


Northern Ireland Water Ltd Annual Information Return 2013

Part 9 of 9 containing:
Energy Consumption and Greenhouse Gas Accounting -
commentary for table 45

Public Domain Submission
23 October 2013

Table 45 – Energy Consumption and Greenhouse Gas Accounting**Commentary by REPORTER****1. Background**

This commentary provides details from our review of NI Water's Carbon Accounting assessment included in Table 45.

2. Key findings

- NI Water has applied the UKWIR carbon accounting methodology correctly.
- NI Water has applied the correct greenhouse gas conversion factors.
- The carbon accounting boundary includes all of NI Water's activities
- A Climate Change Mitigation Strategy to reduce energy usage and carbon emissions is in place to assist in achieving long term emissions reductions.
- Improving the accuracy of the Flow-to-Full-Treatment figure needs to be considered in the future

2.1 Recommendation

- We believe that the data collation and calculation system would need to be improved in a specifically formatted data list. We would also recommend that the methodology statements for each data provided by various data owners could be attached with the data list sheet.

3. Audit Approach

The audit consisted of an interview with the NI Water Energy Manager and a review of relevant documentation, system methodologies, and data used to compile the table. The audit also included a review of the Company's commentary.

4. Audit Findings**4.1 General**

The audit consisted of an interview with the Energy Manager to discuss the methodology and data that has been used to populate this table as well as plans for improving the data in future years.

4.2 Annual operational GHG emissions

Total operational emissions (calculated according to Defra guidelines) were 184,170 tonnes of CO₂e. Total operational emissions are stable from 2011/12. In detail, whilst operational emissions from NI Water's activities are reduced by 3%, emissions from PPP have increased by 5% from AIR12. We understand these are due to a reduction of grid energy usage in NI Water's activities and increases in site usage due to new plant and outsourced activities within the PPP's.

Figure 45.1 below shows the annual change of NI Water’s total gross operating emissions. Considering the Company’s confidence grades and changes in conversion factors, the change in emissions is within its accuracy limits.

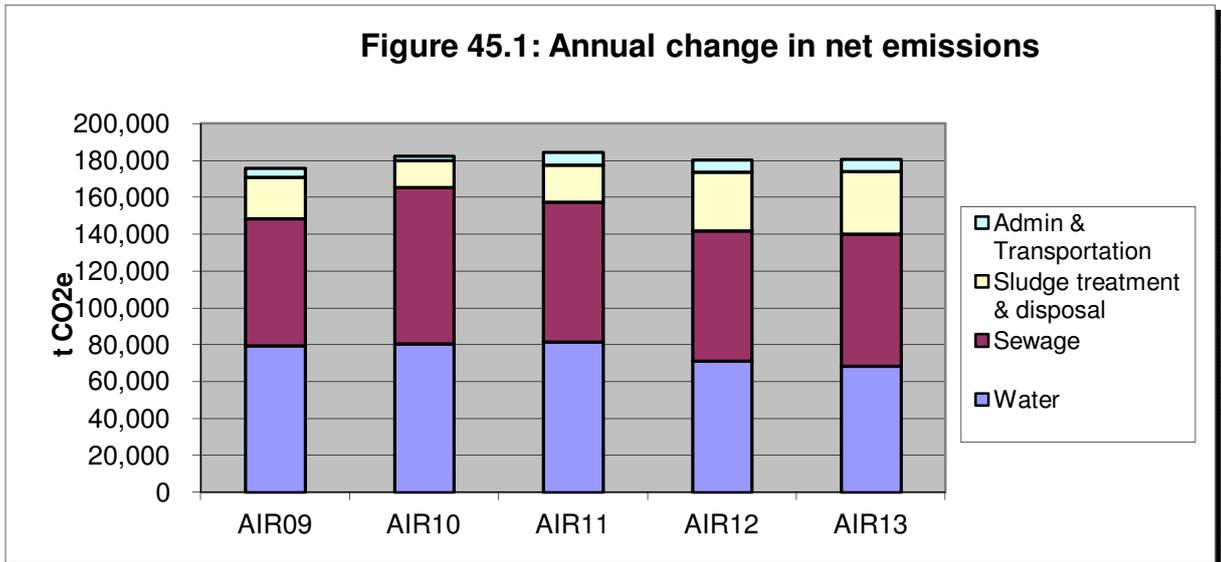
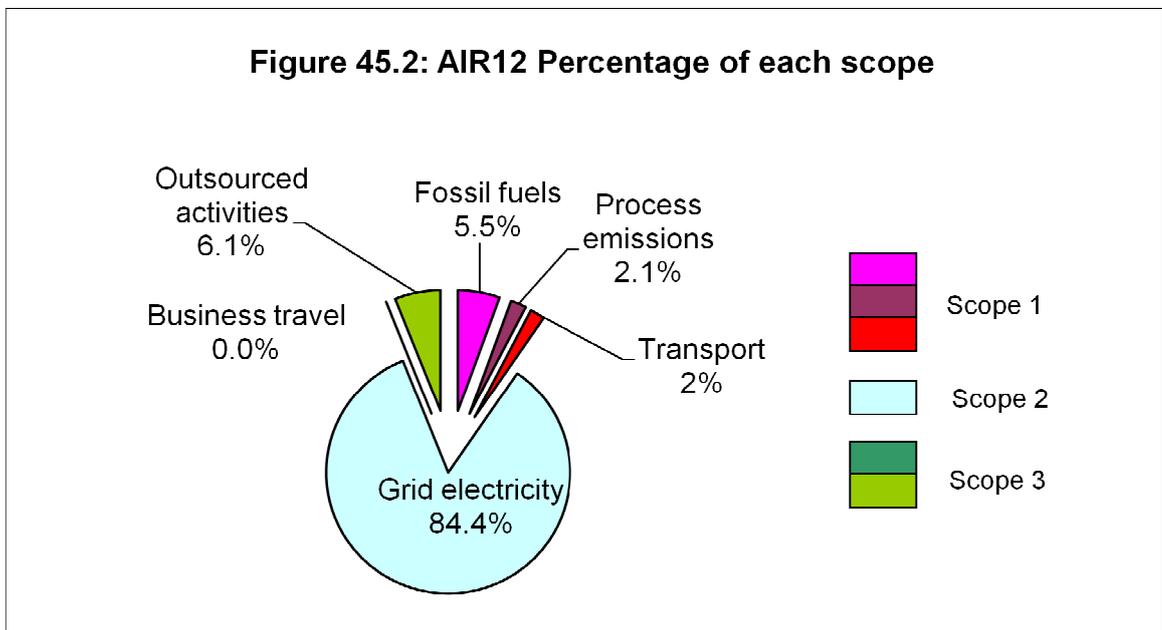


Figure 45.2 shows that the majority of emissions are from scope 2, grid electricity used by the Company, which is around 84% of total emissions.



NI Water explained that outsourced activities such as its call centre, Echo, are excluded. However when we checked the electricity data, a part of Capital House is included in the electricity calculation. Previously this was totalling 0.01% of total electricity consumptions and therefore immaterial. All other activities including septic tank and vehicle maintenance, which are non-appointed business, are included.

Sludge treatment, recycling and disposal

NI Water's gross emissions from Sludge have increased by 2,224 tCO₂e (7%) from AIR12. The Company explains that this increase is due to the inclusion of emissions from sludge disposed to a third party by PPP.

Administration

Emissions from administration are reduced by 104 tCO₂e (7%) from AIR12. As previous years NI Water has not included emissions from SF₆, PFC or HFC.

Transportation

In AIR12, NI Water explained that emissions from transportation are split between water and wastewater on a 50:50 basis and between petrol and diesel on a 20:80 basis. In AIR13 the split between petrol and diesel was changed to 60:40.

Emissions from air travel have only been included for PPP contracts. The Company explained that they included all of NI Water's business related travel emissions and this includes staff site mileage and company fleet vehicles.

We found that business travel (scope 3) has reduced by almost 12% from AIR12.

Electricity

We observed a 0.2% decrease in total grid electricity consumption from AIR12 to AIR13. In detail, electricity consumption by NI Water is increased by 11% but this is offset by a 20% decrease in PPP usage. In terms of the emissions, the scope 2 emissions for AIR13 are similar to the last year emissions. The emissions from electricity consumption at NIW sites increased by 1% while the emissions at PPP sites decreased by 3% from AIR12.

4.3 Annual operational GHG intensity ratio

The Company has calculated its gross emissions/MI of water or sewage treated, using Table 10 Line 26 (for water) and Table 14 Line 7 (for wastewater) respectively. We found that whilst the gross emissions/MI of treated water and of sewage treated (FFT) are similar to that reported in AIR12, the gross emissions/MI of sewage treated (based on water distribution input) significantly increased in PPP and consequently in Total.

NI Water uses the Flow-to-full-treatment (FFT) figure and assumes that this includes the volume of wastewater returned (based on distribution input) and surface water. We and the Regulator believe that this surface water estimate should also include:

- road drainage (as NI Water highlights),
- groundwater infiltration,
- roof and other surface drainage to sewer,
- other surface water directly discharged to river, and
- water spilled through CSOs and storm-tanks.

NI Water does not use MCERT figures for Line 23 therefore FFT figures could produce a significantly different '*emissions/MI of sewage treated*' figure if better

means of measurement or better estimates of the components were available.

We understand that the Company did not have enough time to investigate FFT figure any further; however, the road drainage estimate is made up from a number of coarse assumptions and is therefore considered to be of a low accuracy. We would recommend further consideration of how FFT should be measured in the future.

5. Company methodology

5.1 Strategy

During the audit, we discussed the Company's carbon reduction commitment. The Company explained that NI Water has its own specific Climate Change Mitigation Strategy aligned to energy and carbon reduction and they do acknowledge the targets set by the Government. Their long term target is to reduce carbon emissions by 80% by 2050 (against a 1990 baseline). The Company also explains that they have a green energy efficiency target, which was set at 40% by 2020. NI Water currently purchases green tariff and generates a total of 15-16% of total electricity consumption. NI Water added that once they have a new supplier they should be able to achieve minimum of 20%. To assist in achieving this, the Company is planning to install wind turbines and hydro systems and is trying to fix some of broken equipments.

The Company does not currently have a figure for 1990 baseline however the current Climate Change Mitigation Strategy will assist in the reduction of carbon emissions over the PC13 & PC15 periods. To purchase green tariff energy is not the only way to reduce emissions. We urge NI Water to come up with short and medium term emission reduction goals to achieve and measure against a long-term target; however the aforementioned strategy (subject to Regulatory funding) will address the concerns.

5.2 Data source

During our audit, we discussed data sources, and use and requirements of data as per the UKWIR methodology. We believe the data collection process is appropriate. For example, energy suppliers send electricity invoices from half-hourly meters at each site to the Company's finance and energy teams on a monthly basis in a spreadsheet format. This subsequently enables compilation for returns such as the AIR submission.

5.3 Reporting boundary

During our audit, we discussed with the Company its carbon accounting reporting boundaries. The inputs to the UKWIR worksheet appear to be in line with the NIAUR guidance:

- The Company has produced CAW workbooks (version 7.0) for NI Water only and PPP, and then added these to provide NI Water total figures.
- The Company explained that emissions related to outsourced activities are not

included except emissions from sludge disposed by outsourced operators. All of NI Water activities including non core business are included.

- No supply chain, embedded or short cycle emissions are included, except NI Water's outsourced emissions from their capital programme partners and PPP programmes.
- Emissions from all of business mileage related to NI Water's activities are included.
- Other GHG emissions and their carbon equivalents are not included as the Company does not presently record this information.

5.4 Assumptions & Omissions

During our audit, the Company confirmed the assumptions made for AIR13:

- The volume of water in sludge has been calculated at 30% of wet tonnes to dry solids. This information was provided by its contractors. We confirm a ratio of 22% to 30% has been widely used in the industry, thus we confirm the approach is reasonable.
- NI Water has assumed a 60:40 split between petrol and diesel for fuel use and a 50:50 split between water and wastewater for transportation and admin.
- Other GHG gases such as PFC's, HFC's and SF6 are not included in AIR13. We believe emission from these gases would be immaterial.

5.5 Validation of the inputs

We checked that all data collected and used in the methodology was clearly marked with units and these had been consistently applied.

We also checked that figures from other tables such as Tables 10 and 14 are consistent.

Having 3 UKWIR workbooks (NI Water only, PPP and total) to produce Table 45 is not efficient and could lead to possible mistakes. In fact, we believe that there are mistakes in PPP and Total carbon workbooks. We believe that Line 10 Columns 2 and 3 should be 3,838.80 and Line 14 Columns 2 and 3 should be 11,166.86.

We suggest a better data collation and calculation system could be in place to manage the better presentation of Table 45.

5.6 Conversion factors

We confirm that the correct spreadsheet has been used and the conversion factors locked within it have been applied.

6. Confidence Grade

As electricity consumption contributes the most to the overall GHG emissions, overall confidence grades reflect the energy consumption confidence grades. Circa 84% of total emissions according to Defra guidance are from electricity consumption (scope 2), of which 98.9% (83% of the total emission) are based on half hourly metered data.

Electricity consumptions are directly linked to the cost and were also checked. We believe that the electricity related emissions should therefore be reasonably accurate and we concur with the Company's assessment.

Scope 1 emissions are also linked to finance and we thoroughly checked the usage from both finance and consumption. As is common across the water industry in England and Wales, NI Water is confident in the reliability of data relating to its own activities (reported in blocks B1 and B2), but has less confidence in the information provided by its contractors in block B3. NI Water assigned CX for the emissions in this block this year. However, we believe that the unknown emissions are relatively immaterial and we concur with the Company's assessment.

Date: 29 July 2013
Prepared by: HMS