



Scottish Water
Trusted to serve Scotland

Delivery Plan 2015 to 2021



Trusted to care for the water
on which Scotland depends

Delivery Plan Update 2019
March 2019

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Overview

This update to our Delivery Plan is submitted to Scottish Ministers for approval. It highlights those areas where the content of our original Delivery Plan for the 2015-21 period, and the updates provided subsequently, have been revised.

We have taken the opportunity to set out key highlights of the year so far and to confirm our investment plans as agreed with the Output Monitoring Group to improve drinking water quality, protect and enhance the environment and support economic development.

Key highlights

In our 2015 Delivery Plan we stated that we are determined to deliver significant further improvements for our customers and out-perform our commitments. As we conclude the fourth year of the 2015-21 period, we have overcome severe winter weather and summer drought to continue to achieve this aim.

Key highlights of our year so far include:

- Maintained clear fresh drinking water to our customers despite a demand increase of up to 30% through the hottest, driest, summer for over 25 years;
- We have driven improvements in the level of service and experience to our household and non-household customers;
- We are maintaining momentum in our investment delivery with more than three quarters of our programme started on site. Since April 2015 we have delivered over £2 billion of investment and are investing, on average, over £50 million a month. As a result, our Overall Measure of Delivery score at the end of December 2018 is 174 so we are confident of outperforming our Delivery Plan year-end target of 175 points;
- During 2018 we completed the award winning 5 kilometre-long Shieldhall waste water tunnel, part of the biggest upgrade of Glasgow's waste water network in more than a century;
- The water quality we delivered to our customers' taps in 2018 continued to outperform our Delivery Plan target. However, despite our intense focus on water quality improvement initiatives and delivery of key investment projects, our overall level of regulatory compliance has dipped from last year, in part due to the impact of the weather conditions challenging the capability of our assets;
- We have delivered further reductions in leakage during 2018/19, by deploying additional resources to overcome the extreme winter and summer weather in 2018, and expect to continue to out-perform the target level set in the Final Determination for the end of the regulatory period;
- We launched our Your Water Your Life campaign to encourage Scots to 'top up from the tap' and appreciate Scotland's tap water. This includes the roll-out of a network of public Top up Taps across Scotland;

- We signed a Sustainable Growth Agreement with SEPA in June 2018 to explore managing rainwater more sustainably, maximising the recovery of resources from Scotland's sewage and making investment choices that protect the water environment and minimise energy and resource use;
- We have joined with SEPA, Scottish Government and Local Authorities to form the Edinburgh and Lothians Strategic Drainage Partnership to develop innovative and integrated solutions to manage rainwater, flooding, flood risk and growth;
- We have maintained our support for new housing and economic growth across the length and breadth of Scotland. In the first 4 years of this regulatory period we will have connected over 83,000 new properties to our network against our 2018 Delivery Plan expectation of 79,700;
- We have continued to reduce our carbon footprint per household from 115 (kg CO₂e) in 2014/15 to 88 (kg CO₂e) in 2017/18, with a forecast of 76 (kg CO₂e) for 2018/19;
- Through our financial planning and innovation, we are continuing to outperform the challenging financial limits set out in the Final Determination 2014. We are forecasting a closing cash balance for this period in the range of £60m to £160m once allowance is made to complete the SR15 financed investment;
- As part of our SR21 programme, we have completed our largest ever public engagement programme with our 'Shaping the Future' consultation. We are now actively engaging with stakeholders in the co-creation of our strategic plan for the 2021-27 period;
- We have acquired the PFI waste water treatment companies serving Fraserburgh, Peterhead, Aberdeen and Stonehaven.

As we look towards the end of the regulatory period, we are identifying investment projects that, while financed during SR15, will be completed in the early part of the SR21 period, as well as opportunities to commence SR21 investment in the latter part of the SR15 period. We have set out the financial impact of these in our updated forecasts in the Financing our Services section.

Charge levels for 2019/20 will rise by 1.6% for household customers. The financial forecasts in this update assume charge increases in line with the Final Determination of CPI minus 1.8% over the regulatory period. During 2019 we will explore with stakeholders the merit of smoothing charge levels into the next regulatory period.

1. Delivering for our Customers

Our plan has been established to ensure that we maintain the high service levels that we have been delivering and further improve services in those areas identified as a priority by our customers. Here we set out updates on our key high level customer service metrics.

Customer Experience Measure (CEM)

We are achieving year on year improvements in the service and experience that we deliver to our household customers as measured by our household customer experience measure shown below;



As part of this improvement we have driven down customer complaints by 45% since 2015.

This is the first year of setting a target to improve the service and experience we deliver to our non-household customers. At December 2018 we have significantly improved our service, achieving a score of 80.5 against our target of 77.5.

Customer Trust

We are pleased that the water industry in Scotland is consistently the most trusted sector among Scottish consumers as recognised by the “Which?” Consumer Insight Tracker (September 2018).

We also continue to benchmark our level of service through the Institute of Customer Service’s UK Customer Satisfaction Index (UKCSI) survey to understand customers perceptions of our service experience compared to other services in Scotland. At January 2019 we continue to be ranked as one of the leading utility providers and are above the overall Scottish average.

Retail Market Developments

We have continued to refine our wholesale service, with further releases of our Ascend customer experience programme having delivered a more efficient, responsive and automated service to licensed providers. Service levels to

licensed providers have continued at a high level, with 97% of requests to December processed on time, above our target of 95%.

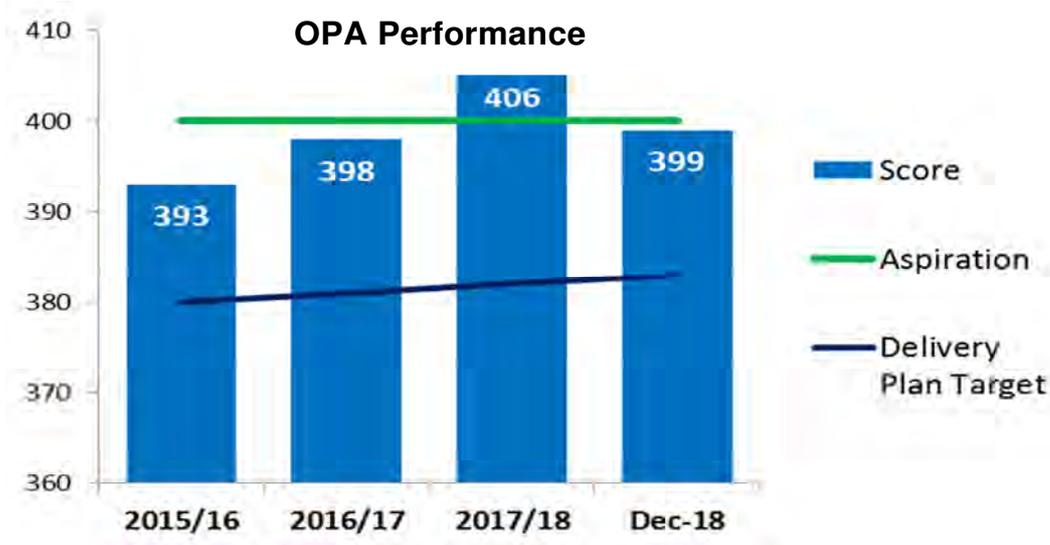
The rateable value used in the calculation of some elements of the water and waste water charges for business customers has been aligned with the current values used for business rates since April 2018. The changes are being phased in over 3 years, April 2018 to April 2020.

Overall Performance Assessment (OPA)



In our 2015 Delivery Plan we set out our plan to achieve an OPA score at, or above, the threshold for leading water and waste water companies, (380 points in 2015/16 rising to 385 points by 2020/21), and our aspiration to be best in class, achieving an equivalent OPA score at, or above, 400 points. We

are again on track to significantly exceed our 2015 Delivery Plan OPA target as shown in the graph below.



“Your Water Your Life” and Community engagement

This year we have launched our Your Water Your Life campaign. This campaign, which includes an investment in TV advertising, aims to increase customers’ appreciation of Scotland’s tap water and also reduce the use of single-use plastic bottles. Ongoing customer surveys show the campaign is successfully engaging people on both objectives.

Also key to building stronger relationships with customers and communities is the engagement we do when undertaking capital investment works. Despite the disruption this can cause in a community, open communication and discussion is helping to build trust in Scottish Water. Community surveys show that communities which have experienced capital investment projects, even with the associated inconvenience and disruption, trust Scottish Water as much, and in some cases more, than the general population.

Case study – Strathpeffer main sewer renewal

A £500,000 project to renew a section of the main sewer in central Strathpeffer required the closure of a main road for several weeks. Early engagement with local businesses and the community council took place to identify the most appropriate time to carry out the work, avoiding Christmas, the busy tourist season and the annual Strathpeffer cycle event.



We also worked closely with the local primary school to identify routes for the school children to be brought safely into the school during the road closure.

Following the completion of this project, Scottish Water’s overall trust score from local residents and businesses was 100%.

2. Delivering our investment programme

Our investment programme is progressing well, delivering both the maintenance and improvements required to our assets to fulfil Ministers' objectives for improvements in drinking water quality and the environment, and to support growth in the Scottish economy. Key points to note include:

- We are maintaining momentum in our investment delivery with nearly three quarters of our programme started on site;
- Since April 2015 we have delivered over £2 billion of investment and are investing on average over £50 million a month. As a result, our Overall Measure of Delivery score at the end of December 2018 is 174 so we are confident of outperforming our Delivery Plan year-end target of 175 points;
- While all projects are moving forward, inevitably, given the size of the programme, there are a small number of projects for which challenges to delivery are emerging and these are being closely managed. We report on the delivery of 23 separate programme areas. 18 of these are being delivered on or ahead of our planned target for the year. Of the remaining 5 programmes, one (Number of improvements to meet the Water Framework Directive) will not achieve the required target by year end as a consequence of our decision to retain Amlaird WTW to support resilience whilst the Ayrshire Resilience scheme is being completed. A further 4 programme areas are considered to be at risk of not achieving the required target at year end and these are being closely managed;
- We continue to make good progress in delivering the remaining projects from the 2010-15 period. At December 2018, we have completed 34 projects leaving only 3 remaining, all of which are in construction.

Overall Measure of Delivery (OMD)

The Water Industry Commission for Scotland introduced the Overall Measure of Delivery (OMD) as a single objective indicator of overall performance in delivering Ministers' objectives. We have updated our OMD profile to reflect the changes agreed by the Output Monitoring Group. This results in a proposed target for 2019/20 of 209 rather than the 210 points set out in our 2018 Delivery Plan update.

3. Providing continuous high quality drinking water

In this section we set out our highlights so far in 2018/19 and the changes we are proposing to our 2018 Delivery Plan for providing our customers with a safe and reliable supply of drinking water.

Key highlights

Maintaining Supplies

Despite the extremes of weather experienced in Scotland over the course of 2018, through effective emergency planning and incident management, we minimised the disruption to customers' water supplies.

The weather extremes resulted in a significant increase in burst pipes; peaking at around 900 bursts a month, well above our normal average of around 700. However through increasing water treatment output, network reconfiguration, tankering, pro-active management, and customer engagement, customer impact was minimised.

Over the summer of 2018, Scotland experienced the driest six month period since 1995. During the hottest periods demand increased by as much as 30% in some areas and water resource stocks fell well below average across Scotland. To meet this challenge a substantial 'incident team' was established to ensure the impact on customers was minimised. Steps taken included:

- Deploying drought plans over 30 water supply systems;
- Supplementing supplies via cross country overland pumping and tankers;
- Installing temporary generators to power transfer pumps across areas of the country including from Falkirk into Fife across the Kincardine Bridge;
- Tankering to support more isolated areas. One of the biggest tanker operations was carried out in Arran where we added three quarters of a million litres into the network;
- Requesting customers to use water wisely in the areas where water source levels were the most significantly affected; and
- Repurposing storage tanks and revising water supply networks to serve additional customer groups where their private water supplies dried up.

Improving drinking water quality

The water quality delivered to our customers' taps in 2018, at 99.898%, continues to outperform levels delivered in previous regulatory periods. However, despite our intense focus on water quality initiatives and delivery of key investment projects, this is a slight reduction from last year.

Over 2018 we have increased our focus and understanding of the causes of failures at service reservoirs and taking actions to resolve issues. Over the last year our activities have included proactive cleaning and inspection and simple and complex repairs such as to leaking hatches, upstands and wall head joints at over 147 sites. In 2019 our focus will continue to be on inspections and rapid repairs along with the installation of bypasses to allow inspection, cleaning and repairs.

Our key investment projects included completing the installation in April 2018 of chloramination at our Bradan water treatment works in Ayrshire which serves over 200,000 customers and achieving water into supply at our new water treatment works at Tullich in November, which supplies Oban and the surrounding area.

Improving Drinking Water Resilience

The Ayrshire Strategic Resilience Scheme launched by Ministers in December 2015 will provide improved water supply resilience to around 85,000 properties in 4 water operational areas: Bradan, South Moorhouse, Corsehouse and Amlaird. The first phase of the work is already in operation and has allowed the closure of South Moorhouse and Corsehouse water treatment works. The second phase – the Highlees project – which includes the construction of a new pumping station and will complete the link between the Bradan and Milngavie Water Treatment Work systems, is nearing completion. Development of phase 3 - to augment supply available across the City of Glasgow - has identified an alternative option to building a new main. This alternative option involves the reconfiguration of, and localised improvements to, three trunk mains and the building of a new pumping station. If feasible, it will be lower cost than the original proposal and could significantly reduce any disruption during the construction works. The feasibility of this alternative option is being tested through further hydraulic investigations and stakeholder engagement to secure the required land. The forecast costs of the investment programme are based upon this alternative option being progressed.

Construction work is under way on the South Edinburgh Resilience project. This strategic investment was outlined in concept in our Business Plan for 2015-2021. When complete, it will provide improved water supply resilience for customers normally supplied by Marchbank and Glencorse water treatment works.

In addition, we are developing proposals that would continue to improve the resilience of supplies for communities across Scotland, as part of our IR18 programme. These proposals will be arranged to benefit customers living in Dundee, Perth, and Stirling, in East Lothian, along the Moray Coast, and to the north of the Clyde estuary. Outline designs will be prepared for each candidate intervention, and their further development will be dependent upon the prioritisation decisions for the SR21 and subsequent investment programmes.

Leakage

Our leakage level continues to be significantly below the 575 MI/d minimum service level for the SR15 period. We have achieved the leakage incentive level set for the end of SR15 in each year of the period.



The harsh winter and dry summer has made 2018 particularly challenging. To respond to the winter challenge we developed and implemented a Leakage Recovery Plan, which was escalated to ‘incident status’ over the summer. The plan included additional resources deployed in finding and fixing leaks across Scotland, pressure management and removal of pressure transients. We will continue to target leakage over the remainder of the regulatory period where it is cost effective to do so.

Water Efficiency

The Water Efficiency Trial has now completed its data collection phase and early indications from the data analysis suggest that giving advice and water saving devices can be an effective way to reduce household water consumption, particularly in water stressed or high cost to serve areas.

We continue to work in partnership with the Energy Saving Trust to deliver our water saving packs in priority areas across Scotland, to help customers understand the link between saving water, saving energy and saving money on energy bills. We will develop our proposed strategy and next steps through the SR21 Co-creation process.

Drinking water quality programme delivery profile

We set out below our planned delivery profile of drinking water outputs for those programme areas that have altered as a result of Technical Expression changes approved by the Output Monitoring Group since our 2018 Delivery Plan.

	Programme area		2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Post 2024
2	Number of water supply zones made compliant with iron and manganese standards	Current	33	53	66	79			
		Previous	35	63	78	88	92		
5	Length of distribution mains cleaned	Current	364	1,976	4,255	6,647	6,822		
		Previous	364	2,142	5,703	6,647	6,822		
9	Number of water quality studies to prepare for future investment periods	Current	223	283	351	362	362	368	
		Previous	227	299	362	367	368	370	

Table 1: Drinking water quality programme – cumulative outputs profile

Technical Expression changes approved during the year are set out below and included in the table above:

- Number of water supply zones made compliant with iron and manganese standards reduced from 92 to 79 outputs due to reprioritisation of programme (SR15-069 removal of 14 and addition of 4, SR15-076 removal of 5 and addition of 2)
- The length of distribution mains cleaned programme is being reprofiled following the reprioritisation of the programme (SR15-070); the addition of a further 550 Km over 5 zones and the removal of 450 Km to offset the investment in an additional Lead pipe removal pilot and Strategic lead sampling programme (SR15-079 and SR15-080)
- Number of water quality studies to prepare for future investment periods (SR15-074 Drought Planning; changes to Regional Drought Plans – removal of 4 and addition of 2)

4. Protecting and enhancing the environment

We set out in this section our highlights so far in 2018/19 to protect and enhance the environment and the changes we are proposing to our 2018 Delivery Plan.

Key highlights

Urban Waste Water Treatment Directive - Strategic Glasgow Sewerage Scheme

During 2018/19 we completed the 5 kilometre-long Shieldhall storm water tunnel in the south of Glasgow, a key part of the partnership programme to transform the management of rainfall in the city and the largest investment in the sewer network since Victorian times. This project has received two major accolades over the last year; The Infrastructure Award at the 2018 Saltire Awards and a prize from the Chartered Institution of Water and Environmental Management.

We are progressing with improvements to another part of the city's waste water network through our work on the new Paisley tunnel, which is on track for completion in 2019.

Reducing flooding and pollution from sewers

Reducing internal flooding from sewers is one of our customers' highest priorities. We have made good progress against our commitment to address internal sewer flooding for customers at highest risk with 83 properties removed from the internal sewer flooding register by December 2018.

In August 2018, we completed the Haymarket Terrace project in Edinburgh to reduce the risk of sewer flooding to 6 properties. Here we upgraded the brick Victorian sewer, which was at capacity, with a new 1.2 metre diameter sewer. The project was planned in detail with the City of Edinburgh Council to minimise traffic and business disruption. In December 2018 we completed the Oak Mall project in Greenock where we have invested to reduce the risk of internal and external sewer flooding to 69 business properties and surrounding streets.

By 2021 we aim to have fewer than 300 properties on our internal sewer flooding register but this outcome will be dependent upon the rate of emerging properties over the remainder of this regulatory period.

Bathing Waters

We continue to partner with SEPA to manage impacts on bathing waters where we have evidence that our assets could impact on water quality. The projects to improve bathing waters being progressed are:

- Kinghorn Harbour: our work to eliminate the impact from the sewer at Bleaching Hill CSO was completed in September 2018;
- Fisherrow and Portobello West: detailed investigation work continued over 2018. As new evidence became available we worked and agreed with stakeholders to carry out changes to our network to reduce spills from Nantwich Drive CSO in spring 2019 and install monitoring equipment to help predict when bathing water impacts are occurring;
- We have joined with SEPA, Scottish Government and local authorities to form the Edinburgh and Lothians Strategic Drainage Partnership to develop innovative and integrated solutions to manage rainwater, flooding, flood risk and growth across the region; and
- Ayrshire Bathing Waters: detailed investigation work continued over 2018 as our study made new evidence available. We have worked with stakeholders to agree which detailed intervention options will be developed during 2019. The timescales for delivery will be dependent on the preferred option identified.

Sustainable Innovation:

Scottish Water and SEPA signed a Sustainable Growth Agreement in June 2018 committing the two organisations to work in partnership to develop, trial and seek to deliver innovative ways of:

- Managing rainwater and waste water drainage to help protect the social, economic and environmental wellbeing of Scotland's towns and cities in a changing climate.
- Maximising the recovery of resources from Scotland's sewage and cycling them back into a circular economy.
- Making choices about how to invest in protecting the quality of Scotland's water environment that minimise energy and resource use and maximise social and economic benefit now and for the future.

These initiatives aim to identify practical measures that can be implemented straightaway in day-to-day decision-making, as well as piloting more sustainable business and regulatory practices to be rolled out in SR21.

Environment programme - delivery profile

We set out below our planned delivery profile of environmental outputs for those programme areas that have altered as a result of Technical Expression changes approved by the Output Monitoring Group.

	Programme area		2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Post 2024
1	Number of improvements delivered to meet UWWTD – above ground works	Current	21	23	26	26	26	26	27
		Previous	20	22	25	25	25	25	26
2	Reservoirs Act: number of improvements to dams	Current	23	36	54				
		Previous	24	37	55				

Table 2: Environment programme – cumulative outputs profile

Technical Expression changes approved during the year are set out below and included in the table above:

- Number of improvements delivered to meet UWWTD – above ground works (SR15-075 Addition of Coursington Temporary Phosphorus Treatment)
- Reservoirs Act: number of improvements to dams (SR15-084 Removal of Craigdow Reservoir)

5. Supporting Scotland's economy and communities

We set out in this section our highlights so far in 2018/19 and the changes we are proposing to our 2018 Delivery Plan.

Key highlights

Supporting economic development

We continue to support new housing and economic development across the length and breadth of Scotland. In the first 4 years of this regulatory period we will have connected over 83,000 new properties to our water network against our Delivery Plan expectation of 79,700.

We are constantly seeking ways to improve the level of service we provide to developers. Our current improvement plan includes:

- Customer self-management portal – will enable developer customers to manage their application via a portal thus providing improved visibility, timeframes and ultimately customer experience;
- Introduction of a remote “track” inspection application – will give customers the ability to submit photos via the application which will reduce timescales for the approval of supply pipe installations from five business day to four hours.

Glasgow's Smart Canal

Through a partnership of Glasgow City Council, Scottish Canals and Scottish Water under the umbrella of the Metropolitan Glasgow Strategic Drainage Partnership construction of Europe's first ever 'smart canal' has commenced. With sewer networks reaching design capacity across North Glasgow, fresh ideas for surface water management were needed to unlock future development potential. The project will use sensors, predictive weather technology and active management of the canal to lower water levels, creating space for surface water run-off. This pioneering project will unlock 110 hectares across the north of the city for investment, regeneration and development, paving the way for more than 3000 new homes.

Asset Vesting

We launched our Project Vesting Cycle in July 2015 to bring water and sewerage assets built by developers into Scottish Water ownership and to improve our processes in this area. In December 2018 we reached a key milestone having vested 1,900 assets.

Over the next two years our focus is to continue improving our engagement with 1000+ developers, and to accelerate the current rate of vesting to ensure that by the end of 2020 all acceptable assets have been vested.

Energy programme

Through our core renewable energy generation and the hosting of large scale wind projects on our land, we now generate and host renewable generation over twice our annual electricity consumption.

By the end of December 2018, we delivered a further 3.3GWh of renewables and energy efficiency projects and by Summer 2019 we are aiming to achieve our 2021 target of 17.5GWh.

Research and Innovation

Innovation is a key enabler for delivering a sustainable high quality affordable service for our customers and we have a track record of delivering performance improvements across all aspects of our business. As demonstrated in our Annual Innovation Reports, we have an active research and development programme working to accelerate the adoption of new technologies and to embed innovation as a core capability across the business.

Key highlights since our 2017 Innovation report are:

- Sustainable rural communities: We launched a CanDo Open Innovation Challenge with Scottish Enterprise to source new ways to address high levels of organics in rural raw waters. Phase 1 of this project will run to March 2019 with 5 companies involved.
- We have commenced pilot trials to evaluate a new microbial intensification process, "Microvi", at our Bo'ness wastewater development centre. This process has the potential to increase the processing capacity of wastewater treatment works and thereby accommodate further housing growth if there is no hydraulic restriction within a works. It also has the potential to improve effluent quality while minimising environmental impacts. The trial will run for 6 months from December.
- As part of an EU funded project we will be installing a pilot plant at Littlemill WWTW in Nairnshire. This pilot wastewater unit utilises nature based systems (earthworms, zooplankton and microalgae) to treat the wastewater. If successful, this has the potential to provide sustainable wastewater treatment for small systems.
- We concluded a pilot trial of ceramic membranes and ion exchange treatment for the removal of natural organics. The output of this work is informing investment decisions for treatment works in our current programme to address disinfection by-products.

Peat Restoration

We have now completed three restoration phases on the land around Sandy Loch, near Lerwick, Shetland, the last of which was completed at the end of December 2018. The land around the loch consists of large areas of eroding peat in particularly poor condition. This resulted in high levels of natural organic matter in our source water, which needed to be removed through the treatment process. Working closely with land owners, the Shetland Amenity Trust and Scottish Natural Heritage we provided a solution that delivered improved water quality to the treatment works, but also significant environmental benefits.

We have undertaken peat restoration in several of our other drinking water catchments including co-funded restoration taking place on the Moss of Kinmundy, in the Ugie catchment in Aberdeenshire. To achieve this we have worked with local communities, Scottish Natural Heritage and Ugie Peatland Partnership, a cross agency body that we chair.

Supporting economic development - delivery profile

Below we set out our planned delivery profile of outputs for those programme areas that have altered as a result of changes through the IR18 process or approved by the Output Monitoring Group.

	Programme area		2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Post 2024
4	Number of vulnerability assessments and monitoring improvements to support climate change mitigation and reduction	Current	57	95	110	123			
		Previous	57	94	109	122			

Table 3: Supporting economic development programme – cumulative outputs profile

Technical Expression changes approved during the year are set out below and included in the table above:

- Number of vulnerability assessments and monitoring improvements to support climate change mitigation and reduction (SR15-077 Climate Change Trend Monitoring A Wastewater Catchment – revision to modelling from 7 to 12)
- Number of vulnerability assessments and monitoring improvements to support climate change mitigation and reduction (SR15-082 Climate Change Trend Monitoring B Corrosion and Sulphide – removal of 4 outputs)

6. Financing our services

The main changes reflected in this update to our Delivery Plan are:

- inclusion of the audited actual results for 2017/18;
- updated forecasts for 2018/19 and 2019 to 2021;
- revised delivery profile and costs for the investment programme; and
- customer charges to be applied in 2019/20.

The key assumptions underpinning our financial projections are that:

Inflation	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
CPI Inflation applied to prices	1.3%	-0.1%	0.9%	3.0%	2.4%	2.3%*
RPI inflation applied to costs	1.1%	2.14%	3.74%	3.4%*	2.8%*	2.8%*

Table 4: Inflation Forecasts

*Forecast rates

- Our domestic customer base will grow by 0.75% p.a. on average;
- The overall charge cap for household customers remains as originally planned as 1.8% less than CPI over the 2015 to 2021 period. Consequently, no price increase is planned for 2020/21;
- Wholesale charges for 2019/20 and 2020/21 will increase by 2% p.a. The 2% annual tariff increase is part of the tapered implementation for the move to live rateable values (RVs) during the 3 years from 2018/19 to 2020/21;
- The Delivery Plan reflects an estimated impact of £7 million from the restriction in use of tax losses as per the Finance Act 2017;
- We have reassessed the financial opportunities and challenges associated with the timing of investment delivery. While the level of annual investment delivery will continue to increase significantly in the final years of SR15, we expect that around £170m of SR15 financed investment will be completed in the early years of the SR21 period. We will, however, start SR21 investment in the latter part of the SR15 period once early projects are confirmed through the SR21 investment planning and prioritisation process, and we have made an initial allowance of £30m for SR21 early start;
- We expect that our closing cash position at the conclusion of SR15 investment will be in the range of £60m-£160m (excluding any SR21 early start investment). This range reflects the opportunities for further revenue and costs out-performance, but also the risks associated with completing the SR15 capital investment programme, beyond those set out in this plan update;

Table 5 sets out our forecasts for key financial metrics. Our financial projections are presented at forecast outturn prices.

Financial projections (IFRS) Outturn prices - £m	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19	2019-20	2020-21
Turnover	1,121	1,149	1,191	1,210	1,228	1,236
Profit before interest and tax	275	270	278	268	258	242
Net interest payable (inc PFI)	172	170	170	169	173	174
Profit before tax	103	100	108	99	85	68
Tax	-21	-3	18	21	19	13
Retained profit (IFRS)	124	103	90	78	66	55
Capital investment	462	627	647	660	710	750
Net new borrowing	-	-	120	165	219	220
Closing debt	3,424	3,424	3,545	3,710	3,929	4,149

Table 5: Key financial projections

Financing

Revenue forecast

Table 6 sets out our forecast revenue based on the assumptions set out above. Household revenue reflects an increasing trend in the level of household exemptions since 2014 and no tariff increase in 2020/21. Wholesale revenue is forecast to be flat over the final three years of the plan due mainly to the forecast reduction in consumption by customers offsetting the 2% tariff increase.

Revenue Forecast Outturn prices - £m	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19	2019-20	2020-21	Total
Household revenue	821	840	861	881	898	905	5,206
Wholesale revenue	292	298	320	319	320	320	1,869
Other revenue	8	11	10	10	10	11	60
Total revenue	1,121	1,149	1,191	1,210	1,228	1,236	7,135

Table 6: Revenue 2015 to 2021

Borrowing requirements

We are forecasting £724 million of net new borrowing from the Scottish Government over the 4 years from 2018 to 2021. The forecast is £36 million lower than the original planned borrowing of £760 million. The reduction is due to the external debt brought into the Scottish Water group following the acquisition of the Aberdeen PFI companies in December 2018 by Scottish Water Horizons Holdings Ltd, which will amount to £36m at 31 March 2021.

Forecast costs of delivering services 2015 to 2021

Table 7 summarises the forecast financing and costs of delivering this plan over the 2015-21 period, excluding IFRS adjustments.

Financing and Expenditure £m	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19	2019-20	2020-21	Total
Customer revenue	1,121	1,149	1,191	1,210	1,228	1,236	7,135
Net new borrowing	-	-	120	165	219	220	724
Infrastructure Charges Income	12	14	17	17	17	17	94
Grants and contributions	16	10	11	4	12	11	64
Disposals	16	7	7	2	1	1	34
Use of cash balances	-23	134	-36	-13	-1	36	97
Total financing	1,142	1,314	1,310	1,385	1,476	1,521	8,148
Capital investment	462	627	647	660	710	750	3,855
Operating costs	368	381	396	425	421	434	2,425
PFI contracts	154	155	159	152	175	180	975
Interest	153	148	150	149	154	156	910
Tax	-	-	-	3	3	1	7
Working capital	5	3	-42	-4	13	0	-25
Expenditure for trading purposes	1,142	1,314	1,310	1,385	1,476	1,521	8,148

Table 7: Financing and expenditure 2015 to 2021

Our assessment, in outturn prices, of the overall cost of delivering our plan is £8,148 million during the 2015 to 2021 period. We will finance this with revenue from customer charges of £7,135 million, net new government borrowing of £724 million, utilising £97 million of opening cash balances and £192 million from infrastructure charges, customer contributions and asset disposals.

While the above and subsequent tables by their nature show a point forecast, there are a range of factors that will impact these forecasts. A summary of these and their impact on our forecast outturn cash position in 2021 is included on page 26.

Capital investment

Our forecast investment profile for the 2015 to 2021 period is shown below;

Capital Expenditure profile (£m)	2015-18 (actual)	2018-19	2019-20	2020-21	Total in Period	Post 2021	Total SR15
Sustaining existing high service for customers	811	281	293	295	1,680	-	1,680
Enhancement 2015-21 (i)	429	183	114	105	831	-	831
IR 18 Investment (ii)	7	55	131	142	335		335
Subtotal (2012/13 prices)	1,247	519	538	542	2,846	-	2,846
Nominal inflator (RPI)		1.162	1.194	1.228			
Subtotal (nominal prices)	1,360	602	642	667	3,271	-	3,271
Re-phasing of investment	-1	-38	-38	-36	-113	102	-11
SR10 completion costs	255	45	36	24	360	-	360
PFI completion	6	1	-	-	7	-	7
Infrastructure charges investment	24	20	15	14	73	-	73
Exceptional capital maintenance	54	11	2	3	70	38	108
Additional investment financed from customer contributions	37	4	12	11	64	-	64
Subtotal (nominal prices)	1,735	645	669	683	3,732	140	3,872
Additional capital maintenance and enhancement risk	-	17	33	50	100	-	100
Demand risk from growth, ring-fenced and Exceptional CM projects	-	-	-	-	0	30	30
Transfer to operating costs	-	-2	-2	-3	-7	-	-7
SR15 investment profile	1,735	660	700	730	3,825	170	3,995
SR21 (to be agreed through IPPF) (iii)	-	-	10	20	30	-	
Total Investment Profile	1,735	660	710	750	3,855	170	

Table 8: Forecast investment profile to 2021

- (i) Our table K regulatory submission for the SR15 period included £11m to be financed from SR21 to complete outputs that spanned regulatory periods.
- (ii) Following agreement with Ministers, IR18 investment in the 2015-21 period was boosted by £100m (£82m in 12/13 prices). Post 2021 investment of £129m (12/13 prices) was also committed.
- (iii) We have included an initial £30m for early start projects for SR21. This investment is to support the development and initiation of Tier 2 projects that are prioritised through the first phase of SR21 investment planning and prioritisation.

We expect to deliver annual capital investment within +/- 10% of the overall annual profile of forecast investment set out above.

Operating costs

Our forecast operating costs for the 2015-21 period are set out in Table 9.

Operating costs - £m	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19	2019-20	2020-21
Forecast total operating costs per 2015 Delivery Plan (2012/13 prices)	354	355	354	352	350	350
Revised nominal inflator (RPI)	1.060	1.083	1.124	1.162	1.194	1.228
Forecast Total Operating Costs per 2015 Delivery Plan (outturn prices)	375	385	398	409	418	430
Adjusted for:						
Movement in actual & forecast costs	-4	-1	1	-3	-	-
Transfer from capital to operating costs (see Table 8)	-	-	-	2	2	3
Lower local authority rates charges - impact of 2010 and 2017 revaluations	-3	-3	-5	-6	-6	-6
Additional legislative and pension costs (Table 10)	-	-	2	9	7	7
Forecast Total Operating Costs (Outturn Prices)	368	381	396	411	421	434
Increased costs as a result of extreme weather events	-	-	-	10	-	-
IT transition costs (one off)	-	-	-	4	-	-
Forecast Total Operating Costs (outturn prices)	368	381	396	425	421	434

Table 9: Annual operating costs (non IFRS)

Around £7 million of new costs associated with cyber security and IT costs for the transfer of system operations to cloud based environments are included but have been offset by reductions in capital costs as shown in Table 7.

Additional costs associated with legislative changes and pension increases are detailed below in Table 10.

Operating costs (£m)	2017-18	2018-19	2019-20	2020-21
Apprenticeship Levy (i)	0.8	0.7	0.7	0.7
Land Registration (ii)	0.3	0.4	0.5	0.5
Holiday Pay (iii)	0.5	0.5	0.5	0.5
Water Quality Regulation charges (iv)	0.4	0.4	0.4	0.4
Brexit preparation costs (v)	-	1.8	-	-
General Data Protection Regulation (vi)	-	0.5	0.1	-
Increased pension contributions (vii)	-	4.9	5.1	5.2
Additional legislative and pension costs	2.0	9.2	7.3	7.3

Table 10: Additional legislative and pension costs

Notes:

(i) Apprenticeship Levy costs were introduced by HMRC from 1 April 2017, as announced in the 2015 Budget, on all employers with annual pay bills over £3 million.

(ii) To meet Scottish Government's target for voluntary registration of land on the new digital register.

(iii) Due to the European Working Time Directive, recent case law means all employers need to 'top up' eligible employee's holiday pay to include other payments that are an appropriately permanent feature of that employee's normal remuneration.

- (iv) Scottish Ministers, under the Scottish Water (Payment) (Scotland) Directions 2017, have directed Scottish Water to fund the exercise of functions by the DWQR in relation to Scottish Water.
- (v) Increased costs have been incurred in the year associated with chemicals in order to de-risk the consequences of a potential no-deal Brexit.
- (vi) New obligations with regard to data protection have arisen since the Delivery Plan 2015 was agreed. These legislative changes place more onerous duties on organisations which collect and process personal data.
- (vii) Following the March 2017 triennial valuation of the Scottish Local Government Pension Funds, annual pension contributions have to increase by £5 million to maintain the funding positions of the Strathclyde and North East Pension Funds and improve the funding position of the Lothian Pension Fund.

In 2018/19 we incurred £10 million of costs associated with the exceptionally dry warm weather experienced during the summer as well as recovering leakage levels after the severe impact from the “Beast from the East” experienced earlier in the year. In addition costs associated with the transition to our new IT partners totaled £4 million.

It is important to note that there are several costs we incur that are not fully in our control. While indexing of costs by RPI will protect us from most cost changes, there are risks of one-off changes to our costs that we may not be able to manage within this plan.

PFI costs

Our forecast PFI operating costs for the 2015-21 period are set out in table 11 and include receipt of a commercial claim by Scottish Water against the operators of the Aberdeen PFI scheme in relation to historic performance under the contract.

PFI costs - £m	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19	2019-20	2020-21
Forecast total PFI costs per 2015 Delivery Plan (2012/13 prices)	152	152	152	152	152	152
Revised nominal inflator (RPI)	1.060	1.083	1.124	1.162	1.194	1.228
Forecast Total PFI Costs per 2015 Delivery Plan (outturn prices)	162	165	171	177	182	187
Adjusted for: (i) lower flows and reduced costs including the result of site closure at Meadowhead and Stevenson	-8	-10	-12	-11	-7	-7
(iii) Receipt of commercial claim in relation to Aberdeen PFI	-	-	-	-14	-	-
Forecast Total PFI Costs (Outturn Prices)	154	155	159	152	175	180

Table 11: PFI annual costs (non IFRS)

Combined Operating and PFI costs

Table 12 compares forecast Operating and PFI costs with the 2015 Delivery Plan. The table demonstrates that, in total, forecast costs are lower than the 2015 plan.

Operating and PFI costs - £m	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19	2019-20	2020-21
Operating costs per 2015 Delivery Plan (Outturn prices) (Table 9)	375	384	398	409	418	430
PFI Costs per 2015 Delivery Plan (outturn prices) (Table 11)	162	165	171	177	182	187
Total Operating and PFI Costs per 2015 Delivery Plan (outturn prices)	538	549	569	586	600	617
Forecast Total Operating Costs (outturn prices) (Table 9)	368	381	396	425	421	434
Forecast Total PFI Costs (Outturn Prices) (Table 11)	154	155	159	152	175	180
Forecast Total Operating and PFI Costs per 2015 Delivery Plan (outturn prices)	522	536	555	577	596	614

Table 12: Combined Operating and PFI costs (non IFRS)

In table 12 above the costs per 2015 Delivery Plan have been updated to reflect actual indexation for 2015 to 2018 and the latest forecast indexation for 2018 to 2021. The indexation factor applied can be seen on tables 9 and 11.

Interest payable

Closing debt as at 31 March 2018 was £3,545 million. The forecast weighted average interest rate of the outstanding long-term debt as at 31 March 2019 is 4.00%, a reduction from 4.86% at March 2015. For new borrowing the assumed average interest rate is 3% for 2019/20 and 2020/21. Interest charges also include interest payable to Licensed Providers at 4% on prepaid charges, amounting to c. £2 million pa.

Financial Strength

We exited the 2010-15 period with £346 million of cash balances. The planned cash utilisation profile during the 2015 to 2021 period, assuming borrowing of £724 million over the 2017 to 2021 period, is summarised in Table 13.

£m, actual / forecast outturn	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19	2019-20	2020-21
Opening cash balance	346	369	235	271	284	287
Closing cash balance	369	235	271	284	285	249
Cash utilised/(addition)	-23	134	-36	-13	-1	36

Table 13: Cash balance profile

Table 13, shows a cash balance in 2021 of £249 million. The table below summarises the change in cash forecasts since the Delivery Plan 2018.

Summary forecast cash	March 2021	SR15 Completion
	£ million	£ million
Delivery Plan 2018	76	76
Delivery Plan 2019	249	109
Reconciliation		
Cash forecast in Delivery Plan 2018 update	76	76
Additional wholesale revenue	31	31
Lower interest	17	17
Net other	23	23
Reduction in Scottish Government borrowing (associated with Aberdeen PFI acquisition)	-36	-36
	109	109
SR15 completion costs	170	
SR21 early start	-30	
Cash forecast in Delivery Plan 2019	249	

Table 14: Summary Forecast Cash

The key factors that impact the outturn cash level are uncertainties on wholesale revenue (volume levels and income from vacant properties), performance and exceptional impacts on operating and PFI costs, interest rates for new debt and the outturn cost of the capital programme. Overall we expect to out-turn within a +/-£50m range of the above forecast so within a range of around £60m-£160m on conclusion of the SR15 investment programme.

Financial Projections

Profit and Loss Account (IFRS)

£m, actual / forecast outturn	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19	2019-20	2020-21
Turnover	1,121	1,149	1,191	1,210	1,228	1,236
Operating expenditure	368	381	396	425	421	434
PFI operating costs	113	114	118	111	134	139
Depreciation charges - non infrastructure assets	226	238	235	243	247	250
Depreciation charges - infrastructure assets	17	16	18	18	18	19
Depreciation charges - PFI assets	19	19	19	19	19	19
Infrastructure capital maintenance charge	119	118	135	128	132	135
Amortisation of deferred income	-1	-1	-1	-1	-1	-1
Operating Profit	260	264	271	267	258	242
Profit or loss on disposal of fixed assets	15	6	7	1	-	-
Net interest payable	-149	-148	-150	-149	-154	-156
Interest on PFI and pension scheme net liabilities	-23	-22	-20	-20	-19	-18
Profit Before Taxation	103	100	108	99	85	68
Taxation - current	-	3	-2	-3	-1	-
Taxation - deferred	21	-	-16	-18	-18	-13
Retained Profit	124	103	90	78	66	55

Statement of Comprehensive Income

£m, actual / forecast outturn	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19	2019-20	2020-21
Retained profit for the year	124	103	90	78	66	55
IAS19 adjustments:						
- Actuarial gains/(losses), net of tax	83	-90	65	-	-	-
- Service & finance costs, net of tax	-17	-13	-28	-	-	-
Total comprehensive income for the year	190	0	127	78	66	55

Table 15: Profit & loss account and Statement of Comprehensive Income

The Statement of Comprehensive Income includes all of the International Financial Reporting Standard (IFRS) adjustments resulting from International Accounting Standard 19 'Employee Benefits'. This layout is consistent with the layout in the Regulatory Accounts (M Tables) as agreed with the Water Industry Commission for Scotland in 2016.

Balance Sheet (IFRS)

£m, actual / forecast outturn	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19	2019-20	2020-21
Fixed Assets						
Tangible assets	5,168	5,396	5,635	5876	6155	6,466
PFI assets	364	345	328	310	290	271
Grants and contributions	-14	-13	-12	-11	-10	-9
Other Operating Assets and liabilities						
Working capital	-306	-306	-361	-352	-342	-335
Cash	369	235	271	284	285	249
Net operating assets	5,581	5,657	5,861	6,107	6,378	6,642
Non-operating assets and liabilities						
Borrowings (excluding Government loans)	-1	-1	-1	-1	-1	-
Investment in subsidiaries	35	35	35	35	35	35
Total non-operating assets and liabilities	34	34	34	34	34	35
Provisions for liabilities & charges						
Deferred tax provision	-371	-371	-389	-407	-422	-435
Post-employment liabilities	-92	-192	-144	-144	-144	-144
Other provisions	-19	-15	-21	-28	-22	-22
Total provisions	-482	-578	-554	-579	-588	-601
Net assets employed	5,133	5,113	5,341	5,562	5,824	6,076
Capital and reserves						
Government Loans	3,423	3,423	3,544	3,709	3,928	4,149
PFI debt/lease	364	344	324	303	280	257
Retained earnings	1,213	1,213	1,340	1,417	1,483	1,537
Other reserves	133	133	133	133	133	133
Total capital & reserves	5,133	5,113	5,341	5,562	5,824	6,076

Table 16: Balance Sheet

Cashflow statement

£m, actual / forecast outturn	2015-16 (actual)	2016-17 (actual)	2017-18 (actual)	2018-19	2019-20	2020-21
Turnover	1,121	1,149	1,191	1,210	1,228	1,236
Operating expenditure	-368	-381	-396	-425	-421	-434
PFI operating costs	-113	-114	-118	-111	-134	-139
Capital maintenance expenditure	-261	-301	-314	-326	-351	-363
Amortisation of deferred income	1	1	1	1	1	1
Operating profit for regulatory purposes	380	354	364	349	323	301
Reconciliation of regulatory operating profit to net cash flow						
Operating profit for regulatory purposes	380	354	364	349	323	301
Movement in working capital	8	22	27	0	-12	-2
Capital maintenance expenditure	261	301	314	326	351	363
Amortisation of deferred income	-1	-1	-1	-1	-1	-1
Net cash flow from operating activities	648	676	704	674	661	661
Taxation						
Taxation paid	-	-	-	-2	-3	-1
Returns on investments & servicing of finance						
Interest received	1	1	1	1	1	1
Interest paid	-154	-149	-151	-150	-155	-157
PFI interest payable	-23	-22	-21	-20	-19	-18
PFI finance lease repayments	-18	-20	-20	-21	-23	-23
Net cash flow from returns on Investment & servicing of finance	-194	-190	-191	-190	-196	-197
Net cash flow before investment and maintenance charges	454	486	513	482	462	463
Capital expenditure and financial investment						
Capital enhancement expenditure	-198	-340	-307	-327	-347	-374
Capital maintenance expenditure	-261	-301	-314	-326	-351	-363
Infrastructure Charges Income	12	14	17	17	17	17
Disposal of fixed assets	16	7	7	2	1	1
Net cash outflow from investing activities	-431	-620	-597	-634	-680	-719
Net cash flow before financing	23	-134	-84	-152	-218	-256
Financing						
New Government loans	324	343	243	288	344	354
Government loans repayments	-324	-343	-123	-123	-125	-134
Net cash inflow from financing	-	-	120	165	219	220
Decrease (increase) in cash and cash equivalents	-23	134	-36	-13	-1	36
Net cash flow	-23	134	84	152	218	256

Table 17: Cashflow statement

Risks

In 2015 we identified the key risks to the Delivery Plan, which included the associated potential financial impacts for the 2015-2021 period. This analysis has been subsequently reviewed in 2018, alongside consideration of risks to viability of the business as reported in our 2017/2018 Annual Report & Accounts.

Key risks we face at this time are:

INTERNAL RISKS	
Water Quality	<p>We face extensive risks to the supply of continuous high quality drinking water to each of our customers across all of our supply systems.</p> <p>Management of this risk is discharged through a number of robust business activities which range from monitoring and analysis of water quality in catchments, treatment works and networks; employing, engaging and developing a skilled workforce; and undertaking significant investment in a targeted and prioritised manner.</p>
Critical Assets	<p>We have many assets that are so critical to service that, should they fail, drinking water quality, drinking water supplies or environmental performance could be adversely impacted.</p> <p>Knowledge and understanding of water and waste water assets has continued to mature since the production of the 2015 Delivery Plan. During 2016, water resilience assessments were completed on 17 of the largest water systems which provide water to around 3.4m customers. These assessments involved the detailed consideration of low likelihood/high consequence risks, and a walk-over assessment of circa 600km of associated trunk mains.</p> <p>Development of the risk mitigation strategy continues, with proposals for the initial phases being incorporated in the investment proposals for the 2021-27 period. Assessments for the remaining systems serving greater than 15,000 customers are planned for completion by March 2021.</p>
Strategic Water Mains	<p>Bursts from large water mains can result in flooding of customers' properties and/or other surrounding infrastructure. A review of flooding events has identified a number of known sites. Further analysis of these sites has identified, where appropriate, risk reduction or risk removal schemes, with solutions identified and planned over the course of the current and next strategic review period.</p> <p>In addition to these considerations, work is also progressing to proactively model and assess flood risk from other water mains.</p>

<p>Health & Safety</p>	<p>In undertaking our business activities our people (including the contractors and the supply chain we engage) and our customers can be exposed to health and safety risks.</p> <p>In order to effectively manage this risk we employ a range of tools and techniques including a detailed health and safety management system and supporting processes; embedment of an appropriate health and safety culture via training and awareness raising; completion of risk assessments and routine inspections; and investigations of all accidents, incidents and near misses to ensure appropriate learning and remedial action.</p>
<p>Data Protection</p>	<p>New obligations with regard to data protection have arisen since the Delivery Plan 2015 was agreed with the introduction of the EU General Data Protection Regulations and the UK Data Protection Act 2018.</p> <p>These legislative changes place more onerous duties on organisations which collect and process personal data. Failures may result in significant fines and could impact the reputation and level of trust in Scottish Water should these obligations fail to be effectively implemented. We continue to develop our policies, processes and procedures to support our obligations.</p>
<p>EXTERNAL RISKS</p>	
<p>UK Departure from the European Union (Brexit)</p>	<p>Uncertainty remains regarding the future relationship between the United Kingdom (UK) and the European Union (EU) following the proposed exit on 29 March 2019. There is the potential for a ‘No Deal’ scenario under which the UK is no longer a member of the single market and reverts to ‘third country’ status. If this outcome is realised, the UK will exit the EU on the 29 March 2019, with no transition period.</p> <p>In order to proactively manage the risks associated with a ‘No Deal’ Brexit, or an agreement which could impact operations, we have established an Operational Planning Group focussing on the short-term risks associated with procuring key products and materials to enable the continuity of our core services.</p> <p>We will keep reviewing the medium to long-term risks such as economic volatility, availability of people, and legislative changes.</p>
<p>Cyber Security</p>	<p>The technology landscape has evolved significantly in recent years. A number of global cyber-attacks have occurred across 2018; some with far reaching ramifications for the businesses affected.</p> <p>We undertake continual review of our technology processes, procedures, organisational culture and behaviours. Additional</p>

	<p>IR18 investment is enabling further improvements in our cyber security, in accordance with the requirements of the EU Network and Information Systems Directive (NIS), as well as the latest guidance from the National Cyber Security Centre and the Scottish Government's cyber resilience requirements. While this investment will significantly reduce Scottish Water's risk exposure, it will not eliminate the risk given the external and continually evolving nature of this risk.</p>
PFI Operations	<p>Scottish Water operates a number of PFI contracts for the provision of waste water services. Financial and operational risk may arise should a PFI plant or operations fail to deliver in accordance with the contract terms. This risk may increase as PFI contracts enter their final stages of their terms.</p>
Climate Change	<p>The impact and effect of climate change continues to be considered, debated and discussed by a range of external experts. Internally, Scottish Water continues to develop our knowledge of the impact of extreme and unpredictable weather events on our assets, infrastructure and the essential services we provide to our customers by assessing current and future risks in several ways. This includes Climate Change Risk Assessments; Vulnerability Assessments which are incorporated into our 25 year Water Resource Plan; Water Resilience plans, Integrated Catchment Studies; and Asset Flood Risk Assessments.</p> <p>We are developing our wastewater resilience strategy, the aim of which is to identify and undertake mitigation and adaptation measures to enhance our resilience to future climate change. We recently signed a Sustainable Growth Agreement with SEPA, under the terms of which we will work together to explore new and innovative ways to manage resilience in rural and urban drainage catchments. We also contribute action on a number of objectives in the Scottish Climate Change Adaptation Programme.</p>

7. Looking forward

We are working with customers, stakeholders and regulators to prepare for the future through the Strategic Review of Charges 2021.



In February 2018 we published for consultation our draft Strategic Projections informed by extensive horizon scanning, customer research and scenario planning and setting out our proposed three ambitions. Over 2018 we undertook our largest ever public engagement programme, talking to over 16,000 customers across Scotland. In response to the feedback we received, we are proposing to introduce a fourth ambition – ‘we support a flourishing Scotland’ to reflect and capture the wider contribution we can make to Scotland’s society and environment. Our consultation report has been published on our website.

We are working with our stakeholders to co-create a Strategic Plan for the 2021-27 period in line with the Water Industry Commission for Scotland’s Methodology refinements and clarifications published in November.

We have agreed with stakeholders a set of guiding principles for co-creation and in December shared with them an Outline Strategic Plan. We are working with our stakeholders over 2019 to develop a Strategic Plan that meets Ministerial Objectives, can be agreed with the Customer Forum, and is broadly supported by all stakeholders.



8. Scottish Water’s Group Plan - Supporting the Hydro Nation

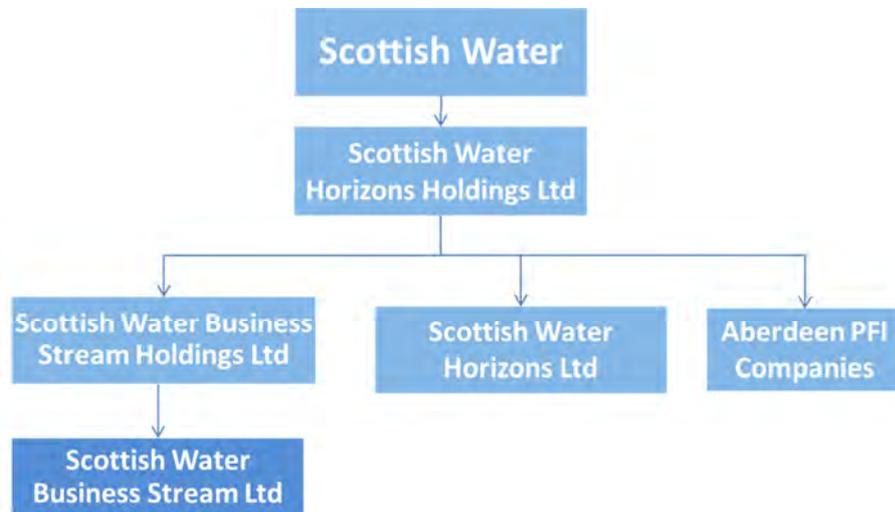
Business model

Scottish Water operates a business model comprising 4 main trading areas:

1. Scottish Water, which supplies households and wholesale Licensed Providers with regulated water and waste water services;
2. Scottish Water Business Stream Ltd (Business Stream), our licensed retail subsidiary which supplies water and waste water services to business customers;
3. Scottish Water Horizons Ltd (Horizons) which provides non-regulated services to customers in Scotland and consultancy services to clients outside Scotland.
4. Aberdeen PFI Companies which provide wastewater services in the Aberdeen area under a PFI contract.

The Scottish Water group structure is summarised in Figure 2:

Figure 2 – Scottish Water group structure at March 2019



In accordance with the Governance Code (agreed with the Water Industry Commission for Scotland) Business Stream, which provides retail services to non-domestic customers, is operated and managed independently of Scottish Water.

We have set out our plan for Scottish Water’s core water and waste water services in Sections 2 to 7 above, and below we set out how we support the Hydro Nation agenda.

Supporting the Hydro Nation Agenda

Scottish Water maintains its commitment to support the Hydro Nation agenda of developing the value of Scotland's water resources. The main pillars of our work in this area remain renewables, international activities, supporting innovation and developing the next generation of water experts. During 2018 we added a new element of installing water bottle refill points in public places. By 31 March 2019 we will have installed the first ten Top up Taps across Scotland as part of our Your Water Your Life campaign. We plan to install a total of 70 taps in locations across Scotland by March 2021.



Renewable energy

Since 2013 we have more than doubled our installed, renewable capacity to over 58.4GWh and diversified our portfolio to include hydro, wind, biomass, photovoltaic and combined heat and power (CHP).

We currently have 37 hydro turbines on 28 sites in operation; 20 small/medium-scale wind schemes; 40 photovoltaic solar schemes; 3 biomass boilers and 3 combined heat and power schemes. These are helping to offset the amount of electricity we need from the grid, with more than 70 of our sites now either partially or fully self-sufficient.

SW has supported the community wind project on the Fair Isle which was commissioned in October 2018. This included an electricity supply agreement for the Water Treatment Works, which will enable the island to receive an improved and reliable water supply.

Between April and Oct 2018, we delivered further two photovoltaic projects at Erskine WwTW and Ardoch WwTW. A further project at Carbarns WwTW also started construction during October and became fully operational during

December 2018. Further projects at Glenconvinth WTW, Assynt WTW and Camphill WTW will commence construction in Spring 2019 with the aim of being operational by Summer 2019.

In March 2018 Horizons formed a joint venture called Bandwidth Energy Ltd with partner SHARC Energy Systems, to facilitate the installation of waste water heat recovery projects across Scotland. The project at Campbeltown, which will provide heat to the council's local leisure centre, will commence commissioning in March 2019. Heat recovery technology is also being installed to support a district heating scheme at Clyde Gateway urban regeneration project in Glasgow and the project is now under construction. Commissioning of this project is due to commence in March 2019. Both these projects have been awarded grant funding from the Scottish Government's Low Carbon Infrastructure Transition Programme.

We are also developing an energy centre for a low carbon energy solution in collaboration with Stirling Council. This project will provide power to Stirling waste water treatment works and deliver heat into a new district heating network being developed by Stirling Council. The first phase will start delivering heat to customers in spring 2019.

International Activities

We will continue to support international activity in three ways: through knowledge exchange with European and international partners to promote the Scottish water industry model; through international consulting assignments; and through our support for international WaterAid.

Scottish Water International

International has experienced a number of changes to its operating market which has impacted on operations and revenue streams. In light of the changes in operating markets and challenges associated with resourcing our international activities, we will:

- continue to develop business in Ireland by building on mature relationships and delivering on existing commitments;
- respond to opportunities that may arise from current relationships and strategic partners in Australia, Canada, or elsewhere that aligns with our capability and ability to resource;
- concentrate on Client Side / Government water reform strategic advice;
- support Scottish Government Initiatives such as Hydro Nation Commercial (Regulatory Strengthening), the Climate Justice Fund programme (Malawi) and New Zealand Water Reform; and,
- build the reputation of the Scottish water industry internationally by speaking at International conferences;

International Water Aid

Scottish Water and WaterAid have been successful in winning a match funding grant in Rwanda to improve health & sanitation for vulnerable communities and schools in the Southern province by constructing safe toilet blocks at schools. We have also been successful in winning another grant to support mothers, girls and children in the Southern region of Malawi by constructing menstrual health facilities and access to safe water. This new approach maximises the value delivered through our employee fundraising and we are on target to raise £200,000 by March 2019 which will be more than doubled by the match funding grants.

Supporting innovation in the water sector

The Development Centres at Bo'ness and Gorthleck, created in partnership with Scottish Enterprise, are fully operational and visibly supporting the Scottish Government's Hydro Nation Agenda. Horizons is leading the Interreg funded project to create a network of test centres in Northern Europe.

As part of developing new technologies to meet future challenges Scottish Water is a partner in two European funded projects, Innoqua and Phos4U. We are hosting pilot plants at wastewater treatment works for both of these projects at Littlemill WWTW and our Bo'ness Development Centre. Innoqua is testing nature based wastewater treatment and Phos4U is looking at technological, regulatory and market development for phosphorus recovery.

Developing the next generation of water experts

Developing sustainable capability for the future remains a key strategy for Scottish Water. We recognise that the need to attract and develop the next generation of people for the water industry in Scotland is both socially responsible and a business imperative. Our activities include:

- Being a key partner in the Hydro Nation Scholars programme through our involvement in the advisory steering panel. We act as mentors/ sponsors to several of the scholars.
- Our Future Leaders Programme, a 2 year accelerated development programme for selected individuals with long-term senior leadership potential is ensuring a pipeline of emerging leadership talent.
- Actively supporting modern apprenticeship and graduate programmes by working with our partners and suppliers to create opportunities for young people to learn new skills. We now have 139 apprentices in development within Scottish Water and 56 graduates. Each year we typically support 10 STEM interns to complete development programmes with us and we provide work experience and mentoring for between 10 and 15 Career Ready students from high school each year. We have also facilitated the development of over 200 apprentices and 100 graduates within our partnerships and supply chain.

For more information on Scottish Water and our services visit www.scottishwater.co.uk or contact our Customer Helpline on **0800 0778778***. Alternative formats of this document can be made available free of charge. For information on Braille, large print, audio and a variety of languages, please call our Customer Helpline.

* We record all calls for quality and training purposes.