

# Scottish Water's plans for growth

Report by the Independent Assuror

November 2013

# Introduction and context

The Independent Assuror was asked to undertake a high level assessment of the growth proposals set out in Scottish Water's (SW's) business plan for 2015-21 with the aim of saying whether they are soundly based, strategically focused and consistent with best practice. We have framed our response in terms of the factors set out in the terms of reference. We have not conducted an investigative audit of forecasts or price predictions.

As context, under the objectives set by Ministers for Scottish Water for the period 2015-21, SW is required to *'identify and make provision for new strategic capacity to meet all new housing development and domestic requirements of commercial and industrial customers for the period 1 April 2015 to 31 March 2025'*. In doing so, it is required to take account of extant development plans and their associated action programmes, the General Register Office for Scotland's (GROS's) population projections and the SEPA/Scottish Water Memorandum of Understanding on the Impact of proposed Development on the Public System.

This requirement compares with the general duty on companies in England and Wales (E&W) to develop and maintain an efficient and economical system of water supply and to connect new customers to a water main at the customer's expense. There are comparable duties on sewerage undertakers, including the provision of new sewers, which can be subject to infrastructure charges. These general duties and licence obligations are less detailed than the Minister's objectives set for SW.

Scottish water's expenditure requirements for growth relate to the reasonable cost contribution (RCC) for building water pipes and sewers to enable new properties to connect and any cost of new treatment capacity. Strategic improvements such as service reservoirs and trunk mains are predominantly paid for by developers either directly or, where multiple developers are involved by SW using the infrastructure charge. Connections to property are paid for entirely by developers.

In addition, SW will incur costs for new business meters and are likely to incur costs resolving the adoption of legacy assets; the sum totex cost of these is estimated as £28.8m totex for the period (£23.5m capex).

Two other distinctive features of the growth environment as it affects SW are relevant. First, water resources are generally not a constraint. Although new developments require connections to strategic mains, we understand that SW has adequate capacity in its water treatment works to meet most foreseeable new demands. The main investment requirements, after reasonable cost contribution payments (RCCs), are in waste water treatment. Second, a significant part of the projected growth is in rural areas where the constraints are mainly in the capacity limitations of small treatment works. We have not investigated the reasons for this – whether it implies previous investment in over-provision in urban areas or capacity being freed up as a result of industrial plant closures.

As for the scale of the growth that SW is required to accommodate, GROS forecasts that the population of Scotland will grow from 5.365m in 2015 to 5.486m in 2020 (an increase of 4%) and to 5.596m in 2025 (another 2%). The increases are 121,000 over 5 years and 231,000 over the 10 years. This is one set of forecasts and in addition, SW takes account of local plans, Government initiatives and developer appetite for new house-building. This has resulted in SW estimating a lower level of growth than GROS.

SW's plans are based on connecting some 102,000 new household and business properties to the water and sewerage systems between 2015-21.

## Findings

We have considered and reported on the factors set out in the terms of reference proposed by the Water Industry Commission (WICS) and agreed by Scottish Water. We have quoted these below, followed in each case by our findings.

### **Are Scottish Water's proposals for 2015-21 in the area of growth underpinned by a comprehensive understanding of historic and future forecast levels of housing and business growth expenditure requirements?**

#### **Approach to predicting housing growth expenditure requirements**

To create its growth projections, SW combines GROS forecasts, local authority forecasts, and developers' plans and investment rates. This provides input to the total RCC expenditure that SW expects. SW then maps local growth forecasts against its current capacity to identify where:-

- growth may require increased treatment capacity
- new capacity may not be needed because the growth is marginal
- the MoU with SEPA would allow increased discharges within a 'threshold of exceedance'.

This gives a number of sites where strategic expansion is likely to be needed. The total cost of this is estimated using standard costs for the various sizes of expansion.

#### **Understanding of data to forecast expenditure requirements for housing growth**

SW appears to have a good understanding of the national (GROS) and local authority forecasts of housing growth and how the two sets of forecasts can be used for investment planning. Local authority forecasts can suffer from optimism bias while GROS estimates are based on extrapolating historic trends and so the two sets of forecasts provide a range. Developers' plans and investment rates are used to augment the forecasts and SW works closely with developers to understand where growth is likely, as well as to identify when it needs to start projects.

In the current price control period, actual growth has been significantly below SW's forecasts. The economic downturn has meant that projections based on extrapolation have been over-optimistic. This reflects the difficulty of predicting changes in historic trends.

SW believes it would be helpful to base all infrastructure planning across Scotland on a common, well evidenced data set. It appears to have been active in improving, or requesting, more accurate information. It has coordinated the collection of local authority data with Transport Scotland and is advocating that GROS should, in its future forecasts, combine historic trends with local plans.

### **Revenue forecasts**

In principle, growth in the water sector should be partly self-financing. Under current arrangements, SW makes no calculation of the net cost of growth as an individual investment area. Growth investment needs are combined with all other investment requirements as part of the overall forecast expenditure. Revenue from growth is included in the financial models.

### **Business growth**

SW does not make forecasts of business development since Ministers' objectives are confined to the '*domestic requirements of commercial and industrial customers*' element of non-domestic growth. It assumes that the domestic requirements of business generally can be provided by existing capacity unless there is a significant multi-site development. In addition the majority of people either live in the catchment where they work, or work in more urban catchments where there is capacity to accept peak flows during the day.

While we accept that it is difficult to predict the location and timing of business development and there is limited data, there is a need for effective processes for dealing with these, particularly if there is a risk of capacity constraints at WWTWs. SW has assessed the likelihood of significant business growth and their view is that demand is likely to remain static, following a period of shrinkage in SR10. Were business growth to occur, this would be a prime 29E opportunity.

### **Conclusion**

SW appears to have a good understanding of the data on population projections and it makes informed judgments on growth at local, regional and national level. SW says it will continue to work to improve the reliability of the forecasts. Clearly, it cannot eliminate uncertainty altogether.

We note that while growth is at least in part, self-financing through increased revenues as well as payments from developers, the approach used in Scotland is to assess all costs for purposes of assessing expenditure requirements, and then assess revenue and borrowing requirements needed to finance these. The amount claimed in the ring-fence is therefore based on cost estimates without regard to increased revenues.

Scottish Water does not actively forecast business growth as it has no obligation to provide for this. It has assessed the likelihood of growth and sees this as low. Nevertheless, there are likely to be individual cases where it is called upon to meet new demand by an industrial user. No doubt it considers what level of reputational risk it would carry if it were unable to provide the necessary capacity reasonably quickly for new businesses that were paying it to do so.

## **Do the datasets that inform SW’s predicted future levels of growth in the housing and business sectors include those identified in the Ministerial objectives and do they represent best practice for modelling of this type?**

### **Minister’s objectives**

Ministers’ objectives require SW to take account of “extant development plans and their associated action programmes, the General Register Office for Scotland’s population projections and the SEPA/Scottish Water Memorandum of Understanding on the Impact of Proposed Development on the Public System.”

### **Datasets**

SW uses the GROS population projections, local authority development plans and developer’s plans as well as investment rates to project population growth. It then uses the MoU to identify areas where, despite growth leading to discharges above the agreed levels, SW may not need to increase capacity immediately.

We find that SW uses all the datasets identified in the Minister’s objectives.

### **Process**

SW works closely with local authorities in the context of Structure Plans and Strategic Development Plans and meets each of the 32 local authorities (plus 2 national park authorities) every two years to review and update the forecasts. Account managers have regular meetings with developers to gather intelligence about build-out rates so that they can ensure that the necessary waste water infrastructure investment is in place when it is required.

For SR15, SW has identified over 200 sites where it is likely that there will be capacity shortfalls and where the MoU does not enable this growth to be absorbed. SW estimates the costs of capacity enhancement at each of these works, using standard costs.

Given the uncertainty about when and where development will take place, SW aggregates all new demand into a pan-Scotland allowance. It deploys this as and when new development takes place; when the minister’s five conditions are fulfilled.

## **Innovation**

SW has been innovative in developing the MoU with SEPA and in combining its requests for data from LAs with those from Transport for Scotland. These approaches are to be applauded. The MoU in particular is better practice than that adopted by the EA in England and Wales.

The use of innovation and best practice modelling would imply a range of options when evaluating total spend. While we understand that SW do consider a range of opex solutions when specific sites have been confirmed for improvement, it is unclear what incentives there are for SW to consider non capex solutions in drawing up its plans, since the cost allowance is based on “standard” costs.

## **Conclusion**

The datasets that inform SW’s predicted future levels of growth include those identified in the ministerial objectives.

The modelling SW use to predict future levels of growth appears to be good practice, and the existence of SEPA’s MoU helps to provide a margin of flexibility before new capacity has to be provided.

## **Have the synergies with other areas of the capital programme, such as the enhancement programme, been properly established?**

In relation to synergies with other parts of the capital programme, we understand that in making decisions on quality improvements or developing capital maintenance plans, account is taken of forecast growth up to 2027. Due to the strong focus on rural growth projects in the next price control period, SW believes the scope for synergies is limited.

### **Synergies that SW has identified include**

- Any quality improvement work will include capacity enhancements to cope with forecast growth in the period up to 2027
- When conducting capital maintenance work SW reports that it looks to find the “lowest whole life cost solution”. In doing so it will take account of longer term growth.

## **Conclusion**

SW are confident they have established the synergies available but that, due to the location and size of the predicted capacity constraints, these are limited in the next price control period. This appears reasonable for small sites.

## **Has proper account been taken of the opportunities for more innovative and less capital intensive mechanisms for delivering network capacity, such as leakage control, water efficiency and demand management?**

### **Process for considering non-standard solutions**

SW has explained to us that it considers a number of non-standard solutions as alternatives to investment in new assets. Examples quoted include leakage reduction, the removal of surface water to alleviate hydraulic issues and relining sewers in coastal locations to reduce saltwater infiltration which can reduce WWTW capacity. It considers section 29E opportunities (moving business demand off the system at peak times) when developing specific solutions. It claims that leakage reduction has provided significant additional capacity in water treatment assets and as a result, few major works have faced capacity constraints.

### **Examples of exceptions**

On the waste water side, an MoU with SEPA allows a 'threshold for exceedance' before new capacity has to be provided at WWTW's. This is calculated on a works-by-works basis and reflects an assessment of the capacity of the relevant watercourses to accept higher levels of discharge. This appears to be a worthwhile initiative which provides flexibility and reduces the number of works requiring capacity enhancement. It allows SW to trial new, innovative operational approaches even where this risks a breach the agreed levels of discharge. This is a more collaborative approach with the environmental regulator than that found in England and Wales. It would be interesting to see estimates of the scale of capex savings resulting from the MoU.

### **The use of non-standard solutions in the next price control period**

SW considers as standard, a number of solutions, which would be seen as innovative in England and Wales. This includes the use of reed-beds and self-sufficient treatment sites. We understand that its standard process for any capital project includes assessment of other non-standard solutions.

However, SW does not expect to use many innovative solutions for dealing with growth in the next price control period. The reason it gives is because much of the additional growth will be in rural areas and affect small WWTWs. It would appear that there is currently limited scope for innovation in these cases, where the solution usually involves adding extra septic tanks.

### **Conclusion**

SW's standard process for delivery of growth investment includes an assessment of opportunities for innovative and less capital intensive mechanisms for delivering network capacity.

We would like to see more evidence that SW is continuing to identify and implement further innovative approaches, particularly in relation to rural areas. This might be gained through comparisons with practices internationally (e.g. with Nordic countries), accessing experience in the supply chain or encouraging ideas from its own staff.

**Overall, do SW's proposals for growth expenditure achieve a sensible balance between reasonable caution driven by the inevitable uncertainty associated with forecasts in this area and the requirement to make realistic estimates to avoid the risk of excessive or insufficient finance being allocated in this area?**

### **Potential risks**

The area of growth involves significant uncertainty about the volume, location and roll-out rate of new development – and the associated costs of providing for it. We discuss this in the context of the ring fence successfully protecting customers from SW unfairly gaining or suffering due to growth deviating from predictions. Given this the uncertainty this could pose two types of risk to customers.

Excessive finance allocated - Customers would be charged for investment which would not occur, and would have to wait until either the 3 year review or the end of the price control period for the spends to be reallocated.

Insufficient finance allocated - If growth is higher than predicted SW would have to halt other investments at the expense to service standards in other areas; or raise prices in order to meet their obligations on growth.

### **The balance**

Balancing these two risks is a tradeoff as the uncertainty of growth cannot be eliminated. SW use a combination of GROS forecasts, based upon extrapolation of historic trends, local authority forecasts based on local plans, which are likely to exhibit optimism, developers plans and investment rates. SW is keen to develop a better coordinated approach to infrastructure planning as they are doing with Transport Scotland.

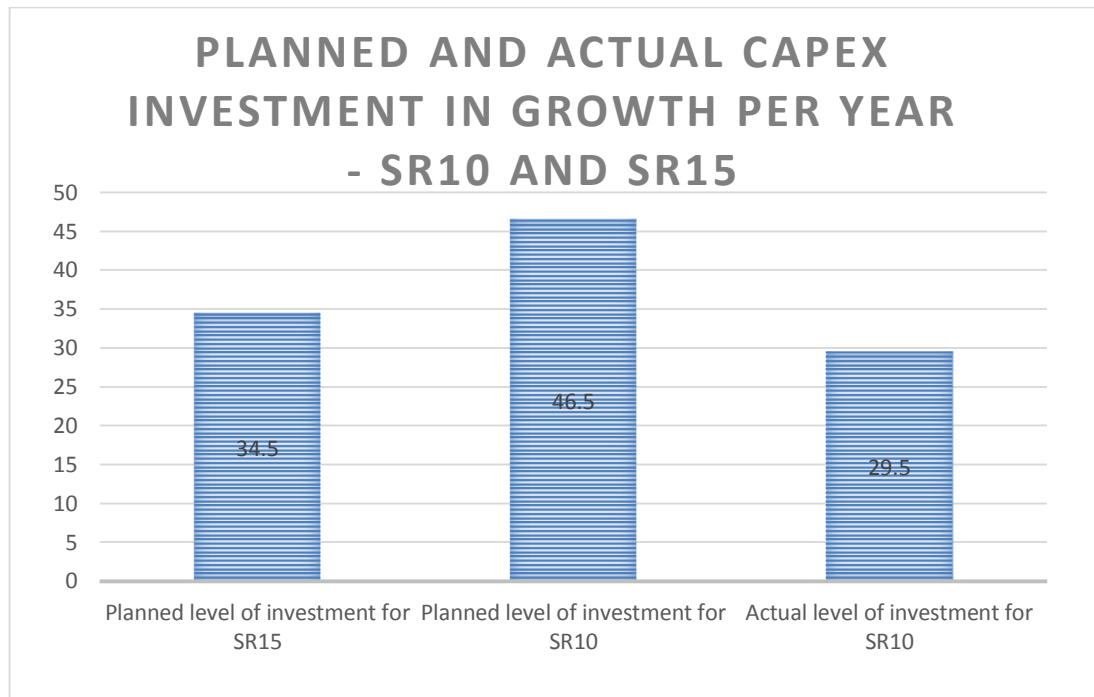
For SR10, outturn expenditure has been significantly below the ring-fence provision, largely due to the economic downturn. For SR15, with Government initiatives underway to encourage new housing development and encourage first time buyers, the gap between forecasts and outturn may be smaller. In any event, there is the opportunity in 2018 to re-calibrate the forecasts at the mid-term review.

While SW will want to avoid the situation where it under-provides for meeting the Minister's objectives for new development, we have seen no evidence that it is overproviding in this area.

SW's planned level of capex investment for SR15 is for an annual average of £34.5m; this compares with an annual average spend of £29.5m for SR10 - a 17% increase. The outturn



spend for SR10 was much lower than that planned for the period 2010-15, which was £46.5m on an annual average basis. These numbers are shown in the chart.



Spend planned for SR15 is around three quarters of the level planned for SR10. This seems reasonable, given experience in the current period.

Of the total planned annual spend for SR15, provision of additional WWTW capacity (Part 4 Strategic Capacity Provision) is estimated at an annual average of £11.4m slightly above the corresponding figure for SR10.

### Conclusion

Given the information SW has provided it appears to us that SW is striking a reasonable balance. This is based upon the use of several different forecasts and the spend predictions in comparison to previous years.

As discussed in the section below, the three year review period and ring-fence limits the risks which customers are exposed to if insufficient or excess finance is allocated.

**To what extent does the 'ring fence' around expenditure in this area and the opportunity to carry out a review at the interim (3 year) update period provide an adequate degree of protection for customers from the risks associated with over or under estimates in expenditure in this area?**

**Potential risks**

Without any regulatory mechanism to address the uncertainty posed by growth levels and location customers could face two types of risk.

- 1 An "easy ride" for Scottish Water - If growth is lower than predicted pressures on SW to innovate and reduce costs would be weakened. SW could "unfairly benefit" by diverting resources intended for growth to other parts of the capital programme to achieve its targets without using efficient or innovative approaches.
- 2 Shortfalls in delivery - If growth is higher than predicted SW would either fail some customers by not providing the infrastructure for growth or have to halt other investments in order to meet their obligations on growth at the expense of improvements to service standards in these areas or increase prices, for example through an IDoK.

**Purpose of the ring-fence**

The ring-fence aims to ensure that spending, earmarked for growth, is not taken as outperformance by SW in the case of lower than predicted growth, and that it is clear when more money is needed to be allocated, if more sites than expected require investment due to higher than expected growth. Reallocation of the surplus has hitherto been governed by the Output Monitoring Group. For the current price control period this has consisted of Scottish Water, The Scottish Government, WICS, SEPA and DWQR.

For the SR15 period, by providing for an interim review after 3 years, decisions can be made to re-allocate funding out of the growth ring-fence to other customer-related expenditure or, possibly, the converse, in cases where outturn expenditure exceeds forecasts. This will help ensure risks to customers of over, or under estimates are minimized. SW have recognised the importance of the mid term review in the context of growth, by allocating more than half the total provision for RCCs and strategic treatment capacity (£81m out of £146m) to IR18, so that the review in late 2017 can take account of actual demand and investment costs. This proportion is much higher than for other elements of the enhancement programme.

It has been suggested to us that the ring-fence and three year review period 'puts proper controls' in place around switching money from the growth pot to other categories of expenditure and so protects customers from the risk posed by uncertain growth and ensures transparency.

The exact nature of these 'controls' and the degree of transparency involved remains unclear. For the future, it is expected that decisions will continue to be made through the Output Monitoring Group - with the Customer Forum playing a key role in agreeing how

surpluses in the funding pot should be released to customers – either in the form of lower bills or through diversion to customer priorities in other parts of the capital programme. Conversely, in cases where expenditure exceeds provision, decisions would need to be made in whether to divert money from other parts of the programme to augment the growth 'pot' or, in extreme circumstances, to increase prices. We recommend developing some ground rules for this area.

## **Innovation**

A risk that the ring-fence could pose to customers is that it weakens the incentives for SW to find innovative, cost effective solutions. SW says that this is not an issue as all growth projects are taken through the same approval process as any other investment and this includes a check that it is the best whole life solution. This is part of their strategy to become the "most valued and trusted business." The WICS could ask for an audit of SW's practices in this area if it requires further comfort.

For the future, we suggest SW's innovation in this area could be improved through comparison with other companies, both in E&W and internationally.

## **Conclusions**

In undertaking our review, the case for having a ring-fence around this area of provision was not immediately apparent. Other mechanisms exist for dealing with areas of uncertainty in the capital programme such as IDOKs. SW also has various reserve provisions.

However, given the Minister's requirements to service demand for new strategic capacity to meet all new housing development, SW needs a degree of funding security in this area and the ring-fence – combined with a mid-term review, appears to provide this. We support continuing the ring fence arrangements provided that SW's normal business processes ensure that innovative and efficient approaches are sought and used whenever appropriate.

We note that current ring fence arrangements are based upon the separate treatment of expenditure and revenues associated with growth, whereby additional revenues are not netted off to assess the net costs of growth.

## **Are there specific issues or deficiencies in the overall approach to growth expenditure identified by Black and Veatch and have Scottish Water adequately responded to and/or addressed these issues?**

Given the limitations of both the GROS and local authority forecasts, it is surprising that only a single set of projections is used. We endorse the suggestion by Black & Veatch that it would be worth considering the effect of higher and lower growth rates on the requirement for additional capacity. Even though a single set of projections would be used for the ring-fence, it would be useful to illustrate the range of possible outcomes and the sensitivity of expenditure projections to different growth rates.

Appendix A covers B&V's recommendations from their phase 1 and phase 2 business plan report in more detail.

## Conclusions

We find that SW's approach to estimating provision for growth for SR15 is soundly based. We note that SW is working proactively with others, such as Transport Scotland, to improve the quality of population and housing forecasts. It appears to have effective liaison arrangements with local authorities and developers to inform the timing of investment.

The ring fence can play a useful role in securing funding for meeting Minister's objectives. It should be combined with a more transparent process, involving the Customer Forum, for deciding how surplus funds from any under-spending should be used or decisions reached on augmenting ring-fenced provision if growth expenditure is likely to exceed the provision.

The proposed mid period review in late 2017 provides the opportunity to re-assess requirements for the next three years and to involve the Customer Forum and other stakeholders in decisions on re-setting and use of the ring-fence provision.

For the future, given the uncertainties in this area, it may be useful to set out the implications of alternative growth scenarios to demonstrate the range of possible outcomes in this area, given the potential implications for other parts of the capital programme.

The MoU with SEPA has significant potential benefits in terms of capex savings. A similar model could usefully be extended to E&W.

Given the importance of growth in rural areas, we should like to see more evidence of innovation in this area.

For the longer term, there may be merit in considering an approach where estimated revenue from growth is netted off the additional costs to calculate a forecast of net costs, and in this way recognizing that growth should be partly self-financing. The inclusion of revenue in the calculation would have implications for the operation of the ring-fence.

*Note – following the completion of the report we have identified that the expected spend on growth is being revised. This is yet to be finalised and we will comment on any changes in our report on the Business Plan.*

# Appendix A – Detailed breakdown of issues or deficiencies in the overall approach to growth expenditure identified by Black & Veatch and Scottish Water’s response to these issues.

Black and Veatch have provided comment upon SW’s plans for growth in section 5 of the SW SR15 BV Assurance Services Report – Phase 1 BP Review and the SW SR15 BV Assurance Services Report – Phase 2 BP Review. The phase two report was written following an opportunity for SW to respond to recommendations in the phase one report.

In Black and Veatch’s initial report they made recommendations or suggestions on the following areas. We have summarised these and the responding updates from phase two and any comments we have on these in the table below:

<b>Recommendation or suggestion from phase one report</b>	<b>Associated response from phase two report</b>	<b>Independent Assuror response</b>
Clarification as to whether the SW PEF cost estimation tool (used to derive costs for the additional facilities) included OPEX/Whole Life costs.	“The SW PEF cost estimation tool was used to derive costs for the additional facilities. We did not audit any detailed cost data during our review.”	We are not clear if the phase one recommendation has been addressed. It is not clear if the comment from phase two is in relation to the recommendation from phase one.
A need for consideration of higher and lower growth rates on the provision of additional capacity and the level of risk carried by SW associated with this.	“Only one population projection has been presented, on the basis that undertaking more would be a significant piece of work, and which given the uncertainties of growth would not provide any additional confidence in the projections.”	Whilst the cost of a second projection is not to be underestimated it would be useful to have an idea of the total range of possibilities – and any likelihood associated with these.
A concern that SW will be carrying a business risk of not providing adequate/ appropriate assets at the right location.	SW’s view is that the risk of growth is outside of its control and therefore is proposing that it be considered as a ring fence item, as has been the case during SR10.	We have endorsed the use of the ringfence and believe this removes the business risk which otherwise might affect SW.

B&V appear to be comfortable with all of SW's responses and do not highlight any further recommendations in the phase two report. We would like to clarify if the SW PEF cost estimation tool does cover opex/whole life costs and if not how this impacts decisions taken. We agree with B&V's phase one report that some consideration of the effects of a variety in growth assumptions and the sensitivity around these would be useful. Whilst it is impossible to remove the uncertainty of the volume or location of growth it would be valuable to have some understanding of the potential outcomes.