

## **B3 MAINTAINING SERVICE AND SERVICEABILITY TO CUSTOMERS**

### **Outline**

Scottish Water should:

- summarise the year by year delivery of outputs over the period to maintain service and serviceability to current and future customers, and the environment.
- identify the minimum levels of activity that it considers will be necessary to maintain delivery of the outputs.
- set out how it has arrived at its assessment of the operating expenditure and capital maintenance expenditure it needs to deliver these services.
- assess its capital maintenance needs so as to ensure that the levels of core services provided to customers through Scottish Water's assets do not deteriorate, whilst complying with the full range of statutory obligations.
- Set-out its assessment in a manner comparable to the common framework for capital maintenance planning, published by UKWIR, report ref No. 02/05/3. The framework is considered a robust basis for assessing future capital maintenance needs.

The common framework provides a consistent basis for estimating future capital maintenance requirements to meet two possible objectives:

- 1) a cost effective objective, to justify steady (or improving) base service provision
- 2) a cost benefit objective to justify an enhanced level of service

The data tables in Section B3 are to be completed in respect of base service provision only. Any proposal to enhance levels of service that requires additional funding is to be provided in Supply Demand, Quality or Service Delivery tables.

In the event Scottish Water is unable to achieve a fully developed common framework approach, we expect to see a fully reasoned and rational methodology for estimating economic maintenance requirements in the plan period. As a minimum, the approach needs to incorporate:

- Historical maintenance expenditure and asset serviceability patterns
- Future notified changes in obligations
- The application of expected cost efficiencies
- Accurate integration with Q&SIII schemes generated by other cost drivers, to demonstrate the absence of any double counting

We recognise that Scottish Water will use its expert judgements where information gaps exist. We expect these judgements to be clearly explained and exposed to scrutiny by the Reporters.

## Commentary

We recommend the commentary for part B3 be divided into six sections covering the water service and six sections covering the wastewater service.

<b>Maintaining service and serviceability for customers</b>	
<b>Water service</b>	
Section 1	Introduction <ul style="list-style-type: none"> <li>• Process chart and explanatory statement</li> <li>• Planning objectives</li> </ul>
Section 2	Stage A - Historical assessment
Section 3	Stage B – Future projections <ul style="list-style-type: none"> <li>• Distribution zone studies</li> <li>• Forward looking analysis</li> <li>• Conclusions</li> </ul>
Section 4	Stage C - Scope for improvements in efficiency
Section 5	Stage D - Impact of the enhancement programmes <ul style="list-style-type: none"> <li>• Water quality improvements</li> <li>• Maintaining supply / demand balance</li> <li>• Enhanced service levels</li> </ul>
Section 6	Further table commentaries
<b>Wastewater service</b>	
Section 7	Introduction <ul style="list-style-type: none"> <li>• Process chart and explanatory statement</li> </ul>

	<ul style="list-style-type: none"> <li>• Planning objectives</li> </ul>
Section 8	Stage A - Historical assessment
Section 9	Stage B – Future projections <ul style="list-style-type: none"> <li>• Drainage area plans</li> <li>• Forward looking analysis</li> <li>• Conclusions</li> </ul>
Section 10	Stage C - Scope for improvements in efficiency
Section 11	Stage D - Impact of the enhancement programmes <ul style="list-style-type: none"> <li>• Environmental quality improvements</li> <li>• Maintaining supply / demand balance</li> <li>• Enhanced service levels</li> </ul>
Section 12	Further table commentaries

This structure should provide a framework for Scottish Water to explain its strategy for maintaining service and serviceability for customers during the eight-year plan period and beyond.

### **SECTION 1 and 7: Introduction**

#### **Process chart and explanatory statement**

Scottish Water should provide a process chart and a statement to show and explain how the output of various studies and analyses feed into its economic assessment and

optimisation of capital maintenance to maintain serviceability to customers and the environment, in line with the common framework approach or equivalent.

### **Planning objectives**

In adopting the common framework approach, Scottish Water is obliged to meet the cost effectiveness objective. Scottish Water should confirm that its proposal does this. It should also identify any enhanced levels of service, which meet the cost benefit objective. Where the cost benefit objective is being applied, Scottish Water should describe how it has taken account of the value of any resulting improvement in service to customers and the environment. This should be quantified on the basis of customer surveys

### **SECTION 2 and 8: Stage A - Historical expenditure and serviceability assessment**

Scottish Water should identify and review historical levels of maintenance expenditure and serviceability, including trends where available. The expenditure review should identify asset categories (infrastructure, non-infrastructure and subsets) to identify historical and assessed current expenditure by sub-category. This should include a review of cost allocation, particularly capex / opex.

Scottish Water should review service and asset performance and selected indicators, including but not limited to, DG2 DG3

etc. The review should look at historical and current values, reveal underlying trends with explanations where this is not evident from the data alone, and draw conclusions as to whether serviceability to customers and the environment is stable.

It should confirm that the information system indicates whether the serviceability of the water mains is either satisfactory or questionable in respect of compliance with water quality obligations.

### **SECTION 3 and 9: Stage B – Future projections**

#### **Understanding water distribution and sewerage systems**

The guiding principles of distribution zone studies and drainage area plans are an important adjunct to the process, which should inform the assessment of investment needs at both area and national level. As well as asset information, Scottish Water should include an explanation of how customer information, such as complaints of low water pressure, interruptions to water supply and sewer flooding is incorporated into the plans, and used to inform a strategy to maintain and improve serviceability to customers. Scottish Water should also explain the extent to which new technology (field and office) has been employed in informing an integrated approach to understanding their asset systems, to updating their underground asset management plans as required by good practice, and in anticipating and prioritising the need for investment.

Scottish Water is also required to provide:

- a clear statement of the coverage and format of distribution zone and drainage area planning tools, indicating the population served in each zone/area, the degree of compliance of the studies and plans with the definitions set out in Section D of WICS annual return reporting requirements. This should include details of how the studies and plans are updated (including frequency and process).
- a schedule of all distribution zones and drainage areas, indicating those for which studies and planning have been carried out or are in progress and the date of the last update of each study and plan. Scottish Water should also state the population served in each zone and area. This schedule should also show the links between these zones or areas and the divisions between different sections of its asset network, in cases where Scottish Water operates its assets in different zones and areas to those covered by the studies and plans. Where Scottish Water takes a more dynamic approach to updating, the schedule should indicate particular aspects that are under continuous or routine review, and those that are static, together with an indication of how often each aspect is updated.
- a reconciliation between the number of studies and plans reported as complete by Scottish Water with the figures reported in the 2004 annual return.
- a typical distribution zone study and a typical drainage area plan, identifying aspects that are under continuous or routine review, and those that are static, together with an indication of how often each aspect is updated, and how. This supporting documentation should be provided separately as an annex to the business plan.

#### **Future projections**

Scottish Water should identify future maintenance expenditure to meet regulatory objectives. It should describe its preparation work, service and cost forecasting and intervention analysis. This should include a description of all the tools that it has used and critically, how it has validated its estimates with a statement of the robustness of its various forecasts of service and related costs. Scottish Water should also explain, at the appropriate points, how information from its distribution studies and drainage plans is used to inform the forward-looking analysis.

Scottish Water's preparation work should summarise, for each asset category (broadly: infrastructure, non-infrastructure, water and wastewater service) in free format or tabular form, how it has:

- focussed the analysis;
- selected the planning objective;
- monitored service and failures; and
- designed & initiated customer surveys (where applicable).

The focus of the analysis should be identified for or within each asset category and reasons given for the selection of the planning objectives.

Scottish Water should provide a clear statement describing any proposed enhanced service levels derived from the cost benefit objective approach under the common framework or equivalent, together with supporting information. It should identify and describe its information and procedural systems for monitoring service and reporting failures, giving an indication of the degree of validation of the data so captured and its reliability for using in forecasting. Details of any customer surveys associated with cost benefit objectives should be set down, including alignment with best practice and advice obtained from WICS and Water Customer Consultation Panels.

Scottish Water should describe its service and cost forecasting, identifying asset failure modes and relevant asset observations, and report the extent to which it has recorded such information, and its plans to develop historical records and trends for the future. This should explain how it has:

- identified failure modes and effects;
- obtained asset observations;
- developed estimation methods for:
  - probability of failure;
  - consequences of failure; and
  - cost of failure.
- validated estimation methods; and
- forecast service.

The failure mode and effect analysis (FMEA) and related studies should include an explanation of how asset deterioration is being monitored to inform future performance and timely intervention.

Validation and clear reasoning are critical to the credibility of the process and robustness of the proposal. Therefore Scottish Water should:

- describe its intervention analysis, including:
  - options identified;
  - the impact of interventions;
  - intervention costs; and
  - for cost benefit objectives, how it has valued service,
- set down and explain the reasoning behind its selection of optimal interventions. This should include reference to the tools it has used for:

- economic assessment and optimisation;
  - cost benefit analyses, where relevant;
  - customer information;
  - compliance information;
  - asset observations; and
  - distribution and drainage area studies.
- describe the results of sensitivity analyses, and explain how optimal interventions have been identified, outlining the rationale behind any judgmental decisions.
  - summarise findings, having collated and categorised cost forecasts, and where relevant, benefits to customers and/or the environment.
  - set down the justification for operating expenditure projections believed to be necessary for the plan period, including sensitivity analyses.
  - submit to the Reporter copies of any studies or plans requested by him. Also provide WICS with copies of any studies mentioned in the plan on request.

## Conclusions

Scottish Water should set down the basis for its policies, operating practices and planned routine maintenance

activities that it considers will be necessary and underpin its expenditure projections. It should identify any changes to or reinforcement of existing policy resulting from the application of the common framework or equivalent.

Scottish Water should compare and explain the results of the future projections analysis and make a robust case for the required level of capital maintenance. This should include an assessment for the scope for further efficiencies.

In making the case, Scottish Water should highlight perceived weaknesses in data or information, where it has made value judgements and whether and where shortfalls in desirable data or information have materially affected conclusions.

Scottish Water should identify the specific activities and costs of gaining additional information that they would look to recover in future charges, and the expected improvement this would bring to the robustness of the case, in broad statistical terms, at subsequent reviews.

### **SECTION 4 and 10: Stage C - Scope for improvements in efficiency**

Scottish Water should explain the impact of its overall assumed efficiency improvement profile on capital maintenance, highlighting key areas.

### **SECTION 5 and 11: Stage D - Impact of the enhancement programmes**

Scottish Water should make the case and set down the impact on base service outputs resulting from a planned change in performance of assets, whether through capital or operational expenditure.

Scottish Water should explain its assumptions regarding overlap between capital maintenance expenditure and that from other cost drivers. It should be noted that any resulting cost adjustments should be made in the relevant: quality, enhanced service level or supply demand balance tables.

### **SECTION 6 and 12: Further table commentaries**

#### **Base Service outputs, expenditure and accounting charges**

Having made its case, Scottish Water should set down the decisions it has made as to the base service performance it has assumed for the plan period as set down in its strategy

and summarised in part A. The numerical base service outputs are to be set down in tables B3.1W and B3.2S. However, these tables only represent some of the base service outputs and objectives that it will want to maintain over the plan period and it may wish to add further details in the supporting text.

#### **Operating expenditure necessary to deliver the base service outputs**

The operating expenditure figures will have been summarised in the Scottish Water strategy in Part A. A structured approach to the derivation of operational expenditure forecasts is called for in tables B3.3W and B3.4S. Scottish Water may wish to add further details in the supporting text.

#### **Capital maintenance expenditure and associated accounting charges necessary to deliver the base service levels**

The capital maintenance expenditure and associated accounting charges necessary to deliver the base service levels will have been summarised in the Scottish Water strategy in Part A. A structured approach to the derivation of these forecasts is called for in tables B3.5W, B3.6W, B3.7S and B3.8S with separate tables for the maintenance of infrastructure and non-infrastructure assets. Scottish Water may wish to add further details in the supporting text.

**Guidance to Reporters**

**Tables B3.1W and B3.2S - Maintaining service and serviceability - base service output projections.**

Tables B3.1W and B3.2S are for Scottish Water to set out their projected base service standard which they expect to maintain by the end of the period 2005-06 to 2014-15. This standard of outputs should be at least as good as that prevailing in 2003-04 and, where appropriate, also reflect stepped improvements in service standards that will have been achieved during the current price limit period. Base service standards for 2005-06 to 2009-10 should not exceed those expected in 2004-05, except where Scottish Water is in the process of restoring stable serviceability as a result of regulatory action.

Scottish Water's activity and expenditure projections for capital maintenance (tables B3.5W, B3.6W, B3.7S and B3.8S) and base operating expenditure (tables B3.3W and B3.4S) should be the amount required to maintain this level of service.

Three blocks of information and data are required for table B3.1W and three blocks for B3.2S. These are in addition to those reported in part A.

**Blocks A & B for tables B3.1W and B3.2S - service performance, quality and environmental compliance and customer service**

For each measure of base service output projections Scottish Water is required to provide the following information.

- Scottish Water's annual performance in the period for the three years 2003-04 to 2005-06. The last two years will be projections.
- The base service level of performance that Scottish Water will deliver as a minimum by the end of the periods: 2009-10 and 2013-14. It is recognised that the standards and requirements for drinking water quality may change during the plan period. These projections should be based on current Regulations.

**Block C for table B3.1W – Other measures of serviceability to customers**

Scottish Water is asked to report and forecast the number of main bursts a year per 1,000km of water mains.

**Block C for table B3.2S – Other measures of serviceability to customers**

Scottish Water is asked to report and forecast the rate of sewer collapses per 1,000 km.

If Scottish Water uses other measures of serviceability to customers, it is asked to explain these in its commentary and their relation to the plan.