Department of Energy & Climate Change

Non-domestic RHI budget forecast methodology (June 2014)

1.1 The expenditure forecast will set out:

i) the total forecast expenditure across all technology bands supported by the scheme,

ii) the total forecast for expenditure for each technology band,

iii) the increase in expenditure forecast for each technology over the last quarter.

1.2 The total forecast expenditure is an estimate of the cost for the next 12 months of applications received before the relevant date of assessment[1]. Applications included in the calculation are:

- installations accredited or registered onto the scheme by Ofgem
- any other installations for which Ofgem has received a full[2] application and has not yet been accredited.[3]
- any other installation for which Ofgem has received an application for preliminary accreditation as long as the estimated date of commissioning[4] of the installation is before the end date of the assessment period.[5]
- any other installation for which Ofgem has received an application for preliminary registration as long as the estimated date on which injection is expected to be commence is before the end date of the assessment period.

1.3 The technology bands for which an estimate of spend over the next 12 months will be provided, is as follows;

- small biomass plants;
- medium biomass plants;
- large biomass plants;
- ground source heat pumps;
- plants which use solar collectors;
- plants which generate heat from biogas;
- producers of biomethane for injection;
- new solid biomass CHP systems;
- deep geothermal plants;
- air source heat pumps.

The increase in expenditure forecast will also be broken down by technology type as listed above. This is the change in forecast spend over the last quarter.

[1] Assessment dates are defined by regulations as: 30 April, 31 July, 31 October and 31 January in any given year

[2] A 'full' application, as opposed to a 'preliminary' application, is an application for an already commissioned system

[3] Applications are not included if they are rejected by Ofgem; withdrawn by the applicant; or are dormant [i.e. if 4 months have passed since the date the application was made and the application has not been determined]

[4] Commissioning date is the date when the system becomes operational

[5] The assessment period is the 12 months from the assessment date [see footnote 1]

Data sources

2.1 Ofgem provide relevant data to DECC every month on each of the installations which fall within the above categories. In order to calculate estimated spend, DECC use the following data:

- the type of technology installed
- the intended heat use as reported by the applicant
- the size (capacity) of the installation in kW
- the tariff for that applicant
- the application effective date[6]
- the commissioning date (if relevant)
- for plants >1MW (>600Km in the case of biogas) the applicants estimated annual eligible heat generation **or** estimated volume of gas to be injected into the grid in the case of biomethane plants
- the amount of eligible heat produced, in kWh, for each installation that has submitted meter readings and received payment
- The amount of biomethane injected into the grid, converted from cubic meters into kWh.

Methodology

3.1 **Estimated spend**

We calculate the estimated spend under the scheme in the following ways.

3.2 For large installations with capacities >1MWth, or 600kWth for biogas, where the applicant has provided a declaration as to the plant's total estimated annual eligible heat generation, we will use:

- this estimate;
- the number of hours within 12 months for which the system will be operational (generally 8760 or 8784 for leap years, apart from for applications for preliminary accreditation - see below); and
- the appropriate tariff.

3.3 For installations which are biomethane plant we will use:

- the actual flow rate of the plant[7] if the producer has received payments, or
- the estimated annual volume of gas to be injected into the grid if they have not received payment;
- the number of hours within 12 months for which the system will be operational (generally 8760 or 8784 for leap years, apart from for applications for preliminary registration – see below); and
- the appropriate tariff.

3.4 For installations which do not fall, within 3.2 or 3.3, we will use:

- the installation capacity of each installation ;
- the number of hours within 12 months for which the system will be operational (generally 8760 or 8784 for leap years, apart from for preliminary applications – see below);

[6] Date the application is accredited by Ofgem

[7] This is the volume of gas injected into the grid by the producer during all quarters he has received payment, divided by the number of hours in those quarterly periods

- the actual load factor (see below) for the individual plant if they have provided metering data[8], or
- the average load factor if they have not provided metering data; and
- the appropriate tariff

3.5 Applications for preliminary accreditation
Applications for renewable heat plants that have a commissioning date in the future are known as preliminary accreditation applications as the systems are not yet operational. The number of operational hours for such applications is the number of hours from the commissioning date to the end of the 12 month assessment period. Installations that have a commissioning date after the end of the 12 month assessment period are not counted.

3.6 Applications for preliminary registration
Applications where the plant is estimated to start injecting gas (biomethane) into the grid in the future are known as preliminary registrations. The number of operational hours for such applications is the number of hours from the date on which injection is expected to commence to the end of the 12 month assessment period. Installations that have an expected first injection date after the end of the 12 month assessment period are not counted.

3.7 Load factors and flow rates

We determine, and apply, load factors / flow rates when estimating spend. We do this in the following ways.

3.8 For plants which fall within paragraph 3.2 above, a load factor is not applied. Instead we use the declaration provided by the applicant as to the plant's total estimated annual eligible heat generation to determine estimated spend for that individual plant. Where declaration have not been provided these fall within paragraph 3.4.

3.9 For plants which fall within paragraph 3.3 the actual flow rate is applied if the producer has received payments, or otherwise we will use the declaration provided by the applicant as to the estimated annual volume of gas to be injected into the grid to determine estimated spend.

3.10 For plants which fall within paragraph 3.4, an actual or average load factor is applied.

3.11 Actual load factors
For all installations that have provided one or more meter reading(s) to Ofgem and received payment, the load factor will be the total amount of heat generated (*E(t)*), in kWh, between the first and latest reading for that installation, divided by the time (*t*), in hours and divided by the installation capacity (*C*).

$$Load\ factor = \frac{E(t)}{C \times t}$$

3.12 The effect of this calculation is to determine the fraction of heat actually generated compared with the maximum heat the installation could have produced in this time were it being run at full capacity.

[8] Where meter readings are submitted to Ofgem these will be used to calculate estimated spend for individual installations, and to calculate an average estimated spend for plants yet to provide readings. Meter readings are required to be submitted approximately every 3 months from the point of a renewable installation's accreditation date or a biomethane producer's registration date

3.13 Average load factors

For all plants which have not provided meter readings an average load factor will be applied. This will be based on an average of other load factors calculated from the meter readings of other installations. The average in this case will be calculated in one of the following ways:

i. When there are sufficient meter readings, the average load factor of installations with the same tariff bands and heat use will be taken e.g. small biomass providing space heating.
ii. When there are sufficient meter readings within a tariff band but not a specific heat use, then the average load factor across the tariff band will be taken e.g. all small biomass.
iii. When there are insufficient meter readings within a tariff band, then the average load factor across all installations will be taken e.g. load actors across all technology bands.

3.14 For all plants other than large biomass plants and large ground source heat pumps, "sufficient" for the purposes of (i)-(iii) means 20 or more sets of meter readings.

3.15 Slightly different rules apply in the case of large biomass plants and large ground source heat pumps (>1MW):

a. In the case of large biomass boilers, an average load factor will be based on either:
    - the average across 10 or more sets of meter readings where all those installations are using heat for the same eligible purpose; or
    - where this is not the case, an average based on load factor across all large biomass installations who have submitted meter readings regardless of heat uses.

b. for large ground source heat pumps, an average load factor will be
    - the average across 5 or more sets of meter readings where all those installations are using heat for the same eligible purpose; or
    - where this is not the case, an average based on load factor across all large ground source heat pump installations who have submitted meter readings regardless of heat uses.

3.16 The intended use of the heat can fall into one of 4 categories:

- Space heating
- Water heating
- Space and water heating
- Any combination of space heating, water heating or heating for any other eligible purpose

3.17 Actual flow rates (Biomethane)

For all installations that have provided one or more meter reading(s) to Ofgem and received payment, an actual flow rate will applied. This is the volume in cubic meters of biomethane injected during all quarterly periods in respect of which the participant has received payment, divided by the total time, in hours, in those quarterly periods.

Estimated flow rates (Biomethane)

For biomethane applicants which have not provided meter readings the estimated flow rate will be applied to each applicant. This is based on the applicant's individual estimates of the volume of gas they will inject into the gas grid in the coming 12 months. This volume will then be converted to a kWh and used to estimate an individual load factor.

3.18 **How RPI is accounted for**

3.19 All tariffs will be adjusted annually from 1 April by the percentage increase or decrease in the retail prices index for the calendar year ending with the previous 31 December. The tariff will be rounded to the nearest hundredth of a penny, with any two hundredths of a penny being rounded upwards.

3.20 For forecasting purposes, and where RPI is not yet known, forecast expenditure will be adjusted for inflation using the OBR published figures for the months falling into the next financial year.

3.21 For example, a forecast made as at the 31 July 2014 for the following 12 months will have 4 months that fall into the next financial year. The forecast expenditure will be adjusted by a third of the OBR published figure (a third because the inflation figure is for a full year and the adjustment only needs to be made for 4 out of the 12 months in this example). The figures can be found in the Economic and fiscal outlook supplementary economy tables - March 2014.

Calculation of tariffs following an announcement that a reduction will be made

4.1 Following an announcement by DECC that a tariff will be reduced, the relevant tariff will be reduced by the relevant percentage figure with the resulting figure being rounded to the nearest tenth of a penny, with any twentieth of a penny being rounded upwards, if the reduction occurs in the 2014-15 Financial Year.

4.2 Any tariff reduction which occurs after 1 April 2015 will have a different rounding applied to the resultant figure i.e. the reduced tariff will be rounded to the nearest hundredth of a penny, with any two hundredths of a penny being rounded upwards e.g. this means that the reduced tariff will be rounded down to the nearest tenth of a penny if the hundredth of a penny ends in 0.01 to 0.04 and will be rounded up to the nearest tenth of a penny if it ends in 0.05 to 0.09.

4.3 If the forecasts in an expenditure forecast statement suggest that tariffs will be reduced, and there was a previous reduction in the last quarter, then the level of any further reduction will depend on the extent to which the expenditure forecast has changed in the intervening quarter compared to the figures set out in the regulations.

- There will be no reduction if the increase in expenditure since the quarter (i.e. the growth) is less than 50% of the figure set out in the regulations
- There will be a further 5% reduction if the growth is at least 50% of, but less than 150%, of the figure set out in regulations
- There will be 10% reduction if the growth is at least 150% of the figure set out in regulations and the tariff reduction last quarter was 5%
- There will be a 20% reduction if the growth exceeds the figure set out in regulations by more than 150%, and the tariff reduction last quarter was 10%.