therefore the impact on our WRMP19 plan of these changes is considered negligible and is not material.

Post MLE total leakage for the year, for shadow reporting, was an increase of 9.2% compared the current reporting methodology. Further changes and refinements are expected in the following year, to close the water balance gap, therefore there may be some movement in this that will require back casting."

Compliance with per capita consumption reporting guidance

During 2019-20 we have looked at Per Capita Consumption using the new shadow reporting guidance to produce a PCC value in line with Ofwat's methodology. Using this new method we have seen a 6% decrease in comparison with the previous methodology. PCC under the new reporting guidance is 140 l/head/day, however noting that the shadow water balance gap is currently around 3.5%. We expect to carry out some further work on the water balance during the next year, and any material changes may then result in back casting, and the current shadow reporting estimate may therefore change. The reporting guidance is however likely to see an increase in leakage, and reduction in PCC. We will liaise with the EA over the course of the following year and will set out a more detailed breakdown of the methodology changes when this becomes the formal regulatory reporting mechanism for 2020/21.

We will continue monitoring the new methodology on a regular basis and will aim to transition throughout the year to this reporting measure in order to obtain an accurate representation of our current demand levels across our supply area.

Progress on suggestions made in response to last year's annual review

Following our 2019 Annual Review, the Environment Agency made two recommended improvements. These are shown in Figure 6. We have taken on board this feedback. In this section will show our responses to each recommendation and how we have built upon it to progress and to improve this 2019/20 Annual Review process.

Figure 6: 2019 Annual Review recommendations from the Environment Agency.

Significant issue and action(s)	**Recommended water company progress to be demonstrated at the next annual review**
No Significant issues	
Environment Agency recommended improvements	**Recommended water company progress to be demonstrated at the next annual review**
Total leakage and leakage at a zonal level (update on 2017 annual review issue) South East Water (SEW) has reported total leakage at the company level below what its WRMP14 plan (87 Ml/d against 89 Ml/d). While four resource zones have outturn figures which are above their leakage forecasts for the 2014 WRMP, these are all below the planned levels in the 2019 WRMP. The company has dealt with the issues raised in last year's annual review and has invested heavily in improvements to its leakage monitoring systems and as a result, now better understands its zonal level leakage.	We will continue to work with South East Water over the coming year ahead of the next annual review.
PCC The company's average household PCC is well below forecast at 152 l/h/d (forecast 159 l/h/d), and just above the WRMP19 baseline forecast of 150 l/h/d.	We will continue to work with South East Water over the coming year ahead of the next annual review.

We have continued to work with the EA throughout the course of the year with regular calls and meetings, and will continue to do so over the course of the next year, particularly in relation to the shift between the current and new reporting methodology.

Total leakage and leakage at zonal level

Since WRMP14 publication, we have invested heavily in improvements to our leakage monitoring systems. As a result, we now understand our zonal level leakage better that during the development of WRMP14, and this is the main reason for the changes since the WRMP14 forecast.

Defra's Guiding Principles require that "the downward trend for leakage continue and you must consider leakage management fully as an option to balance supply and demand. We expect you to ensure that total leakage does not rise at any point in the planning period." We are fully compliant with this requirement and have in place robust leakage management measures for all zones.

The transition to the new reporting guidance for leakage and per capita consumption and shadow reporting for the year, highlights the requirement to carry out further work to close the water balance gap, as the new reporting guidance RAG assessment scores the water balance gap red if outside the plus or minus three percent range. Whilst this process will be concerned at resolving this companywide gap, effort is likely to be focused on particular resource zones. Further information is provided in the shadow reporting section of this document.

Per Capita Consumption

In terms of South East Water's Per Capita Consumption we have seen a decrease on our average PCC figure compared to the previous year as we have also continued working with the EA during this year with regular meetings and calls providing updates on our demand situation.

We have also looked at PCC using the new shadow reporting methodology where more information is provided in the shadow reporting section.

Data table

The Reporting data tables are contained as Appendix A to this report.

Forward look

During 2020-21, we will start on the delivery of our AMP7 programme supporting WRMP19.

We will continue to work with the Environment Agency throughout the year and find our open dialogue both with our key contacts at the regional and national levels a positive and constructive way of ensuring we have a shared understanding of the challenges, opportunities and specifics of our sources and supply area.

We are committed to and engaged with the work programme being developed during 2020-21 for the WRSE group.

Drought Plan

We have a duty to prepare and maintain a drought plan under Sections 39B and 39C of the Water Industry Act 1991, as amended by the Water Act 2003 and in accordance with the Drought Plan Regulations 2005 the Drought Plan Direction 2020.

A new regulatory Guideline was published in April 2020. In compliance with this Guideline, we will produce a revised Drought Plan to be published before 1 April 2021. This will link closely to both our WRMP24 and regional water resources plans.

Our current drought plan (published May 2019) will remain valid until a new final drought plan has been published. Usually Drought Plans need revising and re-consulting on every 5 years but the recent guidance from Defra brings forward this timing.

In the Drought Plan Guideline, the Government specifically requests that the biggest change they want is for, '*drought plans that are clear and easy to follow so that customers and stakeholders can understand the decisions you make in a drought.'* With this in mind, we are keeping this as a central objective and focus in approaching the development of our upcoming drought plan.

In addition, in order to fully comply with the requirements of the drought Guideline, we see the following points as being the key changes between the current and upcoming iterations of the Drought Plan.

- Much greater integration and shared technical basis with the WRMP process – the WRMP will determine the type of droughts our supply system is particularly vulnerable to and the preferred solutions to address demand shortfalls in these drought scenarios.
- Focus on being an **operational tactical manual** of actions taken in sequence driven by specified trigger points (categorised levels 1-4) designed to limit impact on customers and the environment (demand options first before supply and to prioritise least environmentally damaging options)
- Include extreme drought management options to **delay or remove the need for level 4 restrictions** (including rota cuts and stand pipes) to no more than once every 500 years on average.
- Greater emphasis on cross sector and regional **communication and collaboration.**

- **Pro-active 'application-ready'** approach - including details of permits and orders.
- Environmental assessment and environmental monitoring plan for each supply side actions in the drought plan, including any mitigation measures planned.

We have already started discussions with the Environment Agency and other stakeholders in the development of our upcoming drought plan.

WRSE and Regional Work

As part of our preparation for WRMP24, we are already collaborating in an integrated way with the WRSE regional group to develop processes and methodologies that will allow us to achieve the requirements of the National Framework to produce a single regional plan that builds resilience to a range of uncertainties and future scenarios. Our regional resilience plan will deliver a set of options that present the best value to customers, society and the environment, rather than simply least cost. These options will feed directly into our WRMP24 preferred plan.

The ambition of the WRSE regional group for WRMP24 will be to identify and develop options that can drive a step change in water resource planning, these will focus around options that can:

- increase resilience to drought
- deliver greater environmental improvement
- achieve long-term reductions in water usage
- achieve significant leakage reduction
- reduce the use of drought permits and orders
- increase supplies
- move water to where it's needed

Covid-19 Impact

Early signs are that that water demand patterns have been markedly affected and altered by Covid-19. Our early work looking at the impacts of the lockdown in March 2020 indicated household demand has increased by up to 15%; non-household demand has reduced by between 30% and 40%; and that the net effect on distribution input has been an increase in demand of at least 3% i.e. greater than the difference built into our demand forecast between a normal year and a dry year in our WRMP19.

Generally household water demand has increased with the increase in people working from home and the increase in people having to stay at home and unable to travel abroad. We have commissioned Artesia to undertake some further analysis of the Covid-19 impacts that we will share with regulators and the industry in autumn 2020, and will include in our annual return for 2020-21.

In response to Covid-19 we are continuing to communicate the impacts on demand and provide water saving messages to our customers, while being sensitive to the situation and the important role water use must play in combating Covid-19, and supporting wellbeing at home.

Delivery of WRMP19 Options

Supply Side Options

The table below sets out our WRMP19 preferred plan supply side options for the period 2020 to 2025:

WRMP19 Reference				WRMP19 Option Title	1:200 Yield	Yield Available*
SEW	RZ6	NGW	44	Aylesford Newsprint - use of existing groundwater sources	18.2Ml/d	2023
SEW	RZ4	CGW	2	Catchment Management Interventions at Woodgarston	3.0Ml/d	2035
SEW	RZ3	WTW	29	Bewl WTW expansion and transfer to Hazards Green	8.0Ml/d	2025

*Note: This is yield available date as included in our final WRMP19. Actual completion dates for schemes may change to fit our AMP7 delivery programme.

During 2020-21, work will continue to develop a major new groundwater scheme on the former Aylesford Newsprint site, near Maidstone, this is due for completion in 2024. The key activities planned for commencement this year are:

- Legal fees and licence transfer
- Site Security and Maintenance
- Borehole condition surveys
- Groundwater monitoring works
- Project delivery and procurement activities
- Surface water monitoring works
- Yield sustainability study
- Groundwater model development
- Design development
- Yield pump testing

From 2020-21 we will continue our targeted catchment management in the Woodgarston area, it is hoped that this will help reduce nitrate seasonal peaks and improve raw water quality in the longer term, allowing us to retain our current yield of 3.0 Ml/d without the need for the future renewal of our new nitrate removal plant at Woodgarston WTW when it reaches the end of its life in around 2035.

By September 2020, it is envisaged that we will have fully developed and started to implement the programme of work to replace the existing Bewl-Darwell bulk supply scheme and remedy the existing INNS risk that the current bulk supply presents. The work programme during 2020-21 will start work to improve our existing water treatment works at Bewl (to abstract and deliver an additional 8.0 Ml/d) alongside network improvements necessary to support demand where it is needed.

Demand Management

During 2020-21 we will implement the first stage of our AMP7 water efficiency strategy aimed at achieving our performance commitment measure of reducing PCC by 1.1% (3 year average) by the end of the year. The table below describes the activities we are planning to implement during 2020-21:

Activity	Activity type	Planned volume by end of 2020-21
Behavioural Report	Behavioural	800,000 properties
Free water devices	Water Devices	130,000 issued
New home packs and devices	Water Devices	4,800 issued
Leaky loo strips	Water Devices	200,000 issues
Efficiency audits	Efficiency Audit	(small volume)

We are progressing with a range of leakage management options. We will provide updates on progress to the Environment Agency though year as our normal progress meetings