The Scottish Fiscal Commission: looking forward to our first forecasts

John Ireland, Scottish Fiscal Commission

I Introduction

The Scottish Fiscal Commission (SFC) is the independent fiscal institution for Scotland and was established on 1st April 2017 under the Scottish Fiscal Commission (2016) Act. The Commission is responsible for producing independent and official forecasts of Scottish GDP, devolved tax receipts and devolved demand-led social security expenditure, and will publish our first independent and official forecasts to inform the next Scottish Budget later in 2017.

Previously the Commission operated as a non-statutory body from June 2014 to March 2017, providing independent scrutiny and assessment of Scottish Government forecasts of receipts and economic determinants from devolved taxes at that time. We published three reports on the Scottish Government forecasts and two reports evaluating them.¹

The new legislation in the Scotland Acts 2012 and 2016 has significantly increased the financial powers of the Scottish Parliament. Through its remit to provide forecasts and assessments to inform the Scottish Budget, the Commission plays a central role in the management of this revenue. Our forecasts support the planning of expenditure by the Scottish Government and the scrutiny of the Budget by the Parliament, with the aim to enhance confidence in the fiscal decision-making process in Scotland.

The Commission currently has three Commissioners: Lady Susan Rice, as Chair, Professor Alasdair Smith and David Wilson. For more information about the Commissioners, please see the SFC website.²

II International Context

The Scottish Fiscal Commission is one of a growing number of Independent Fiscal Institutions (IFIs) internationally. We are part of the OECD Network of such bodies, which aims to promote best practice and peer review and learning.

The OECD has identified good practices for designing and operating effective IFIs through the OECD Recommendation on Principles for Independent Fiscal Institutions.³ The Commission will

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¹ [http://www.fiscalcommission.scot/publications/non-statutory-reports-on-scottish-draft-budget/]
² [www.fiscalcommission.scot]
³ [http://www.oecd.org/gov/budgeting/recommendation-on-principles-for-independent-fiscal-institutions.htm]
follow these principles in the way it produces forecasts and how it communicates its work, including the development of our Corporate Plan, covered further below.

III The Commission’s approach to forecasting

A key part of the establishment of the Commission as a statutory body is the development of forecasting models and processes that will assist in fulfilling our statutory remit. Earlier this month, we published a paper on our current approach to forecasting that sets out our intended approach to forecasting the economy, taxes and social security payments. Alongside this, we published our first statutory Forecast Evaluation Report that analyses how and why the forecasts produced by the Scottish Government were different from the tax revenue actually raised. This article summarises the key points from both reports and seek to draw out some of the implications for the Commission’s first statutory forecasts to be published later in the year alongside the Scottish Government’s Draft Budget for 2018/19.

In addition, we have recently published our draft Corporate Plan for 2017-2020, and would welcome any views on the content of the Plan. Later in this article we summarise the key questions we are asking of interested stakeholders as part of this consultation.

The Commission has taken over responsibility for a range of statistical models from the Scottish Government, which were developed to provide forecasts for previous rounds of the Scottish Budget. These models and forecasts were scrutinised by the Commissioners over the last three Budget rounds, including in our most recent forecast evaluation. The Commission has spent this year updating, developing and refining these models and developing new forecasting models where appropriate. More details about the different approaches used are described later in this article.

IV The limitations of forecasting

The future is uncertain. Forecasting is an inexact science and at any point in time there is a range of potentially valid and reasonable forecasts that could be made. A forecast cannot generally be judged to be right or wrong at the time of making.

The past is an imperfect guide to the future in a rapidly changing global economic, social, political and technological environment. Analytical models, based on historic data and theory, can help

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4 Scottish Fiscal Commission (2017) “Current Approach to Forecasting”


provide some insight into how the economy and public sector finances may change over time, but all models have limitations. Forecasts cannot be expected to predict the future perfectly.

The Commission will always have to rely on subjective judgement in creating its forecasts where there exists uncertainty or limited evidence. For example, the Commission may form judgements on:

- The long term outlook for productivity in Scotland, reflecting the global economic situation
- Behavioural responses to any changes in fiscal policies in Scotland and the UK
- The likely trends in migration, population and trade as the United Kingdom’s relationship with the European Union changes

There is a range of possible approaches to factoring each of these issues into the relevant forecast. Judgements will be made on the basis of the best evidence and intelligence available at the time of publication, but may change from one forecast to the next as the economy evolves and our understanding develops along with it.

The Commission will aim to present informed and transparent forecasts which provide the best, unbiased judgement against a broad range of possible outcomes. In doing so, the Commission recognises that forecasts will be subject to forecasting error: the economy may not develop fully as expected, the effect on tax receipts may not be entirely as predicted and input data may be revised. Forecasting is an on-going process of intelligence-gathering, learning from previous forecasts, reflection and refinement.

In recognition of the likelihood that outturns will differ from forecasts, the Commission will evaluate its forecasting performance. The Commission will publish an annual assessment of how and why outturn differed from the forecast and how it will implement measures to deliver continuous improvement in its approach to forecasting. Our recent Forecast Evaluation Report – September 2017 is our first such assessment.7

V The Commission’s latest forecast evaluation

Forecasting is an on-going process of intelligence gathering, learning from previous forecasts, reflection and refinement. Our previous reports accompanying the Draft Budget have highlighted some of the uncertainties and outlined the scale of risk in forecasting.

However, as highlighted above, forecast error and subsequent evaluation is an integral part of a good forecasting process. It is worth noting that when we refer to 'errors', this refers to the difference between what was forecast and the latest data on tax raised. We are not implying that these are mistakes in forecasting, or that the error could have been avoided.

**Land and Buildings Transaction Tax**

Land and Buildings Transaction Tax (LBTT) is the tax paid when land and property is purchased. LBTT operates differently for residential and non-residential transactions. Residential LBTT also includes the Additional Dwelling Supplement (ADS) which is payable on additional residential properties such as second homes or buy-to-let properties. LBTT was devolved in 2015.

The Scottish Government produced forecasts for 2016-17 in December 2015 and December 2016, alongside Draft Budgets. Both forecasts were evaluated in our recent report.

The residential LBTT forecast is sensitive to changes in house prices and the volume of transactions (purchases). Any difference in either prices or transactions compared to the forecast will result in an overall forecast error. The forecasts produced in December 2015 overestimated residential LBTT revenues in 2016-17 by £68 million because the house price forecast was too high.

In contrast, the forecasts produced in December 2016 underestimated the amount of revenue raised by residential LBTT by £33 million in 2016-17. For this forecast, the methodology for forecasting prices had been revised, which was one contributory factor in the house price forecast being too low.

The Scottish Government used a statistical model to estimate how many residential purchases are in each price bracket. Analysis of the tax raised shows this distribution provides a reasonable estimate of the pattern of residential transactions.

Revenue from the Additional Dwelling Supplement (ADS) was significantly higher than initially forecast by the Scottish Government in December 2015. This was because the forecast for the number of purchases liable for ADS was too low. Now that there is more information available about the proportion of purchases that are additional properties, this error should reduce in future forecasts.

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8 That is, the forecasts produced for Draft Budget 2017-18. The in-year forecasts made in December 2015 (i.e. forecast for the year 2015-16) and in December 2016 (i.e. forecast for the year 2016-17) are not official Government forecasts and were not published in the Draft Budget documents. However, these forecasts were produced at the time of each Draft Budget and provide useful information for this assessment.
The non-residential LBTT forecast produced in December 2015 overestimated revenues by £44 million. The most significant factor in this error was that the forecast for prices was too high. Previous Commission reports have noted that this element of tax revenue can be changed significantly by a very few high priced transactions, which makes it difficult to forecast accurately. In 2016-17, 35% of non-residential LBTT came from the 1% highest priced purchases.

Table 1: LBTT forecasts compared to tax raised (£ millions)

<table>
<thead>
<tr>
<th></th>
<th>2015-16</th>
<th>2016-17</th>
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<tbody>
<tr>
<td>Tax Raised</td>
<td>208</td>
<td>214</td>
</tr>
<tr>
<td>SG Forecast December 2015</td>
<td>227</td>
<td>282</td>
</tr>
<tr>
<td>SG Forecast December 2016</td>
<td>181</td>
<td></td>
</tr>
<tr>
<td>Tax Raised (net basis)</td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>SG Forecast December 2015</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>SG Forecast December 2016</td>
<td>71</td>
<td></td>
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<tr>
<td>Tax Raised</td>
<td>217</td>
<td>176</td>
</tr>
<tr>
<td>SG Forecast December 2015</td>
<td>210</td>
<td>220</td>
</tr>
<tr>
<td>SG Forecast December 2016</td>
<td></td>
<td>228</td>
</tr>
</tbody>
</table>


Non-Domestic Rates

Non-Domestic Rates (NDR), commonly known as “business rates”, are paid by owners, tenants or occupiers of non-domestic properties. The ‘rateable values’ for all properties in Scotland are recorded publicly on the Valuation Roll. These properties are normally revalued every five years, although the latest cycle has been seven years long.

The Commission’s previous role on NDR considered only how the tax rate changes due to inflation and how the total rateable value of all properties may change over time (known as ‘buoyancy’). Some changes to this total value, which can be thought of as the tax base, are linked to the economy, such as the addition or removal of properties, but other administrative changes and some types of appeals can also have an impact.

Because of the number of different drivers of the changes in the size of this tax base, forecasting can be difficult. The Scottish Government have generally forecast NDR revenue by examining how

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9 The ADS tax raised is not the final figure owing to an 18 month window for transferring main residence, selling the previous main residence property (and subsequently reclaiming paid ADS)
10 As at 31st May 2017
this has changed in the past over the revaluation cycle. However, 2016-17 was unusually the seventh year in a cycle. The average growth during years three to five in previous cycles was used to forecast growth in the value for 2016-17.

Using this approach, the forecast for the growth in total rateable value was 1.0% for 2016-17. The data for 2016-17 now available show the figure was 0.33%. This is a relatively small component of NDR receipts and the difference between forecast and outturn is equivalent to a £10 million difference in revenue; in contrast the latest estimate of NDR revenue in 2016-17 was £2.7 billion.

Whilst it is challenging to explain fully the lower than forecast level of growth in the tax base, it appears that contributing factors included several significant removals from the Valuation Roll alongside a lower than average number of significant additions to the Valuation Roll, and a large successful appeal.

Scottish Landfill Tax

Scottish Landfill Tax (SLfT) is a tax on the disposal of waste to landfill. The forecast produced in December 2015 underestimated revenue raised by Scottish Landfill Tax in 2016-17 by £14 million, an absolute percentage error of 10%. The forecast underestimated the level of standard-rated waste, which generates over 90% of revenue. The decline in waste was not as significant as was implied by the Scottish Government model, which assumed landfill targets would be met by 2025.

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
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</thead>
<tbody>
<tr>
<td>Tax Raised</td>
<td>147</td>
</tr>
<tr>
<td>SG Forecast December 2015</td>
<td>133</td>
</tr>
<tr>
<td>SG Forecast December 2016¹¹</td>
<td>150</td>
</tr>
</tbody>
</table>


This had been noted as a risk in the approach taken in previous Commission reports and the Scottish Government subsequently revised their forecast methodology. Following this revision, the in-year forecast produced as a baseline for the Draft Budget 2017-18 had a relatively small error at just £3 million. This can be explained by the seasonality of the waste being different to the previous year.

¹¹ The in-year estimate produced in December 2016 is not an official Scottish Government forecast.
Forecasting – area by area

As outlined above, the Commission is developing its forecasting models and processes to assist us in fulfilling our statutory remit. The Commission’s current intended approach to forecasting, at a very high level, is summarised below. This approach will feed into the Commission’s forecasts published alongside the Scottish Government Draft Budget later in the year. As new information and analysis emerges, the forecasts produced for the Draft Budget 2018-19 and future Draft Budgets may differ in some details to what is set out below.

Economy

The Commission produces economic forecasts for two reasons:

- To fulfil its remit of providing quarterly forecasts of onshore Gross Domestic Product (GDP)\textsuperscript{12} and;
- To provide information on the economic variables that feed into the Commissions fiscal forecasts, such as wages, employment and hours worked that feed into the income tax forecast.

The forecasts are created on a consistent basis through a large and disaggregated economic forecasting system. This produces forecasts of a number of economic factors to help shape the forecasts of the critical variables mentioned above or sense check the forecast.

The Commission’s economic forecast will focus on onshore GDP, disaggregated by the components of expenditure: household consumption; government spending and trade, and also the labour market. We do not plan to produce separate forecasts of:

- different industries – for example manufacturing or construction
- individual regions of Scotland
- incomes of different types of households – e.g. by type/level of income
- the UK as a whole

The remit of the Commission requires that we produce onshore GDP growth forecasts for Scotland - that is excluding economic activity in the UK Continental Shelf - although we do consider the oil & gas extraction industry’s impact on the onshore economy, such as through the supply chain.

A range of models are used to forecast the economy. These include theory-based structural econometric models of the economy, empirically based time-series models, and simple trend

\textsuperscript{12} Onshore GDP is used as shorthand in referring to Scotland’s GDP excluding the value of oil, gas and other hydrocarbons produced in the Scottish sector of the UK continental shelf as defined in the Scottish Fiscal Commission Act 2016 (link). This is the same basis as the headline GDP figures published by the Scottish Government (link).
projection models. Whilst the models used can help provide insight and guidance, judgement plays an important role. Judgment is required in both how the models are operated, and how the results from different models are used and combined. Ultimately, the forecast will be driven by the judgement of the Commissioners, rather than depending mechanistically on the output of any one model.

Short-term forecast models attempt to anticipate any shocks or volatility in the economy, primarily driven by shocks to the demand side of the economy. This volatility is modelled with less theoretical and more empirically driven time-series approaches, using recent economic data and surveys of the Scottish and UK economies. This approach, based on ARIMA models,\(^\text{13}\) is appropriate for the first few quarters of the forecast, but has a limited time horizon, after which more structural and theoretical models are needed.

The long-run outlook is anchored to theoretical supply constraints of the Scottish economy. We combine trend forecasts of population, the labour market and productivity (the amount that can be produced per hour worked) to generate potential output or the maximum amount of goods and services the economy can sustainably produce. This forecast in particular will be heavily influenced by the judgement of the Commissioners.

The final part of the forecast process is to connect the short-run forecasts to the long-run supply projections. This is primarily done using a large structural model of the Scottish economy called SGGEM.\(^\text{14}\) Some components of aggregate demand, such as trade and public sector output, are constructed in stand-alone models. Otherwise, the pathway of the labour market, wages, inflation and consumption are modelled using a theoretical framework, aiming to align demand with supply over the forecast horizon. Consideration will also be given at this stage to any additional factors that may affect the pathway of the economy over the forecast horizon.

**Income Tax**

The Scotland Act 2016 transferred to the Scottish Parliament the power to set non-savings and non-dividend\(^\text{15}\) (NSND) income tax rates and thresholds, with the exception of the personal allowance. Since April 2017, the Scottish Government receives all the revenue from income tax on the NSND income of Scottish taxpayers.

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\(^{13}\) Auto-Regressive Integrated Moving Average. See Box 2.1 in our [Current Approach to Forecasting report](http://www.fiscalcommission.scot/publications/occasional-papers/current-approach-to-forecasting-september-2017/) for more details.

\(^{14}\) SGGEM is a model based on the [National Institute for Economic and Social Research’s NIGEM model](http://www.fiscalcommission.scot/publications/occasional-papers/current-approach-to-forecasting-september-2017/). See Box 2.2 in our Current Approach to Forecasting Report for more details.

\(^{15}\) This is primarily income from employment, pensions and property.
The responsibility for defining the income tax base, including setting or changing income tax reliefs and the personal allowance, continues to rest with the UK Government. HMRC remains responsible for the collection and management of Scottish income tax. It is HMRC’s responsibility to decide who is and who is not a Scottish taxpayer as provided for in legislation. The Scotland Act 2012 defines a Scottish taxpayer as someone who is a UK taxpayer and has their main place of residence in Scotland.

Future income tax revenues will be primarily driven by the number of taxpayers and their incomes. Forecasts of earnings and employment are taken from the core economic forecast. Relatively small changes in these economic determinants may lead to significant changes in the income tax forecast.

The income tax system has a progressive structure where tax rates increase with income. Therefore, the data on the distribution of incomes are an essential input to the forecast. These are captured by using the detailed income tax dataset the Survey of Personal Incomes (SPI). The economic determinants are applied to the SPI dataset to forecast income tax over the forecast horizon.

**Land and Buildings Transaction Tax**


LBTT is paid on the purchase of property and land. The two components of LBTT are residential and non-residential (commercial) property. Residential LBTT also includes the Additional Dwelling Supplement (ADS) which is payable on additional residential properties such as second homes or buy-to-let properties. Forecasts of house prices and transactions are the key drivers of future LBTT revenues.

The core residential LBTT is a progressive tax so the charge is proportionate to the actual price of the property. The percentage rate for each band in LBTT is applied only to the part of the price over the relevant threshold and up to the next threshold.\(^\text{16}\)

The core residential LBTT model uses publicly available quarterly data from Registers of Scotland\(^\text{17}\) to create a simplified and representative distribution of house prices and transactions in Scotland. This distribution is then projected forward to produce a 5 year forecast of the price, distribution and number of transactions in Scotland.

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\(^{16}\) Revenue Scotland information on LBTT ([link])

\(^{17}\) Registers of Scotland quarterly house price statistics ([link])
Non-residential revenues are significantly influenced by a small number of transactions generating most of the revenue. This makes non-residential revenues volatile and difficult to forecast.

Currently, the non-residential revenue forecast is calculated by applying the price and transaction growth rates to an average of the previous three years of revenues uplifted by inflation.

Non-Domestic Rates

Non-Domestic Rates (NDR) is an annual tax paid by the owner, tenant or occupier of non-domestic properties. The amount of tax paid is dependent on the rateable value of the property, the tax rate (also known as poundage)\(^{18}\) and any reliefs, exemptions or supplements applied to the property.

The current model used to forecast the contributable amount of NDR makes use of available data from the Scottish Assessors and Local Authority returns. First, the model uses data from the Scottish Assessors Association (SAA) on total rateable value in Scotland to estimate and forecast the tax base. Then, the tax rate and any supplements are applied, followed by the deduction of reliefs and a number of other adjustments.

Air Departure Tax

From April 2018, Air Departure Tax (ADT) will replace UK Air Passenger Duty (APD) in Scotland. In June 2017, the Scottish Parliament passed the primary legislation enabling ADT. ADT will broadly mirror the structure of APD.\(^{19}\)

APD is a tax paid on passengers departing from UK airports. The amount of tax paid depends on the passenger’s class of travel and their final destination. Under APD, destinations fall into two bands based on flight distance from London. The higher band applies to countries further than 2,000 miles from London. As APD applies to the final destination, connecting flights are exempt. ADT will include this exemption.

There are a number of other exemptions to ADT included in the Bill, such as passengers under the age of 16 travelling in the lowest class.

The rate of APD paid is determined by the class of travel. The reduced rate applies where passengers are travelling in the lowest class available. The standard rate applies to passengers travelling in any other class of travel and the higher rate applies to private jets.

The Scottish Government will present the proposed tax rates and bands for ADT with the secondary legislation. This is due in autumn 2017.

\(^{18}\) Business Rates Guidance (link)  
\(^{19}\) Air Departure Tax (Scotland) Act 2017 (link)
We are in the process of developing a model to forecast ADT receipts. The model currently uses the historic time series of Scottish passengers to forecast future passenger numbers. The CAA survey data allocate these passengers into the different bands and classes. The appropriate tax rate will then be applied to these passengers to estimate total ADT receipts.

The Commission has engaged with the OBR on their forecasting approach for the UK APD regime. Their forecasts use the correlation between GDP and the number of passengers in each tax band to forecast receipts. A separate adjustment is made to account for the rise in low cost operators. The Commission will review their methodology alongside other approaches and consider the available data to assess the most appropriate methodology to forecast ADT receipts.

Scottish Landfill Tax

Scottish Landfill Tax (SLfT) is a tax on the disposal of waste to landfill. The power to set a tax on landfill deposits was devolved to the Scottish Government as a result of the Scotland Act (2012). From 1st April 2015, Revenue Scotland became responsible for collecting revenue for the newly created SLfT, which replaced the previous UK-wide tax.

The amount of tax payable is determined by the weight of waste being disposed of on the basis of two rates. The current standard rate of SLfT is £86.10 per tonne and the lower rate is £2.70 per tonne for certain inert materials such as naturally occurring soil and rocks.

The approach makes use of outturn data from Revenue Scotland on the amount of standard and lower rate waste being landfilled, which is then projected forward to give a baseline level of landfill waste over the forecast horizon.

Adjustments are then made to this baseline to take into account anticipated increases in the capacity of alternative waste treatment facilities across Scotland. These facilities are an alternative to landfilling waste, and, once operational, can be expected to reduce the level of waste being landfilled.

After accounting for changes to alternative waste treatment capacity across Scotland in the baseline, a forecast of revenue is made by applying the relevant tax rate to the forecast amount of waste. The rates of tax for landfill have previously been assumed to increase with RPI, in line with the current stated UK government policy.

Social Security

The Scottish Fiscal Commission is responsible for producing forecasts of devolved demand-led social security expenditure to inform the Scottish Government’s budget. The Scotland Act 2016 devolved a number of demand-led social security benefits to Scotland. These benefits are:
• Disability Living Allowance
• Personal Independence Payment
• Attendance Allowance
• Carer’s Allowance
• Industrial Injuries Disablement Benefit
• Severe Disablement Allowance
• Sure Start Maternity Grant (to be replaced by the Best Start Grant)
• Funeral Payments (to be replaced by Funeral Expense Assistance)
• Winter Fuel Payments
• Cold Weather Payments

The transfer of these powers will be phased with the first benefits due to be devolved from summer 2018. The Scottish Government has announced that an increased Carer’s Allowance will be devolved from summer 2018 and the Best Start Grant and the Funeral Expense Assistance will be devolved by summer 2019.20

The Commission has begun preparations to forecast the demand-led social security benefits likely to be included in the Draft Budget 2018-19. This builds on work already undertaken in the Scottish Government to develop forecast models for the benefits being devolved. This development work will continue over the autumn. The first forecasts of devolved, demand-led social security expenditure will be published to accompany the Scottish Government’s Draft Budget 2018-19 and will cover the benefits devolved in 2018-19.

The benefits being devolved are largely linked to ill-health, disability, maternity, caring and age. Demographics, eligibility criteria and the take-up rates for these benefits will be important factors in determining the level of expenditure on each benefit rather than other common factors, for example the performance of the economy. This presents challenges for forecasting expenditure and, particularly in the case of changes to benefits, a wide range of data sources will be used to estimate expenditure.

VI Developing the Commission’s first Corporate Plan

The Scottish Fiscal Commission is seeking views on its first Corporate Plan. The Plan covers the first three years of the Commission’s operation from 1 April 2017-2020.

20 Scottish Government news release on Social Security benefits (link)
We have sought views from a number of stakeholders, both in the lead-up to and since becoming a statutory body on 1 April 2017; these discussions have fed into the development of the current draft Corporate Plan.

In the draft plan, we define our mission:

As Scotland’s independent fiscal institution, the Scottish Fiscal Commission will produce independent, official forecasts.

We intend to fulfil this mission through the delivery of our statutory duties and strategic objectives. We will be:

- Independent
- Transparent
- Accessible, and
- Open

Our remit, which is set out in the Scottish Fiscal Commission Act, is to provide independent forecasts and assessments to inform the Scottish Budget. Over the first three years we aim to achieve this by:

- Delivering trusted, reliable and accessible economic and fiscal forecasts.
- Working openly and constructively with stakeholders while maintaining our independence.
- Increasing understanding through active external engagement and clear publications.
- Building an organisation with robust governance, knowledgeable staff and transparent processes.

We are keen to hear from interested stakeholders on the following questions.

1. Do you have any views on our mission and the principles for our operation set out in the Corporate Plan?
2. Do you have any views on the Strategic Objectives and key activities to deliver these?
3. Is there anything you would like to see added to, or removed from, the strategic objectives and key activities?
4. What measures would you like to see in the Plan to assess our performance against our objectives?
5. Are there any other aspects of the Plan you would like to comment on?
We are keen to encourage as much feedback as possible. Please go to our website\(^{21}\) if you would like to contribute to see how to get in touch.

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