



Scottish Environment Protection Agency

Charges Spreadsheet Review

July 2015



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Scottish Environment Protection Agency

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Executive Summary

The Scottish Environment Protection Agency (SEPA) is Scotland's environmental regulator. Its purpose is to protect and improve the environment, including the sustainable management of natural resources. It also contributes to improving the health and wellbeing of people in Scotland and to achieving sustainable economic growth.

In support of the new regulatory regime, specified by the Regulatory Reform Act 2014, the Scottish Government and SEPA have consulted widely over the past few years with the intention to create a single new risk based charging scheme that is transparent, fair, and consistent, as well financially incentivising improvement in environmental performance.

Scott-Moncrieff was commissioned to undertake an independent review of the proposed new charging scheme and recommended a more detailed examination of spreadsheets used in the generation of the new charges. This review was therefore commissioned to provide additional assurance in respect of the spreadsheets.

As reflected in our previous report we have been impressed with the scale of work undertaken by SEPA in the development of the new Charges Scheme. Central to this scheme has been the development of models used to reflect the costs of regulating a list of activities relating to different environmental media and market sectors. The use of spreadsheets as the primary data source in these models was required as the result of a need to translate data from current corporate data systems to reflect the revised list of regulated activities used for the new charging scheme.

The spreadsheets used as a data source are a static version of working spreadsheets used to collate, review and amend relevant data. We reviewed the final data spreadsheets and how they have been used in the final Spotfire model to provide assurance that these have been fairly reflected in resultant charges. We also met with the model development manager to discuss how the data was collated.

We are satisfied that the Charges Model reflects the data held within the static data spreadsheets. However, improvements need to be made in relation to the controls applied to how this data is collated, reviewed and amended. These improvements include:

- The removal of the conversion of costs into regulatory units to improve transparency
- The introduction of tighter data management controls including formal data approvals, particularly for the current interim solution, until improvements have been made to source data systems which will remove the need for the data spreadsheets
- Preparation of full system and data documentation including how and why data has been collated, reviewed and amended

1 Introduction

1.1 Background

The Scottish Environment Protection Agency (SEPA) is Scotland's environmental regulator. Its purpose is to protect and improve the environment, including the sustainable management of natural resources. It also contributes to improving the health and wellbeing of people in Scotland and to achieving sustainable economic growth.

SEPA is a non-departmental public body, accountable through Scottish Ministers to the Scottish Parliament. It is funded through a combination Scottish Government Grant in Aid (GIA) and regulatory charges. In 2013/14 its total annual expenditure amounted to £80m of which £36m (45%) was recovered through charges.

In support of the new regulatory regime, specified by the Regulatory Reform Act 2014, the Scottish Government and SEPA have consulted widely over the past few years with the intention to create a single new risk based charging scheme that is transparent, fair, and consistent, as well financially incentivising improvement in environmental performance.

1.2 Scope of the review

Scott-Moncrieff was commissioned to undertake an independent review of the proposed new charging scheme and recommended a more detailed examination of spreadsheets used in the generation of the new charges. This review was therefore commissioned to provide additional assurance in respect of the spreadsheets.

The scope of the review included:

- A detailed examination of the relevant spreadsheets
- Clarification of their impact on the calculation of charges
- A review of the governance controls operating over the spreadsheets and:
- Identification of areas for improvement

We reviewed the set of spreadsheets provided to us by SEPA as at 9 June 2015. We also met with key members of SEPA staff responsible for the management and use of the spreadsheets within the calculation of the charges.

This report summarises how the spreadsheets are compiled and used within the process of generating the new charges and provides comments on the current controls with recommendations for improvement.

1.3 Disclaimer

Our work did not constitute an audit and, except where specifically stated, we have not sought to establish the reliability of data sources by reference to independent evidence. The documentation we reviewed was confirmed as being current and the latest version at the time the review commenced (9 June 2015). We have not sought to verify the accuracy of any subsequent iterations of the documentation.

This report has been prepared solely for SEPA for the purposes laid out in the scope and should not be quoted or referred to, in whole or in part, without our written consent. The terms of reference have been established by SEPA and we will not accept responsibility to any other party to whom the report may be shown or who may acquire a copy of this report.

2 Charges model use of spreadsheets

2.1 Overview

The new charges will initially comprise two components – an emissions component and an activity based component. The intention is for the charge to reflect the risks to the environment associated with the emissions created by the licence holder and the work involved for SEPA in regulating the licenced activities. A further component will be introduced in due course to reflect the level of compliance being delivered to reinforce the polluter pays principle.

The charges were originally designed and modelled using a series of complex Microsoft Excel spreadsheets. Once the design had been approved the models were re-created using Spotfire software providing a more robust environment for ongoing management. While the intention is for the Spotfire models to be used for calculating future Charges the current models remain reliant on data provided in Excel spreadsheets. This data is collated from existing information systems and/or professional judgement.

While the Emissions component Spotfire model uses a number of Excel input sheets these are relatively static in nature with the primary data being input directly from relevant emission measurement systems. However, for the Activity component the Spotfire model relies on two Excel workbooks - one containing data relating to each of the regulatory activities and the other lists each of the licenced sites, the related activities and whether a charge is to be raised for the site.

Due to the potential impact these Excel workbooks could have on the charges applied to each of the sites this review has focused on considering how the risks of miscalculation can be minimised through appropriate control procedures. The following paragraphs describe how the workbooks are constructed and their impact on the charges calculations and the following section provides comments and recommendations in respect of the control procedures.

2.2 Regulatory activity workbook

The Regulatory workbook is a static version of data relating to a range of factors including:

- Individual activities and estimated time and costs involved in their performance
- Adjustments required to reflect sectoral or environmental factors
- Staffing data

While the workbook used as input to the Spotfire model contains few formulae these worksheets are collated from a variety of working spreadsheets maintained by different teams. The effective management of how the Regulatory activity workbook is collated is critical to its validity.

The workbook comprises the following key sheets:

- Regulatory model – this sheet lists all of the regulatory activities and provides the following details for each activity:
 - The regulatory regime and sub regime to which the activity belongs (eg CAR and DL)
 - The activity description
 - The sector to which the activity is primarily associated
 - The Inspection hazard band for the activity
 - The number of samples required per year

- The frequency and complexity of the data return
 - The proportion of the activity associated with each of the environmental media (eg air, waste etc)
 - Whether the activity relates to the public water system
 - Adjustment factors to be applied to the direct and support costs for the activity to reflect a professional assessment of variations in the level of effort required for an activity. For example, Discharge: Micro Activity is reduced by 75% while Abstraction: Hydropower >5MW schemes has its allocated direct and support costs increased by 75%.
- A Sector details sheet which lists all of the activities and the sector and sub sector to which they are associated. This is used for presentation purposes only
 - Sheets which count the number of sites for which there are no activities per sub regime and sector. This information is used for reallocating costs where there is a disproportionate number of sites where activities are not being charged
 - Statistical data and information on staff grades used in relation to Compliance (CAS) and environmental events (ELMS) to allow a compliance cost to be calculated as part of the direct costs for the activity
 - Factors to be applied to the direct and support costs to reflect adjustments required to reflect recognised differences between regimes and sectors. For example, those activities associated with CAR PS will have direct costs reduced by 20%.
 - Total indirect costs for enforcement and support which are then allocated to activities in proportion to the total direct costs per activity
 - There are also tables of factors which are used in the allocation of enforcement and support costs for activities where there is currently no current sites involved in such activities
 - A cost factor (the value of half an hour for the lowest grade of staff) through which all costs are converted into regulatory units
 - Information used in the allocation of costs in relation to those identified as involved in the public water supply

This information is then used within Spotfire, combined with financial information from the Prodocapo activity based costing system, to calculate the total direct costs associated with an activity, being the costs associated for the activity multiplied by the number of sites within which the activity occurs. Indirect costs such as enforcement and support are then allocated in proportion to these totals to arrive at a total cost per activity.

2.3 Site information

The Site workbook is an adjusted extract from the CLAS system which contains details of every licenced site and its associated regulatory activities. The adjustments are required to reflect changes in the regulatory activities being used for the new charging scheme and other changes which have been made as a result of known changes.

Each licence may have multiple activities. The sheet indicates whether each individual activity is to be charged. However this approach has been changed recently to include a “Status” indicator as it has been recognised that where charges are not to be applied, for example where the site is inactive, then this will be applied across all activities. This change was not applied at the time of the calculations used for the charges provided as part of the consultation period.

Spotfire combines the above licence information with the data in relation to the individual activities and the cost data from Prodocapo to calculate the charges to be applied to each licence.

3 Review comments

3.1 Overview

As the result of our review we are recommending improvements can be made in the following areas:

- Calculation and use of regulatory units
- Data management and governance controls
- System design documentation and change control
- Site data system upgrade
- Development and implementation of a fully integrated cost information system

3.2 Calculation and use of regulatory units

Observations

The consultation paper refers to how the costs involved in the regulation of activities are converted into Regulatory units “to help with modelling our work”. Costs are converted by dividing them by £17.50 which represents half an hour of an Assistant Environment Protection Officer’s (AEPO) costs including an allocation of overheads. According to the consultation paper this approach “allows us to make a relative comparison across all regulatory types across all regimes.”

This calculation has been reflected within the Excel spreadsheets through the use of a Regulatory Unit conversion factor which is then used across the spreadsheets and within Spotfire to consistently convert costs into Regulatory Units.

While we understand the reasoning behind the original calculation of Regulatory Units their use masks the true costs of the level of regulation being applied to particular activities and regimes. The conversion to Regulatory Units makes no difference to the final charges and could cause some confusion on the actual costs being recovered by the charges.

Conclusion and recommendations

We recommend that the use of the conversion into Regulatory Units is discontinued and the actual cost allocations are used to determine the charges being applied. We understand that a version of the Full Model within Spotfire has been produced without the conversion factor being applied and this has confirmed the resulting charges are unchanged.

The removal of this conversion should help contribute towards one of SEPA’s key objectives in relation to transparency of how the charges are intended to recover related costs.

3.3 Data management and governance controls

Observations

As highlighted within our previous report Spotfire provides a controlled environment within which changes can be monitored and reviewed. The Excel spreadsheets used as direct input for the Spotfire model lack this level of data control and governance. Similarly the spreadsheets used are static versions of other detailed working spreadsheet models used by SEPA teams to collate, review and adjust the data prior to its inclusion within the Full Model used to produce the Charges.

While we have reviewed the input spreadsheets in detail these are primarily sets of static data. It is not possible to identify which sets of spreadsheets this data has been extracted from nor to validate the controls applied over the collation, review and amendment processes applied.

We understand that the intention for future models is, wherever possible, for the data to be extracted directly from data management systems subject to adequate management controls. However, this was not possible for this model due to its development status and the need to convert data extracted from existing systems to reflect changes in the proposed charging calculations (e.g. the revised set of regulated activities).

The model has been subject to detailed review and scrutiny by a variety of interested parties but there is no evidence of this management control and approval within the current system.

Conclusion and recommendations

While we accept that, until the underlying systems have been changed to reflect the revised charging scheme, the model needs to rely on the current interim solution, we consider the current evidence of management review and approval to be inadequate.

Each of the key data elements used in determining the charges should have an identified data owner who should be required to formally sign off that they have reviewed and approved the relevant data within the final charges model. Increased controls should also be applied to ensure that no further changes can be made to the data once this process has been completed.

3.4 System design documentation and change control

Observations

As commented above Spotfire provides some data management controls which allows developers to review how the model has been constructed, where data has been sourced and any changes which have been made. We have reviewed examples of such documentation and discussed the development controls used with relevant staff.

However, the Excel spreadsheets lack this level of discipline and while there are some annotations included within the static data used as the primary source for the Full Spotfire model there is a lack of any documentation particularly in relation to adjustments made to data. Many of these adjustments have been made based on professional judgement but without adequate documentation there is a risk that such adjustments may not be consistently applied in the future.

Conclusion and recommendations

The Charges model represents a significant amount of development work. While the model was subject to frequent change it was considered inappropriate to prepare system documentation. Now the development work has been completed full system documentation needs to be prepared for the charges model covering all aspects of the design and also the means by which data has been collated, reviewed and amended including explanations for why such amendments have been deemed necessary.

3.5 Data system upgrades

Observations

As described above, the Full Spottfire Model is currently reliant on the data contained within the static Excel spreadsheets. We have reviewed these links and performed walk through tests to provide assurance that the current arrangements are working effectively. However, this means by which data is collated, reviewed and amended prior to inclusion within the Full Model is insufficiently robust. We understand that a change programme has been started through which relevant systems will be upgraded. Systems of particular concern include:

- The time recording systems through which data is collated relating to each of the Regulated Activities
- Site information (CLAS) for which data need to be translated to reflect changes in the Regulated Activities
- Financial systems to simplify the means by which costs are reallocated across Regulated Activities

Conclusion and recommendations

SEPA has expended considerable efforts in the development of the new Charges Scheme. Much of this development work has necessarily relied on interim data management arrangements through which key data is extracted and converted to reflect changes in the Regulated Activities for which charges are now being made.

Now the development phase is coming to a close it is important that relevant data systems are upgraded to allow the new Regulated Activities to be embedded within them. While recognising the level of effort required, these changes will ensure consistency for future charge calculation and provide charge payers with assurance that the data used is subject to appropriate data management controls.

4 Conclusion and recommendations

As reflected in our previous report we have been impressed with the scale of work undertaken by SEPA in the development of the new Charges Scheme. Central to this scheme has been the development of models used to reflect the costs of regulating a list of activities relating to different environmental media and market sectors. We highlighted the use of spreadsheets as the primary data source for the Charges Model as an area of concern and this review was designed to provide further assurance in relation to this area.

The use of spreadsheets as the primary data source was required as the result of a need to translate data from current corporate data systems to reflect the revised list of regulated activities used for the new charging scheme. The spreadsheets used as a data source are a static version of working spreadsheets used to collate, review and amend relevant data. We reviewed the final data spreadsheets and how they have been used in the final Spotfire model to provide assurance that these have been fairly reflected in resultant charges. We also met with the model development manager to discuss how the data was collated.

We are satisfied that the Charges Model reflects the data held within the static data spreadsheets. However, improvements need to be made in relation to the controls applied to how this data is collated, reviewed and amended. These improvements include:

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- Preparation of full system and data documentation including how and why data has been collated, reviewed and amended

We would like to thank all members of SEPA staff who have been consulted during this review for their cooperation.

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