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Council Frameworks on Climate Change Baseline Data and Methodology review

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Climate Frameworks on Climate Change

Foreword

Richard Wood, Head of Low Carbon Accountability, Department of Energy and Climate Change

The Local Carbon Frameworks programme was designed in recognition of the substantial contribution local authorities can make to carbon reduction within their sphere of influence.

The aim of the Local Carbon Framework Programme was to:

- **Integrate** measures to combat climate change into the core business of local authorities as stewards for community action on carbon (at business, commercial and neighbourhood level);
- **Align** carbon reduction to the growth of the green economy and public sector efficiency;
- **Optimise** the local authority contribution to the national carbon budget and secure local carbon accountability in line with the Government's localism agenda.

In line with the Government's commitment to maintaining a light touch, the responsibility for driving and optimising low carbon performance in the public sector will in future rest with local government. The recently signed Memorandum of Understanding between the Department of Energy and Climate Change and the Local Government Group constitutes the basis of this agreement with the expectation that it will result in robust, self-regulated action on carbon reduction in the form of new 'Council Frameworks on Climate Change', to be overseen by a second phase 'Nottingham Declaration'.

Working to a Council Framework on Climate Change, an authority would set itself stretching ambitions (benchmarked against other comparable authorities) to reduce greenhouse gas emissions within its sphere of influence; and to identify the trajectory and delivery plan for achieving these ambitions.

Critical to enabling local authorities to take action was defining how to generate the data and identifying consistent methodologies for assessing what steps need to be taken and at what spatial level. The Energy Saving Trust (EST) have brought together a core group of experts to consider the issues, review the tools available and develop guidance.

This EST package of a **Baseline Data and Methodology** review will provide the foundations from which any local authority can begin to plan how it can optimise its contribution, and do so in a way that is wholly compatible with its core aspirations for economic growth, efficiency savings and community engagement.

1 Empowering Local Authorities to drive Climate Change

The nature of the relationship between central and local government on climate change has changed markedly over the last 12 months. The recent Memorandum of Understanding (MOU) between the Local Government (LG) Group and the Department of Energy and Climate Change (DECC) on climate change seeks to frame how this relationship will operate going forward.

The MOU sets out a partnership arrangement between DECC and the LG group to help councils meet national and local climate change, fuel poverty and renewable energy targets. DECC and the LG Group will work together to help and encourage all councils to take firm action – underpinned by locally ambitious targets and indicators - that enable councils to:

- Reduce the carbon emissions from their own estate and operations;
- Reduce carbon emissions from homes, businesses and transport infrastructure, creating more, appropriate renewable energy generation, using council influence and powers; and
- Participate in national carbon reduction initiatives at the local level, particularly the roll out of the Green Deal, smart metering and renewable energy deployment.

The development of a strong evidence base for local energy data will be critical for local government as it will link clearly with the local need and authorities' wider strategic priorities enabling councils to:

- Improve local housing and alleviate fuel poverty
- Ensure the economic development of areas and creation of green jobs and industries
- Encourage investment/ funding
- Demonstrate their own political commitment to climate change
- Ensure that local planning reinforces and drives the local carbon economy
- Fulfil their statutory requirements for the Home Energy Conservation Act (HECA)

The fact that local government will annually measure greenhouse gas emissions emitted from their own estate and operations, publish their local reports on their own local websites and submit their reports to central government, will support the localism agenda by ensuring that local authorities are accountable to their local people for their emissions reduction.. Schemes such as the Carbon Reduction Commitment (CRC), aimed at improving energy efficiency and reducing emissions in large public and private sector organisations also provide a strong financial driver for action.

There are also new opportunities emerging, in part as a result of policy measures such as Feed in Tariff (FITs) and the Green Deal. The New Local Government Network report highlighted how local economies are recognising the benefits of generating renewable energy¹ which has encouraged local authorities to undertake a geographic audit of their area's suitability for particular renewable energy technologies as well as an economic audit of the capacity to support supply chains. Again, this reframes the debate, and while continuing to deliver local carbon reductions, will make other co-benefits more apparent.

Others are advocating different approaches to exploring the potential of low carbon futures and are seeking to ensure an holistic approach to tackling climate change. The recent Forum for the Future and ADEPT report on "Building a Low Carbon Britain"² used a scenario based approach to identify four different low carbon futures outlining different political and social responses that the UK might make to the challenge of climate change in the next 20 years, and the implications that these responses may have for local government.

What is clear is that there will be reduced emphasis on mandatory reporting of historical performance. With an increasingly localised bottom up local government framework and in the context of tighter economic times, the identification of local opportunities and responses and the introduction of carbon saving programmes to realise these will become a stronger driver.

1.2 National Climate Change Targets

¹ <http://www.nlgn.org.uk/public/2011/power-and-money-how-local-economies-can-benefit-from-renewable-energy/>

² <http://www.forumforthefuture.org/projects/public-sector/building-low-carbon-britain>

The Climate Change Act 2008 is the legal framework for ensuring that Government meets its commitments to tackle climate change requiring an emissions reduction of at least 80% by 2050, compared to 1990 levels. Through the introduction of 5 year carbon budgets the Act continues to govern national level emissions, however the role of local delivery in helping to reach these targets remains largely undefined.

The preparation of Council Frameworks on Climate Change will provide an evidence base for local contribution to the national carbon targets. The knowledge and information obtained from the pilots will inform the way in which local authorities seek to optimise their contribution to reducing carbon emissions within their sphere of influence and how they engage with central Government in line with the new localism agenda. This is critical to support Councils in enabling them to quantify the opportunities for reducing emissions of greenhouse gases within their area and power; set out their own local carbon reduction prospects for private-sector investment and community use; be an active participant in the Green Deal; and create local carbon reduction delivery plans, against which the sector can demonstrate accountability.

1.3 Guidance on Energy and Emissions Data

To date, data on energy and emissions has predominantly focused on documenting performance against what has already been delivered³. For different emissions within a local authority area there have been varying levels of guidance and advice. For example under National Indicator 185 Percentage CO₂ reduction from local authority operations, a reporting spreadsheet was produced against which local authorities were able to submit reports to a central portal. For National Indicator 186 Per capita CO₂ emissions in the local area, this was not the case.

Government have previously produced the Energy Measures Report (September 2007)⁴ which sought to identify the range of actions available to different local authorities in order to drive local carbon action and accountability. Other central bodies such as the Local Government Improvement and Development (formerly the IDeA) have sought to reinforce this with their own guidance and documentation. In addition to this guidance the Centre for Sustainable Energy has developed a self-assessment matrix which has been designed to help local authorities and regional agencies understand their influence on carbon emissions - and make energy savings⁵. As the pilot activity continues it is imperative that the guidance available to local government evolves in order to retain relevance.

1.4 Climate Change and Air Quality

Local authorities already have a great deal of experience managing regulated pollutants (including NO_x and PM₁₀). Under Part IV of the Environment Act 1995, councils⁶ have a statutory duty to manage local air quality as prescribed in regulations for the purpose of Local Air Quality Management, and are required to prepare an Action Plan if local air quality is found to breach the regulations.

In contrast, at present, local authorities have a less well defined responsibility (i.e. not a statutory duty) to reduce greenhouse gas emissions within their locality. Although the Climate Change Act 2008 provides a legal framework for ensuring that Government meets its commitments to tackle climate change, this has yet to be passed down to the regional or local levels through legislation.

³ See for example DECC's sub-national energy consumption statistics at:

http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/regional/regional.aspx

⁴ <http://webarchive.nationalarchives.gov.uk/+http://www.berr.gov.uk/energy/environment/asures/page41270.html>

⁵ <http://www.cse.org.uk/pages/resources/toolkits>

⁶ In England, Wales and Scotland.

There may be, therefore, potential benefits in linking strategies to reduce carbon at the local level with those on local air quality. As highlighted by DEFRA in a review of the operation of local air quality management in the UK:⁷ *“the activities and processes which generate air pollution link closely to those that generate carbon emissions, and it is important to consider air quality alongside policies for climate change; however, there are conflicts as well as synergies between these policies, which have not always been well managed up to now.*

This report is structured to explore this debate further focusing on the role of tools and data available to local authorities. Within the report we have sought to demonstrate how the outputs from the work of the expert group can evolve and remain relevant to ensure future use by local government.

2 Role of the Expert Group

Working with DECC the Energy Saving Trust identified and convened an expert group consisting of Aether, the Local Government Group, Carbon Descent, EcoLane, ARUP and the Carbon Trust to support the nine local authority pilot areas. The group was appointed to ensure that knowledge from the pilots could be mainstreamed post March 2011 and to support the pilot projects focusing in particular on data and methodology. The following report seeks to provide an analysis and make recommendations for the development of tools and data that will be required to support local carbon reduction activity.

2.1 Scope of activity

Under the International Greenhouse Gas reporting protocols⁸ the accounting framework for direct and indirect emissions is as follows:

- Direct GHG emissions are emissions from sources that are owned or controlled by the reporting entity.
- Indirect GHG emissions are emissions that are a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity.

The GHG Protocol further categorises these direct and indirect emissions into three broad scopes:

- Scope 1: All direct GHG emissions.
- Scope 2: Indirect GHG emissions from consumption of purchased electricity, heat or steam.
- Scope 3: Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. T&D losses) not covered in Scope 2, outsourced activities, waste disposal, etc.

Within the scope of this report we have identified tools available within the UK and Europe which report within Scope 1 and 2 and have outlined how this tools directory should be managed and maintained to ensure that any tools that are newly created or missing from the report can be included at a later date.

As the report is focused on carbon emissions and carbon quantification rather than physical measures we have excluded social housing management and stock refurbishment tools.

National datasets are available with information on land use, land use change and forestry (LULUCF). We have not sought within the scope of this report to provide details of tools and data other than national

⁷ Review of Local Air Quality Management: final report. Defra, January 2010

⁸ <http://www.ghgprotocol.org/>

datasets on emissions on land use change. We are aware that there are a number of toolkits available to local authority planners in considering carbon reduction possible in and from new build and those that relate directly to energy generation are included within the review but general land use planning tools are not.

The group are also aware of organisations, such as the Carbon Disclosure Project who have provided public sector disclosure of greenhouse gas emissions, water management and climate change strategies. We have not sought to go beyond these in looking at local authority buying power on carbon reduction or the tools and activities related to change management and capacity building within organisations and local areas.

We have focused on the data and software tools which can help Local Authorities in their work on carbon reduction, be that evaluation of options or monitoring impacts and so on. But this is only part of the work required to bring about actual emissions reductions. This report does not consider the wider organisational and community decision making and implementation structures required to make these plans a reality. The on-going work by the Local Carbon Framework evaluation team working for the Local Government Group will consider these elements of the work.

3 Opportunities and options for data on energy and emissions

To date local datasets have predominantly focused on monitoring performance against what has already been delivered. Whilst this type of data should continue to be collated, if the 5 year national carbon targets are to be achieved there needs to be a fundamental shift away from the collation of nationally disaggregated CO₂ data towards the collation of local energy data on remaining carbon saving/ measures potential (i.e. potential for domestic retrofit measures) and its contribution to national carbon targets at a local level. The identification of local opportunities for carbon reduction and renewables is critical in establishing the extent to which local authorities can influence the national CO₂ targets, and the setting and achievement of locally driven carbon targets.

Greater transparency in the Government's own national plans will also aid authorities in allocating their share of the national measures locally. This was recently investigated by the Centre for Energy and the Environment at Exeter University⁹. Their paper 'The impact of national policy measures on local carbon emissions: methodology paper' seeks to review how national policy developments, such as the Low Carbon Transition Plan (LCTP) impact on local emissions across authorities in the South West. By exploring the level to which local authorities can influence the effectiveness of these policies it in turn supports local authorities in identifying where they are best placed to focus their effort.

A closer relationship between the local government sector and DECC focussed on data which supports local authorities to understand the opportunities available and the impact of national policy could enable councils to: quantify the opportunities for reducing emissions of greenhouse gases within their area and power; set out their own local carbon reduction prospects for private-sector investment and community use; be an active participant in the Green Deal; and create local carbon reduction delivery plans, against which the sector can be held accountable.

3.1 Data Flow

Energy and carbon statistics are currently published by central government to assist local authorities to support the delivery of the UK's national carbon budgets. Whilst it is important to continue to monitor total emissions reductions at a local level, using the Local Co2 statistics, it is also becoming increasingly

⁹ <http://emps.exeter.ac.uk/research/energy-environment/cee/downloads/>

important to consider local variations in potential to reduce emissions. Collection of data on local activities to reduce emissions and analysis of remaining potentials for savings will help to ensure resources are directed most effectively. This requires a more detailed understanding of the local area such as the housing and other building stock and of travel patterns. This will make the existing data more effective in relation to ensuring that the CO₂ savings predicted by various measures are in fact delivered and allow fairer comparisons of performance across local authority areas¹⁰.

Whilst it is acknowledged that bottom up data collection exercises may never provide a completely comprehensive picture of area wide emissions it is vital to build an evidence base for assessing where gaps in effort currently exist. At present there are very few mechanisms for capturing locally derived emissions data. TrACE¹¹ is one tool which exists to address this issue. Whilst it is currently still in development there is an appetite amongst local delivery partners for such a tool to help track progress against targets and evidence performance. With continued effort and development TrACE could be used as a national repository for tracking and reporting activity data at a local level.

3.2 Data Analysis

In general, emissions data sets can be categorised into three groups according to their application (although most data sets are able to perform more than one function):

- Emissions baselining & benchmarking
- Scenario modelling and action planning
- Monitoring and evaluation

Within the scope of this activity the Expert Group have sought to provide an analysis of data currently available to local authorities and how this might be used effectively to support their policy goals. Appendix 1 contains a repository of local and national data sets that exist for transport, buildings, area wide carbon emissions and energy generation, consumption and heat demand. This is then, where possible, broken down into, activity data; emissions factors and assumptions. Through the creation of a 'local authority data hub' local authorities can access the following information:

- Data source and dates
- A description of the data provided
- Data scale
- What activities this data can support
- Current restrictions
- Location

From our analysis there is a wealth of data currently available to support local carbon reduction activities across these sectors. However in order to maximise the potential use of this data it is critical that existing sources of data are made more visible to local authorities to help make them aware of what already exists, mapping datasets geographically and categorically to assist user navigation, how that data is produced and potential application to support local activities.

For each of the 4 sectors outlined previously we have sought to provide an overview of the data currently available at both national and local level, current limitations and clear recommendations for improvements to support local carbon reduction activity.

Please note that for the purpose of this report we have sought to make a distinction between data and tools. In many instances however, national data sets (such as previous National Indicator data) have

¹⁰ http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/en_effic_stats/en_effic_stats.aspx

¹¹ <http://www.energysavingtrust.org.uk/business/Business/Local-Authorities/Support-tools/TrACE-tracking-action-on-carbon-emissions>

been used as tools to identify major sources of local authority emissions and that in many instances the tools described in section 5 often require the use of local authority data to populate outcomes. There is therefore inevitably some overlap between the two categories.

3.3 National, Regional and Local Energy and Emissions data

Overview of available data

There is a large amount of emissions and energy consumption data available at local authority scale and for smaller geographic areas, published by DECC each year. The key datasets are:

- The Local CO₂ emissions statistics (and related NI186 indicator data) now available for the years 2005-8 covering all emission sectors;
- Electricity and gas consumption data for domestic and commercial customers, available at LA level and down to MLSOA and LLSOA for some consumers (the latter not including the large users).
- Fuel poverty data at LA level (at LLSOA level and above)¹²

The local CO₂ data are typically categorised into domestic, commercial and transport emissions.

Further datasets are available in this 'series' including transport fuel use estimates (based on modelling using traffic measurements) and estimates of the use of other solid and liquid fuels. Additional data are also available from the National Atmospheric Emissions Inventory website¹³, providing more detailed 1km resolution CO₂ emissions data equivalent to the Local CO₂ emissions dataset.

Limitations of available data

These datasets are valuable for local authorities to assess the key emissions sources in their areas, both by sector and geographically, and to examine trends in emissions through the years. But the data are limited in other respects because there is a fairly significant time lag between energy use or emission activity occurring and data reporting. DECC's guidance note for regional energy data sets out the methodology for the compilation of this data and gives some explanation for the time lag¹⁴.

Historical time series and predictions for future emissions projections are available at the national scale. These are valuable to help LAs understand the contribution of different sectors in the national targets and level of ambition of reductions required to meet the national carbon budgets¹⁵. Although various studies have been undertaken to make estimates of future emissions at the local level e.g. in the North West¹⁶ and the South East¹⁷ there are currently no consistent data available estimating the distribution of carbon reduction required across the LAs which would be required to meet the national target.

The time lag between emissions and DECC data reporting has already been mentioned above. This is partly a result of the minimal collection of meter readings by energy suppliers (typically only once a year for most meters). The roll out of smart meters will eventually improve this issue.

There is also a gap in the geographically detailed dataset as a result of half hourly electricity meter consumption data being excluded from the MLSOA data because of disclosure rules. This makes the commercial consumption data patchy at this resolution. Another gap is the lack of monitoring of other

¹² http://www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/regional/regional.aspx

¹³ <http://naei.defra.gov.uk/>

¹⁴ http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/regional/regional.aspx

¹⁵ http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/carbon_budgets/carbon_budgets.aspx

¹⁶ http://www.climatechangenorthwest.co.uk/assets/files/documents/jun_10/cli_1277114038_Assessment_of_Carbon_Savings_U.pdf

¹⁷ <http://www.carbondescent.org.uk/news.php?id=37>

fuels (solid and liquid). There is currently no geographic monitoring of the sale of these fuels so the quantities of fuel used are estimated based on employment data and average energy use data..

Similarly the road transport activity data is largely modelled, albeit from a good dataset of traffic monitoring sites for major roads. Local Authorities implementing changes to local transport patterns would need to supplement this dataset with local monitoring.

Recommendations

- Reduce the time lag for emissions calculations from electricity and gas data by producing interim reports based upon standard factors so that LAs do not have to wait for the latest data and/or any changes to emissions factors. Early calculations of percentage change in electricity and gas consumption would allow local authorities to examine trends and compile proxy statistics.
- During the roll out of smart meters, opportunities should be sought to maximise the opportunity for data quality improvements
- It is critical that there is sufficient research and development on Smart Home Energy and Energy Management on the domestic side (linking together the findings from Ofgem's Low Carbon Network Fund programme and the Technology Strategy Board's Smart Home activity to ensure that data can be captured to pick up on spikes in demand etc to enable a smart grid.
- In some rural areas the use of solid and liquid fuels is very significant. Here possible switching of fuels to gas can bring about significant improvements in energy efficiency. Therefore a better knowledge of where these other fuels are used would be very useful. This data will not be obtained through a national survey because of resource constraints but local data collection could be aided by a data sharing agreement with fuel suppliers brokered by national government, similar to that agreed with electricity and gas suppliers¹⁸.
- LAs are likely to be undertaking local traffic monitoring to assess the effects of measures to reduce carbon emissions and/or to improve air quality. DECC and DfT should investigate the possibility of integrating this data with the wider DfT traffic monitoring dataset to provide a more comprehensive dataset. This may require a set of standards to be followed by LAs when undertaking monitoring or LA monitoring data could be flagged in a tiered structure within the database to reflect any concerns about quality (for example where it has been sampled over a short timeframe or doesn't include a full split of vehicle types).

3.4 Transport Data

Overview of available data

The main emissions-related data sets relating to transport are:

- Transport Statistics Great Britain (DfT)
- National Energy Statistics (DECC)
- National Travel Survey (DfT)
- GHG conversion factors & vehicle emission factors (Defra)
- Road vehicle emission factors (DfT based on TfL data)
- National Atmospheric Emissions Inventory (NAEI)
- Smarter Choices (DfT)

¹⁸ OFT is undertaking a study of off grid energy, further details including a scope for their study can be found at: <http://www.ofg.gov.uk/OFTwork/markets-work/market-studies-further-info/current/off-grid/>

These data sets provide information at the national, regional, local, 1km square and vehicle level. The existing data can be used for range of functions including: traffic forecasting, emissions baselining, monitoring, and to a lesser extent, action planning.

At the national and regional level, the Transport Statistics Great Britain (DfT) and National Travel Survey (DfT) provide a wealth of fundamental information regarding UK travel and emissions trends. While this data is at a scale too large for most local applications, it provides a useful foundation for local benchmarking and scenario modelling.

At the local authority level, the existing National Statistics data (from DECC) is particularly good at providing recent historic road transport emissions (CO₂, NO_x and PMs), and at the vehicle level, there are high quality datasets that provide emissions factors for different vehicle types according to traffic conditions and road type (from DEFRA and DfT).

The NAEI also provide Emissions Maps according to UNECE sector for 1x1km squares across the UK.

Limitations of available data

Whilst there is a wealth of available transport emissions data, many local authorities are unclear about what data is available, a situation not helped by the distribution of the datasets across a large number of web-based locations. Bringing all the data together at a single location, or at least providing better signposting to existing data, would therefore improve access to the information already available.

Reviewing the existing data also reveals a deficiency in information about the potential impact of specific measures. While auditing tasks are essential to assess baselines and monitor progress, several of the pilot areas have reported difficulties in modelling the potential of specific transport measures within their regions. Local authorities often have to buy-in consultancy input, as the current datasets (and modelling tools) do not quantify the potential emissions impact of particular policies. The effect is to limit the extent of exploration of possible local authority actions.

For example, it would be useful for authorities to have better access to data that enabled 'what if' estimates of change in technology and behaviour. Indeed, some reports and datasets (including those compiled by Smarter Choices and the Highway Agency) are already collating the level of impacts associated with a particular policy. The aim should be to make these datasets more readily available to users, and to improve their integration with modelling tools.

Another issue regarding transport related data is the observation that, unlike the case in other sectors, the majority of the emissions data from transport are estimated using vehicle emissions factors rather than based on actual measurements (from vehicles or of fuel use). While the factors are based on vehicle type, road type and road conditions, and are useful in action planning, the agreement with actual emissions is uncertain. Indeed, any discrepancy between estimated factors and real-world emissions may increase with the advent of new vehicle fuel and technologies.

A final point relates to the mapped emissions information from NAEI (at the 1km square level). While the data is potentially very useful for local authorities in assessing their local emissions, the data would be of more use if it could be accessed and downloaded at a lower spatial level than is currently available. For example, it would be advantageous to be able to visualise transport emissions at finer resolutions than the 1km square, including specific roads and traffic locations – although we understand that there would need to be agreements in place to share the Ordnance Survey base mapping data before this is possible.

Recommendations

Based on the observations of the currently available transport datasets, the following recommendations can be made. Two key issues are highlighted, to improve the signposting to existing datasets, and to improve the accuracy of transport related emissions data:

- All transport emissions data should be brought together at a single online location, or the signposting to existing data locations improved. User navigation would be assisted by the use of a visual summary/data map, clear categorisation of content, information regarding potential applications, and links to related and duplicate/similar datasets.
- Transport related data presented should also be clear about the methodology used (e.g. actual measurement, estimated emissions factor).
- Provide better access to information regarding the impact of specific measures to enable ‘what if’ estimates of changes in transport technology and behaviour. This type of data should be more readily available to users, and fully integrated with action planning and scenario modelling tools.
- Low-cost methods of capturing real-world fuel use data should be considered and developed for use by local authorities including: real-world vehicle measurements monitoring fuel use and/or emissions; and the collection of transport fuel supply data at the local and regional level.
- With the agreement of Ordnance Survey for sharing GIS road link data, mapped road traffic flows and emissions rates could be provided on a road link basis. This data is compiled as part of the NAEI modelling to calculate emission maps and Local CO2 estimates..

3.5 Buildings Data

Overview of available data

For a local authority, there are several typical questions on a buildings and infrastructure-level that need answering. The questions, and the data that needs to be available to LAs in order to answer them, is given in the Table 1 below:

Table 1:

Question	Example	Supporting Data
What has been done on a buildings level in my area?	How many homes are insulated, how many PV panels have been installed?	Logs of installations performed
What remains to be done in the area?	The remaining potential for installation of measures – how many lofts are not yet lagged, how large can a viable district heating network be?	For building stock (retrofit) measures, both: <ul style="list-style-type: none"> • Records of state of current building stock • Logs of installations performed Or for new (infrastructural) installations (e.g. CHP or district heating): <ul style="list-style-type: none"> • Resource potential data / studies
How can we predict how much carbon, energy and money will this save or cost?	Expected cost and savings per home for solid wall insulation, expected annual energy produced by biomass CHP unit	Measure assumption data

The first two questions are somewhat related – the data required to answer the first can also be used to work out the answer to the second. The final question refers to assumptions that need to be made in order to estimate how effective current LA policy and strategy might be.

In Appendix 1 the review of buildings data was split into the following categories: activity data and assumptions. The first is used to answer questions 1 and 2 above, while the latter refers to the final question. A summary of the data available for each category is provided below:

Activity data (HEED, EST Home Energy Check and DEC data)

This consists of three datasets based on surveys, Display Energy Certificates or (self-) reporting of state of building stock and of measures installed. In particular, these combined sources are effective at assessing the state of the current building stock and keeping track of installations performed. This therefore answers the first question, and potentially also allows the LA to deduce the remaining potential for installation of certain measures, thereby also answering the second question.

Assumptions (costs, energy savings, carbon savings)

This is a loose collection of reports and studies on specific measures and technologies from which assumptions figures (expected CO₂ and energy saving and expected cost or benefit) can be extracted. These documents are from a very wide range of sources, from public sector organisations, private consultancies to commercial entities. While the list cannot be considered complete for all measures, it is indicative of the dispersed and non-standardised nature of this kind of information, and the effort required gathering it.

Limitations of data available

Activity Data

Whilst activity data is recorded at a household address level, it is not made available to local authorities at this scale. If access at household level were available this would enable local authorities to conduct analysis at a much finer granularity to plan activities but also to track progress against plans. Currently, for instance, heat mapping is done by modelling domestic heat demands – this would be simpler if energy consumption and heating system fuel and type were known for each individual dwelling. However, this data is currently unavailable at such a scale due to the issue of confidentiality.

For the activity data, besides data protection, accuracy and reliability is also an issue. Given the scale of the data gathered, it is very difficult to moderate or control the quality of the data that is entered. This is particularly pertinent for the self-assessment of dwellings (which forms part of the HEED data), where homeowners are asked to ascertain whether they may or may not have, for example, cavity wall insulation or a certain type of boiler. Similarly, Display Energy Certificate calculations, while performed by trained individuals, have been shown, on occasion to be inaccurately recorded. This potential inaccuracy of data introduces a degree of uncertainty into the work undertaken by LAs, potentially grossly misguiding strategies and activity.

It is expected that Energy Performance Certificate (EPC) data will soon be made available to local authorities. As this isn't a "convened dataset" local authorities will need to work out how to store and analyse this data.

A further forthcoming¹⁹ data source for buildings is DECC's National Energy Efficiency Data Framework (NEED). Designed to enable detailed statistical analysis of energy efficiency, this should be available in the next few months. The data framework matches the gas and electricity consumption data collected for DECC [Sub-national energy consumption statistics](#) and records of energy efficiency measures in HEED. It also includes typographic data about dwellings and households obtained from a variety of sources. Forthcoming analysis of NEED will enable a deeper understanding of energy consumption and the impact of energy efficiency measures to different households.

While activity data available is currently able to answer the first and second questions within the table (subject to the above concerns), for the latter this is limited to certain measures for example those that

¹⁹ This data is available – but not currently at local authority level:

http://www.decc.gov.uk/en/content/cms/statistics/energy_stats/en_effic_stats/en_effic_stats.aspx

pertain to the domestic sector, at a household level. More specifically this is for measures which are ultimately limited by the number of existing dwellings in the area (e.g. double glazing, loft insulation). For larger scale measures, such as district heating networks, the potential cannot be established in this way, and specific study data is required. Here, data is lacking. Furthermore, the data that is available may require significant manipulation in order to obtain sufficiently accurate local estimates of remaining resource or installation potential. This renders more difficult the recommendation within the report that LA performance should be measured against and in relation to their technical potential for improvement. A database which contains sufficiently high-resolution data to allow LAs to look up or work out the potential for installation of measures remaining in their area is therefore required. National potential studies, while a useful first step, require scaling which inherently introduces inaccuracy.

Assumptions Data

The list of assumptions is not a complete selection as it does not provide the key figures (expected CO₂ and energy saving and expected cost or benefit) for all different relevant buildings and infrastructure technologies which are under LA control. Furthermore, the numbers are difficult to find and track down, even within the mentioned documents. For a local authority officer to track down the figures required for, for example, savings estimates, would take a significant amount of time and awareness of recent reports and studies performed by a large variety of players in the energy space.

Furthermore, it is very hard to agree on assumptions; different reports will quote different figures, and very few authorities exist to declare standards. However, the quality of projections of savings for a specific installation, or of a carbon strategy is directly proportional to the quality of the assumptions made. Particularly for the development of a quantified emissions saving projection as part of a carbon strategy, it would be excessively resource-intensive for an LA to compile a sufficiently large collection of assumptions to cover all relevant technologies. A current option available to a LA is for this activity to be performed by a specialised consultancy. This is particularly advantageous if done as part of wider strategy planning, allowing the LA to work out how much can be saved by certain measures in their area and, subsequently, how much needs to be installed of each in order to meet carbon reduction targets.

Recommendations

Based upon the limitations cited above, several recommendations can be made. A key theme in this report is the need for a centralised source of data information that LAs can access. This is equally pertinent to buildings data.

Activity data

- Further work on NEED and the forthcoming changes to Energy Performance Certificate²⁰ data access in support of Green deal will mean that increasing volumes of household level data should become available. Further work at the household level would be welcome, so that more in-depth analysis can be undertaken and more tailored support and advice provided to householders.
- Publish Appendix 1 detailing what data is available where and what it can be used for should be developed so that it can be used by local authority staff.
- If data is made accessible through a single portal it may be possible for statisticians to combine the different databases in order to mathematically strengthen the quality of address-level data, for example by cross-correlating fields and developing proxy data to fill gaps. This is, however, likely to be a significant and difficult undertaking, and may not be feasible or provide significant improvement.
- Local resource and potential studies should be collated so that LA potentials can be calculated on behalf of the LAs using the activity data that is currently available. This would both standardise the calculation methodology, and avoid LAs having to resort to

²⁰ Clause 70 in the Energy Bill has the purpose of enabling DCLG to amend the 2007 Regulations removing restrictions to access to data so that they can make EPC data at address level more widely available whilst remaining subject to Data Protection requirements.

performing in-house (and potentially non-expert) calculations. This should all be collected in a centrally accessible database so that the data it holds can then be elaborated through data collection and calculations aimed specifically at determining local measure deployment potentials.

- Provide or encourage the uptake of training to enable local authority officers to translate data into policy
- In order to help with influencing local authority decision makers, wherever possible data should be mapped (down to the smallest possible area of aggregation)

Assumptions data

- Ensure that assumption figures for the full range of buildings and infrastructure measures (and others) are easily accessible from a central repository.
- Assumptions should be standardised and agreed upon, and their values (and subsequently, accuracy), updated, expanded and improved as new studies, experiments or evidence comes to light. This is likely to be a resource-heavy body of data to maintain, which may have to be performed by a consultancy. However, maintaining assumptions for all LAs would allow homogenisation of projections and scenarios across LAs, thereby improving cross-LA communication and collaboration.

3.6 Energy Generation Data

Overview of available data

Combined Heat and Power

The Digest of UK Energy Statistics (DUKES) provides an annual summary of Combined Heat and Power (CHP) activity in the UK. CHP is one of the most closely monitored sustainable energy generation technologies, with data gathered annually by the CHP Quality Assurance (CHPQA) programme. By registering with the CHPQA programme, and with the provision of data on their operation, CHP generators can be classed as 'Good Quality' and consequently financially benefit through relief offered by government from the Climate Change Levy (CCL).

Data on CHP schemes operational in the UK are posted on DECC's CHP Focus website²¹ and is searchable by a number of useful categories including 'industry sector', 'CHP type' and region. Data provided includes full site name, electrical capacity and full post code.

However, registration to the CHPQA is not compulsory and even for those generators who register there is an option not to include their details on the CHP public database. As a consequence, of the 1000+ sites reported on in an aggregate form each year in DUKES, the public database only carries data on approximately 500 sites. Whilst DUKES provides a total for heat and power generated annually by 'Good Quality' CHP plant, the public database does not provide the data per generator. However it is possible to source part of this data through the public reports available at Ofgem's CHP register²² which monitors the generation of LEC (CCL Levy Exempt Certificates).

Heat Networks

Whilst clearly not an energy generation technology, heat networks enhance the opportunities for introducing new generation technologies and, by allowing the delivery of low carbon or renewable heat, improve the environmental effectiveness of generation technologies. This could be from CHP plant, large-scale boiler plant and other renewable heat technologies (solar thermal arrays/large scale heat pumps/geothermal systems) and potentially electricity-only generating plant.

²¹ <http://chp.decc.gov.uk/cms/>

²² <https://www.renewablesandchp.ofgem.gov.uk/>

Currently only very limited data in terms of large-scale onsite heat networks exists (e.g. such as those in residential estates, university campuses, hospitals etc); similarly, data for area wide heat networks (district heating schemes in London, Sheffield, Leicester etc), is not easily available. The London Heat Map²³ (building upon London Energy Partnerships' London Community Heating Database²⁴ has undertaken a rigorous process to document a number of area wide heat networks in London (such as Citigen, Pimlico District Heating Undertaking, Barkantine Heat and Power, etc.) however, no information in terms heat flow return temperatures, capacity to carry additional heat, condition of pipe etc. is readily available for these systems. A number of other heat maps are also being developed²⁵, with the South West heat map recently launched. The last UK-wide survey of heat networks was undertaken by the BRE over a decade ago. This data is not publicly available and also it is unclear whether this data set has been updated.

Boilers

Extremely limited data exists in relation to the location and use of medium and large-scale boilers. Larger industrial installations (some 3,500) often referred to as "Part A(1)" activities and are monitored by the Environment Agency. Local authorities regulate some 400, these are often referred to as "Part A (2)" activities. Smaller installations, some 19,000, are subject to controls on emissions to air and are regulated by more than 300 local authorities in England. These activities are often referred to as "Part B". Information in relation air quality and pollution on a number of the larger sites are detailed on the United Kingdom Pollutant Release and Transfer Register (UK PRTR) website²⁶, however, the datasets available do not extend to including information on the boilers in use at these locations. The data on smaller installations, usually monitored by local authorities environmental health teams, is not collated in any systematic way from council to council, and previous experiences of attempting to gather this data (during the preparation of the LEP London Community Heating database for example) has highlighted the difficulties in sourcing this data and bringing together datasets into a single useable format. Some recent analysis by Defra in relation to WID (Waste Incineration Directive) compliant combustion plant has been helpful in highlighting sites where larger scale boilers are in use (including data on estimated heat consumption)²⁷, however, in general, data in relation to boilers remains poorly documented.

Renewable Heat Technologies

As with boilers, scant information exists in relation to the spread of renewable heat technologies in operation, the capacity installed or MWh (thermal) output. Industry estimates are that up to 100,000 solar thermal systems are potentially installed in the UK, but no local or central data is stored in relation to where these schemes exist. Similarly, little information is held on the operation of biomass boilers, biofuel (liquid) boilers, or heat pumps (all types). The introduction later on in 2011 of the Renewable Heat Incentive (RHI) will provide a significant opportunity to track the installation of new renewable heat schemes, similar to what has been seen through the data now being made available through Ofgem's Feed in Tariff (FIT) central register.

Renewable Electricity Technologies

Extensive data on renewable electricity technologies has now become available. Available datasets include:

- Ofgem's ROC (Renewable Obligation Certificate) accredited stations register
- Ofgem's FIT register
- DECC's RESTATS database contains performance statistics on a number of renewable energy installations

²³ <http://www.londonheatmap.org.uk>

²⁴ available at www.lep.org.uk

²⁵ Including DECC's heat map work at national level <http://chp.decc.gov.uk/developmentmap/>

²⁶ <http://prtr.defra.gov.uk/index.php>

²⁷ Potential for Solid Recovered Fuel (SRF) utilisation and in CHP, <http://archive.defra.gov.uk/environment/waste/residual/widp/potential.htm>

- DECC's Renewable Energy Planning Database (REPD) tracks the progress of projects from inception, through planning, construction and operational phases

This has considerably improved the situation in terms of monitoring the installation of new renewable electricity technologies, both in terms of location of installation, generation capacity, and also generation output.

Conventional Generation

Large scale thermal power plants are well documented in DUKES, with additional information provided on DECC's UK Heat Map. Whilst the capacity of generation plants are provided, individual thermal plant efficiency and power output are not. Carbon emissions related to the output of large scale energy generation plant (>20MW thermal input) are also provided in the EU's Community Independent Transaction Log (CITL), the register for installations under the EU Emissions Trading Scheme. DECC also provides data on generation plant (>10MWe for gas generation, and >50MWe for all other types of generation) as part of the Secretary of State's requirement for the granting of planning consent to new power stations.

Limitations of data available

There has long been an absence of availability of high quality data sets in relation to heat and electricity produced by low carbon and renewable energy generators. Much of the information available to date has been highly fragmented, spread across different regulatory agencies, trade associations, regional development agencies and local planning authorities amongst others. Data sets are also often incomplete, not regularly updated, and do not often provide output data (that is, only generator 'name plate' capacity is provided – not actual activity data of MWh heat and/or power generated).

National statistics have been helpful however offer only a 'coarse' resolution in terms of providing local authority officers with suitable evidence so as to document the extent that sustainable energy generation plays a role in their region.

Recent activity as a result of new government policy has, however, helped take a step forward in helping improve the situation.

Recommendations

Energy generation data availability has been improving, predominantly as a result of the monitoring of fiscal benefits to energy generators. Data on renewable electricity schemes has, in particular, improved as a result of both the ROC and FIT registers, and there are now initiatives, most recently AEA's Microgeneration Index²⁸ to take this data flow and present it in a more user-friendly format.

Local authorities will increasingly need access to this data in order to help achieve Government's statutory targets and other policy priorities. These include:

- Supporting the delivery of the UK's carbon budgets
- Developing an assessment of the renewable potential in the local authority area, as required by the government's Renewable Energy Strategy
- Identifying opportunities for the introduction of renewable energy schemes to help support the achievement of the UK's 15 per cent 2010 renewable energy target.
- Identifying the projected increase in CO2 emissions as a result of new development coming forward in the local authority area
- Supporting the development of zero carbon buildings through actions such as identifying opportunities for local district heat networks and CHP generation

²⁸ <http://www.aeat.com/microgenerationindex/>

- Setting longer-term energy strategies for development in planning documents, and helping establish funding schedules for the Community Infrastructure Levy (CIL) and Allowable Solutions
- Supporting future Energy Company Obligation (ECO) and fuel poverty activities
- Working with the private sector to support the delivery of the Government's Green Deal programme

The key recommendations of the energy data review are therefore to:

- Bring key energy generation, energy consumption and carbon data sets on a single web site – both DECC's main statistics website²⁹ and the Local Government Group's work on LG Inform³⁰ provide possible platforms for building from.
- Ensure that data sets currently made available by government, regulatory agencies and other bodies are more systematic in form
- Guidance on best practice needs to be provided in relation to actions such as the development of heat maps, carbon trajectories, carbon budget setting, renewable energy assessments, costs of carbon etc. If government does not wish to set out national methodologies for these for local authorities, then, at the very least, information and results should be provided on those public sector – and other relevant bodies - who are undertaking such analysis.
- Any initiative by government to provide this data should not remain static: an active dialogue with local authorities should continue with enhanced data provision as new opportunities become available (e.g. near time generation data as a result of the roll out of smart meters)
- Training needs to be provided in order for local authorities to best understand how this data can be utilised to help develop opportunities for decentralised energy in their locales. Guidance is especially needed in providing support to local authorities on how these raw data sets can be brought together, how opportunities can be best identified from this data, and how this data can be interpreted into effective policy.
- CHP remains a highly viable technology for urban areas, and is one of the most closely monitored generation technologies. Hence, the CHP data set currently available needs to be expanded to include all sites.
- Data on existing heat network needs to be significantly improved. If such analysis has not been undertaken by regions as a part of their renewable energy assessments, then work should be undertaken to commission collection of this data
- DECC should consider the collection of data on non-domestic boilers currently in operation, especially those installations where opportunities for heat export exist.

3.7 Data Review (Appendix 1): Key messages and Recommendations

The 9 local authority pilot areas were sent a copy of Appendix 1 and asked to provide comment. Their comments have been incorporated below and a summary provided in Appendix 3.

Hosting lessons learnt

- Ensure that the information in Appendix 1 is hosted on a single web portal in a more user friendly format and is made accessible via regular local authority websites, such as the Local Government Groups self-regulation and improvement website resource for Councils. The data should not be hosted on this website but there should be sufficient links to the 'local authority data hub'.

²⁹ <http://www.decc.gov.uk/en/content/cms/statistics/statistics.aspx>

³⁰ <http://www.local.gov.uk/inform>

- Ensure that the data is managed and reviewed regularly and continues to build over time so that users have confidence in the accuracy of information provided.
- signposts to related and duplicate/similar datasets
- Ensure clarity on source/methodology used to formulate datasets and, where possible, signpost to related and duplicate/similar datasets
- Map data using data GIS

Local data and the identification of local opportunities

- Move away from data which provides a historical understanding of what has already been delivered to a more focussed use of data to target any remaining carbon saving/measures potential. This is critical to support the identification of local opportunities for carbon reduction and renewables and the extent to which local authorities can influence the national CO2 targets, set and achieve locally driven carbon targets.
- Local resource and potential studies should be collated so that LA potentials can be calculated on behalf of the LAs using the activity data that is currently available.
- Combine absolute CO2 emissions with data on measure potential and measures installed annually by local authority area within the same web portal - but wider than simply energy efficiency measures.
- Provide household-level resolution data without divulging addresses
- Produce interim datasets based upon standard factors to reduce the time lag for electricity and gas data
- Continue with the NEED developments referenced above to over time ensure that data is available sub-nationally for local authorities to use
- Explore options for the additional overlay of local authority generated activity data within national datasets. This should be pursued through ongoing development of the HEED framework and greater integration of local traffic monitoring data into DfT databases.
- Implement Smart meter roll out in a strategic way and by geographic area to assist with data quality improvements.
- Provide greater transparency in how government's own national plans would assist local authorities in allocating their share of national measures locally
- Provide better access to information regarding the impact of specific measures to enable 'what if' estimates of changes in technology and behaviour. This type of data should be more readily available to users, and fully integrated with action planning and scenario modelling tools.
- Consider and develop low-cost methods of capturing real-world fuel use data for use by local authorities including: real-world vehicle measurements monitoring fuel use and/or emissions; and the collection of transport fuel supply data at the local and regional level.

Dissemination of Best Practice

- Provide guidance on best practice in relation to actions such as the development of heat maps, carbon trajectories, carbon budget setting, renewable energy assessments, costs of carbon etc. If government does not wish to set out national methodologies for these for local authorities, then, at the very least, information and results should be provided on those public sector – and other relevant bodies - who are undertaking such analysis.

4 Review of Carbon Reduction Tools

The analysis of carbon reduction tools provides details on tools available to support the following activity areas:

- Community Carbon Footprinting
- Community Energy Generation
- Transport
- Housing stock management

- New build
- Area wide strategy planning
- Own estates and operations carbon management
- Commerce and Industry

The review aims to provide information under each activity area with regard to the types of activities supported and how those tools documented support these aims. It also seeks to outline current issues with the range of tools available to support this activity and how tools that support this activity could be improved in order to support activities further.

Appendix 2 contains a directory of tools that exist to support those activities identified above. For each tool we have provided information on the following:

- Name of the tool
- Developer
- Tool description
- Location
- Availability as a free or paid for tool
- Review of the tool's functionality: strengths and limitations
- What type of activity the tool can support (Emissions baselining; scenario planning and action planning; monitoring and evaluation)
- The range of sectors the tool covers

The aim of this work is to identify those tools that are currently available to local authorities so that they can select the appropriate tools for their project and/or circumstance.

The list of tools will be hosted on the Environment Tools Directory within a specific local authority group (<http://www.environmenttools.co.uk/lcf>). Where possible the Expert Group will provide independent comment on the tool and offer local authority users an opportunity to populate user reviews over time.

4.1 Community Carbon Footprinting

Introduction

Appendix 2 lists a variety of footprinting tools which can be used by local authorities or community groups to engage households and/or businesses or other organisations within communities and to encourage monitoring of footprints and carbon reduction activities.

The key difference between these tools and the plethora of individual carbon footprint tools is that they allow combined reporting of footprints to enable cross-community monitoring e.g. Green Communities Carbon Footprint tool, or they are part of a wider programme of work which involves collation of various households data e.g. Oxford's Quicksilver tool. This combined reporting is a powerful way to encourage community involvement and collective reporting into a central database enables tracking of changes and comparisons over space and time. There is potential for 'competitions' between locations for greatest improvements or other targets but also for benchmarking local area against national or regional averages.

Review of Tools Available

Community carbon footprinting tools tend to be either focused on communication and engagement or are more focused on detailed data analysis. There are notable examples where community groups have used these tools for more detailed analysis to support their application for funding to support carbon reduction activity. For example Awel Aman Tawe³¹ a community energy charity in South Wales successfully used

³¹ <http://www.awelamantawe.org.uk/>

the Energy Saving Trust's Green Communities carbon footprinting tool to apply for Low Carbon Communities Challenge funding.

The Zap Carbon tool is an example of an engagement tool, enabling cross- community carbon reduction competitions but it features a very simplified footprint analysis. Tools that are customised to be locally relevant may help with the engagement and ownership, such as in the Herefordshire example (my herefordshire.com).

Other tools in this list are more focused on decision making and planning action, either in the form of individual pledges e.g. REAP Petite, which become more powerful when grouped together, or within organisations e.g. WeSave and the Green Communities Action Planning tool. Reporting actions also shows real examples of achievements, again encouraging others to join.

Conclusions and recommendations

Some issues that should be considered in connection to using these tools are listed below:

- The range of tools listed in the Annex use a variety of different types of footprint analysis, with a varied scope. This variation can be confusing and prevents comparison between footprints calculated by the different tools. But the more detailed tools are often the most useful because they delve further into the details of individual's energy and transport use. Communities must choose carefully depending on the level of detailed analysis they require.
- Although online tools are becoming the norm, and these allow a better functionality and can be kept up to date, there is a continuing issue with personal data. Some people will be reluctant to share and upload data about their household, expenditure etc. thus reducing the quality of data collected.
- Self selection of footprint households results in a biased sample of communities. Only comprehensive coverage of automatic energy monitoring (smart meters etc.) will provide high quality, up to date information.
- Continued development and promotion of TrACE such that it can be used as a national repository for tracking and reporting activity data at a local level.

4.2 Community Energy Generation

Introduction

Community energy generation takes a number of forms and in many cases assessment of opportunities requires a bespoke approach. It is therefore often the case that community energy generation calculations are undertaken by a variety of consultants and the tools they use combine in a variety of spreadsheets using different approaches. In summary the community energy generation tool arena is a fragmented one.

There are a number of tools that were reviewed in detail:

- Energy4All Steps, Energy4All
- Heat Network Tool, Arup for Yorkshire Forward (now CO2sense)
- Low Carbon Designer, London Energy Partnership
- CHP Size2, DECC
- EnergyPRO, EMD
- EnPlanners Planner Tool
- Energy Masterplanning pre-feasibility tool, Arup for the London Borough of Haringey sponsored by DECC

A detailed review of these can be found in Appendix 2, but a commentary on overall market of community energy generation tools is provided below.

Review of Tools Available

The Government has established Community Energy Online as the portal for information and tools on community energy generation. This was launched in 2011 and is designed to guide the user through the stages of developing a low carbon or renewable energy project by providing information and links to external resources and outlining technology options, issues and solutions related to the procurement, installation and usage of different approaches

Renewable energy generation

There is a large amount of freeware available for micro-generation plant that in some senses could be considered community energy generation (such as photovoltaic cells or solar thermal), in programs such as RETscreen. Sophisticated software is also available for the larger community renewable energy generation technologies such as wind turbines in the form of EnergyPRO and others. These tools are of varying applicability to local authorities but certainly their energy managers or decentralised energy offices (where they exist) should have an appreciation of their existence and if not the ability to use them.

One tool that was designed with planning officers in mind and has the potential to provide a recognised approach is Low Carbon Designer produced by the London Energy Partnership. It was designed to allow a common language between planning officers and those putting in planning applications. It is an extensive tool that covers everything from building energy efficiency to onsite renewables and combined heat and power. The tool is limited in its application wider than a single building, but if this mechanism could be incorporated and it was properly publicised, it has the potential to create some cohesion in this fragmented market.

Another tool aimed at local authority planners is the Enplanner Planners Tool, developed by Encraft in partnership with the Carbon Trust and Coventry, Solihull and Warwickshire area planning officers, that aims to make it easy for both developers and planning officers to meet local planning requirements for onsite renewable energy generation and lower carbon developments. It is an online tool that provides free access to renewable resource data at project locations. It helps developers determine low carbon energy content and solutions for outline and detailed planning applications by generating energy statements and it also assists planning officers in assessing compliance with low carbon energy policy.

District heating networks and CHP

With regard heat networks and combined heat and power (CHP), the picture for carbon calculation is even further fragmented due to the bespoke nature of heat network systems. Given this, calculation and design of such systems requires extensive experience which often prohibits even experienced local authority officers from undertaking them.

The London Borough of Haringey have been sponsored by DECC to procure the production of a pre-feasibility tool that will size and cost CHP and district heating systems and provide financial calculations giving outputs of capital costs, capital contributions requirements and internal rates of return. The tool will allow the lay person to prioritise energy opportunities within their area from limited inputs, however it is not designed to be a feasibility tool and detailed calculations would need to be undertaken to verify any results taken from the tool.

There are also a number of other similar tools available in the market such as CHP Size2, available from the DECC website, and the Heat Network Tool created by Arup for Yorkshire Forward. CHP Size is limited to only a few building types and does not size the heat network while the Yorkshire Forward tool does cover these elements but is need of updating.

In order to undertake detailed CHP sizing, many consultants turn to EnergyPRO, a bespoke piece of software that enables engineers to size and cost the main elements of district heating systems. However, given the annual licence fee and the level of knowledge needed to drive it, the freeware market does provide some assistance if only pre-feasibility study calculations are needed (as mentioned above).

Conclusions and recommendations

Overall the community energy generation calculation tool market is a fragmented one, partly due to the complexity of the systems that are to be assessed and partly through the uncoordinated nature of the market that is necessarily dominated by engineering consultancies.

Other markets display more coherence of calculation, such as building energy emissions, mainly driven by the fact that a regulated calculation methodology is in place, the National Calculation Method (NCM) for non-domestic buildings. This ensures that even though there are a number of different tools at different levels of complexity, there is consistency of output. The Low Carbon Designer could provide this coherence because of its link to planning regulation; if planning permission depends on a consistent set of results calculated in an approved manner then community energy generation tools would see a convergence.

The key recommendations of the tool review for community energy tools are therefore:

- Undertake a detailed review of the Low Carbon Designer with a view to enshrining its outputs in LA policy
- Publicise the Low Carbon Designer and run training sessions
- When the Haringey pre-feasibility tool is complete, publicise its use and again run training sessions on its use
- Consider ways in which cohesion could be brought to this fragmented area of calculation
- Maintain an expert group to help undertake the above tasks

4.3 Transport

Introduction

As listed in Appendix 2, at least a dozen transport tools are available to Local Authorities for emissions baselining, scenario modelling, and monitoring. These tools, which are transport dedicated or include transport elements, are either provided by public agencies (at no cost to the user), or are commercially available from the private sector.

The main tools relating to transport are:

- Local Authority Basic Carbon Tool (DfT)
- Emission Factor Toolkit (EFT) – 4.2.2 (Defra)
- Low Emission Strategies Toolkit (LES) – not yet released
- VantagePoint (Carbon Decent)
- STS Carbon Audit tool (STS)
- IMPACT, CO2ST, SuPort (Arup)
- Resources and Energy Analysis Programme (SEI)
- GHG Conversion Factors for company reporting (Defra/DECC) – while strictly a dataset, this can be considered as a transport tool designed for emissions baselining and monitoring.

Review of Tools Available

To provide an overview of the functionality offered by the tools, three tools are now described:

The **Local Authority Basic Carbon Tool** (launched in 2011) is designed to allow local authorities to assess the impacts of transport interventions on carbon emissions in their region. The tool is based on user defined data which specifies vehicle composition, modal split, trip distance and traffic speeds both pre- and post-intervention. The tool incorporates a set of speed emission curves which determine, for each vehicle type, and according to traffic speed the cumulative carbon emissions. The model is relatively simple to use, and the base data can be changed if required. The user can select region (not local authority), road type (urban, rural), time of day (peak, inter-peak), region and year of intervention, and can select as few or many vehicle types as required to model a particular measure.

The **Emission Factor Toolkit** (released in 2010) allows users to calculate greenhouse gas and air quality emissions for road vehicles used on particular roads. The emissions include: nitrogen oxides, particulates, hydrocarbons, and carbon dioxide (expressed as carbon). The input data required include: traffic flow, percentage light/heavy-duty, speed, and road type. Using stored databases of vehicle emissions (by vehicle type and age) and road type (urban, rural, London, etc), the model calculates these emissions (in g/km and g/km/s) for vehicle fleets up to 2025, where the fleet is defined by vehicle type, Euro standards, road conditions, road types and particular roads. The user can use default data or enter user-defined fleet data and/or euro composition. Applications of the model include: monitoring current emissions for a particular road, projecting future emission trends, and estimating emission reduction for specific measure/policy.

VantagePoint (a commercially available tool) is designed specifically for local authorities to develop climate change mitigation strategies. The tool is based on standard datasets and comes with pre-loaded demographic and sector information for each UK local authority. The tool can be used to develop scenarios based upon the impact of deploying a wide range of measures (across all sectors). The results of scenario reductions are typically measured against (national) carbon reduction targets. Four types of transport measure are included in the current version: fuel use reduction through behavioural change, vehicle efficiency improvements, use of biofuels, and use of electricity. In addition to the pre-loaded measures, users can design new measures and scenarios based on user-controlled data.

Conclusions and Recommendations

Appraising the transport tools listed in Appendix 2, it is apparent that the majority focus on emissions baselining and monitoring, with fewer tools offering scenario modelling and action planning functionality.³² Even for those tools that include an action planning element, which can be used to assess potential carbon-reduction measures, the user has to conduct a large amount of data collection and analysis before the appraisal tool can be used. In many of these cases, the pre-analysis of interventions may provide richer learning than the subsequent CO₂ modelling using the tool.

Furthermore, while modelling specific measures requires significant user input, using these tools to assess measures that involve behavioural change and technology improvement (e.g. promoting car clubs) is far from straightforward. It is also difficult to model multi-intervention strategies with a view to assessing the separate impacts of each measure. Even in those cases where the model comes with pre-loaded demographic and sector data, the measures require manual input and an existing knowledge of the potential impacts, as well as knowing how to implement these in the tool.

The key issue here is that local authorities often do not have access to the traffic flow/ vehicle composition data pre- and post-intervention. Nor may they have access to data from other sources (such as is provided by the Smarter Choices reports). Although it is an ambitious aim, the transport appraisal tools would be much improved if they included some default intervention datasets to compliment the emissions baselining data.³³ For example, the findings from recent Smart choices reports could be pre-loaded in the tool to enable the impacts of particular transport measures to be accessed and modelled (within each locality) more quickly.

The addition of intervention information would inform the user, and provide a useful policy exploration function, as well as provide a tool that can model and audit the users own experience. The effect would be to bring together within a single tool, emissions datasets (intended for monitoring and benchmarking), with datasets that focus on the impact of specific measures and/or scenarios.

Two other issues arise from assessing the transport tools and information requests from the pilots. First, there is a need for local authorities to distinguish between the carbon reductions that may be the results

³² This observation mirrors the one made regarding transport data – see Section 2.4.

³³ For example: ‘the provision of personal travel plans leads to increase in walking/cycling trips by up to 5/1%’.

of national policy and those that could potentially be affected by local actions. Current data sets offer little to support to local authorities who want to understand how existing national policies will impact at the local level. This can be useful in developing projected business-as-usual baselines, with which future local emissions can be compared.

Second, given the tools' dependence on historical and projected data for conventional vehicles, the rapid changes in fleet profiles recorded during the past two years may not be fully reflected in the modelling data and results. This included the on-going and predicted adoption rates for hybrid and electric vehicles. Not only should vehicle datasets be updated to include speed emission curves for new vehicle types, the carbon reductions offered by new technologies could be incorporated within tools to inform potential interventions.³⁴

4.4 Housing Stock Management

Introduction

In part as a result of programmes such as Decent Homes, there is a range of housing stock management tools that specifically address energy efficiency and installed energy efficiency measures. A number of these are linked to survey services/consultancies who offer stock survey and management services in order to populate the databases.

Where local data is incorporated into these databases then data will typically be captured at individual property level, but the ways in which this can be used and linked with other property level datasets (DWP benefits data) have been tightly governed by Data Protection regulations.

Looking towards programmes such as green deal, these databases will need to be linked to additional sources of data in order to provide an overview across multiple energy efficiency measures and possibly links to other commercially available sources of socio-economic and demographic data.

Review of Tools Available

Records of activity

EST's Home Energy Efficiency Database (HEED) Online 2 has replaced the original HEED Online tool as the primary means of accessing data contained in HEED. This new reporting portal offers significantly more flexibility and functionality than the previous HEED Online tool. The original reports have been migrated to the new system and new reports (including maps and graphs) are being developed on an ongoing basis. Data cannot be accessed at individual property level, but HEED can be a useful tool in terms of retrofit programme targeting.

Local authority housing stock databases

Many local authorities maintain stock condition databases for both the social and private sector stock in their area. These vary from simple spreadsheet systems to full databases with integrated SAP calculation capacity. Some databases will provide optimisation functions (e.g. performing an analysis of cost of different upgrades to the houses.) The level of data held in these databases varies dramatically from poorly maintained records of local authority activity to full records of local authority programmes, building control data, development control data, installer data, private sector scheme data and data bought from data providers.

These databases tend to be limited in their application due to poor levels of data density rather than tool functionality. This is compounded by the fact that the data gathered is often not helpful for scheme design (e.g. data on cavity installations is only partially helpful for a scheme targeting empty cavities). This leads to many stock databases being under-utilised or not utilised.

³⁴ For example: 'a 10% switch from conventional to electric cars might lead to a carbon reduction of 4%'.

Many of the tools are SAP based, and converting some of the data held into carbon savings potential relies on a variety of conversion assumptions that may not always be made explicit.

Housing stock refurbishment calculators

SAP software enables the calculation of energy savings from different measures in different scenarios. Equivalent methodologies such as NHER can be used to provide similar data. A number of products can provide additional analysis on this savings data to provide analysis on the optimal course of refurbishment activity in different contexts. For example, these tools could be used to determine the most cost effective refurbishment packages across a housing stock within a given budget. Some local authority stock databases include a level of optimisation functionality. Other tools include the Energy Saving Trust's Housing Stock Refurbishment Calculator and NES's Stock Profiler tool.

Conclusions and Recommendations

As part of the further development of Council Frameworks on Climate Change, the possibility exists to better link bottom up locally collected data on housing stock with central records on energy use and CO2 emissions. This should be explored further, in particular as Green Deal packages roll out – in order to understand adoption patterns and the impact of this and other energy efficiency policies.

4.5 Area Wide Strategy Planning

Introduction

Many local authorities both within the LCF pilot and outside of it are undertaking area wide strategy planning. Besides the LCF itself there are a number of other drivers which are leading to either commission or undertake this analysis themselves. These are:

Friends of the Earth “Get Serious Campaign”.

This campaign aims to persuade local authorities to sign up to a 40% by 2020 carbon reduction target (on a 2005 baseline). So far Birmingham, Bristol, Durham, Haringey, Harrogate, Harrow, Islington, Leeds, Manchester, Plymouth, Suffolk and York have signed up.

EU Covenant of Mayors

The European Commission is running a campaign to persuade councils to adopt a 20% by 2020 target. Once adopted by a local authority, the authority has twelve months in which to produce a baseline inventory and Sustainable Energy Action Plan (SEAP). There are now 2,379 signatories across the EU and 27 within the UK. As an incentive to go through this process the Commission offers funding to develop more detailed business plans funding and through European Investment Bank finance to implement them.

National Targets

Many authorities have formally adopted national targets as set out under the Climate Change Act. Generally this involves taking the 34% by 2020 and 80% by 2050 national targets but applying these to the basket of gases and activities that sit within the NI86 Framework rather than the fuller set which the government are committed to reducing.

Whichever target is adopted (and some like the City of York have committed to all three) authorities are generally trying to answer the question as to how they can best meet a carbon reduction target. This often involves two distinct but interrelated steps:

1. What would this target look like in terms of installed technologies and/or level of behaviour change?
2. How can the authority itself (and its partners) develop an action plan to make this scenario a reality?

A standard starting point to this analysis, facilitated by the publication of the Low Carbon Transition Plan and more recently the Carbon Plan, is to try to gain an understanding of what delivery of national policy would look like for the local authority in question. This process generally involves translating each government policy into MW of installed technologies, homes insulated etc. and then allocating a share of these measures to a local authority based on their percentage share of the potential for these measures (sometimes adjusted for other policy specific factors). An alternative and simpler approach is to allocate the policy based on the local sectoral share of national emissions - though this approach does not provide the finer resolution in terms of installed measures.

The picture that arises from this mapping of national policy locally then provides a starting point from which to develop scenarios to meet the range of targets as described above. This is often termed “Gap Analysis” as it gives a sense of whether there would be a gap between the reduction in carbon emissions expected from national policy and the reduction required by the target adopted locally.

Review of Tools Available

Thirteen tools related to area wide strategy planning were examined as part of this review. These are detailed in the Appendix 2. They cover a broad range of purposes, from highly technical and data-heavy tools to purely qualitative, questions-based tools. This section will categorise and compare these tools, as well as consider possible features which could be useful to local authorities but which are currently not available.

Broadly speaking, the tools can be split into two main categories based upon the skills or experience of the target user. In particular, this split has been defined as whether a technically-minded in-house LA officer would require specialised training in order to make full use of the tool.

Expert user tools: VantagePoint, GRIP Scenario, GRIP Inventory, LLAMA, EcoRegion and DeCODE. These tools are, with the occasional exception, typically:

- Designed for accuracy and a maximum of analysis and data output.
- Quantitative, technical, detailed, data heavy and not necessarily designed for user friendliness.
- Broader in scope, covering all or most sectors.
- All but one performs *scenario modelling and action planning*. Some of these also engage in *emissions baselining*. The exception, the GRIP Inventory tool, is a baselining tool whose partner tool (GRIP Scenario), engages in scenario modelling – effectively covering both stages in two tools.
- Might assume significant computer literacy and numeracy skills, as well as an understanding of the technologies involved.
- In all or most cases are paid for and the providers also offer consultancy services and support. This allows the LA to outsource the use of the tool, and therefore not require the in-house expertise to use it.

Non-technical tools: CSE Local Carbon Management Matrix, TrACE, IDEA Sustainable Energy Benchmark, EST Carbon Quantification Workbook and EST Economic Impact Assessment. These tools:

- Together, cover a broader range of purposes, sectors and activity stages than the modelling and scenario-centric expert tools.
- Individually, typically have a limited function, providing only specific outputs.
- Aim to provide quick, indicative and educational results, rather than highly detailed analysis.
- Are often designed to be user-friendly and quick to learn.

- Some are purely qualitative, employing a questions-based self-assessment approach (Local Carbon Management Matrix and Sustainable Energy Benchmark).
- Those which are quantitative are either:
 - designed for data logging, collation, sharing and monitoring (TrACE)
 - easy-to-use baselining tools based on national datasets (Carbon Quantification Workbook)
 - Or make simple estimations of economic impact of measures based upon standard assumptions (Economic Impact Assessment).
- Generally less accurate due in order to maintain simplicity of use and limit data input requirements.
- Usually cover all or most sectors.
- Cover a variety of stages in the analysis process.
- Are often web or excel-based and assume little technical knowledge and moderate computer literacy.
- Not all are free.

Exceptions: Low Carbon Cities Programme and DECC 2050 Pathways. These two tools do not easily fit into the above categories.

- DECC 2050 Pathways is a tool which provides scenario analysis capabilities for the UK. Several versions of it exist: a basic child-level web-based tool, an adult web-based tool, and a full, complex excel sheet. It is a national level-only tool, however, it provides an excellent context to local energy futures and scenarios.
- Low Carbon Cities Programme is a holistic city-wide carbon reduction strategy process which was employed for several large UK cities. It aims to engage key stakeholders across a city, helping them to quantify and develop a plan to work together and reduce emissions from their organisations' estate and operations. The tools are freely available.

Conclusions and Recommendations

From the above overview of tools, it is clear that, concerning area wide strategy planning, local authorities have one large decision to make. Different authorities have different resources, capabilities and needs. In order to fulfil their strategy and scenario needs, will they require in-depth analysis and strategy using complex tools? Or, will they go down an in-house strategy-planning route, supported by a few simple tools?

The former requires a lot of effort, particularly during the data-gathering as well as the implementation phases. However, the subsequent results are a powerful indication of what can be achieved in the local authority area in relation to potential, as well as a detailed path that could be translated into an elaborate long-term strategy. Moreover, national policy could be mapped onto the local area, and LA officers will develop a clear understanding of the potential and interaction of different carbon saving technologies. If performed in-house, LA officers will require training, high computer literacy and prior expert technical knowledge in order to perform the analysis to render the tool outputs useful and will have to invest a significant proportion of their time in order to use the tool effectively. Alternatively, the LA could engage the services of a relevant consultancy with experience of the tool in question. Expert consultancy support is typically commissioned to set up the software, develop an initial carbon reduction scenario and then training is provided so that authorities can take this initial work and update and develop further scenarios. What authorities choose to do to in practice will often depend on staff resources and their capacity as well as the complexity of the software in question. For external consultants to set up the software develop a scenario for a unitary authority can cost as little as around £3,500 - software and training around £5,000 but this can be reduced by buying as a consortium. Though clearly this will vary depending on the software product selected.

The latter option would allow LAs to perform strategy planning at a level that falls within their resource capacity. This would involve less outside guidance and would require a more creative approach to strategy planning, carving an own path. Several smaller tools exist to aid the LA officers in this, each serving a specific minor purpose, which could be employed with relative ease at different stages of the process. For full strategy development, this option is likely to still require a significant amount of resource. However, it will not require the same skill level and can therefore be performed in-house. Furthermore, these tools can be used to supplement prior work, elaborate on certain elements or to integrate thinking about carbon reduction in other departments of the LA.

To summarise, the tools available to conduct area wide strategies vary in their complexity and user friendliness but generally a basic level of carbon numeracy and computer literacy is a fundamental requirement. With this grounding some of level of training, phone/email support and user guides could suffice for authorities to use the more complex software. For many authorities a compromise is made between external consultancy and in-house modelling.

In terms of support that would assist local authorities, similar comments apply in relation to area wide strategy as to other areas discussed in this report. As there are existing, widely used commercial products with significant investment in their development it is not viewed as appropriate that DECC should develop an additional piece of software. Rather key support would be:

1. Provision of a single data repository, regularly updated where the various datasets that are useful for area wide strategy work would sit. This would facilitate the scenario development and monitoring of progress against the selected scenario and would allow a local opportunity led approach to emissions reduction strategies.
2. Transparency in the impact of new or revised government policies in terms of estimates. This would facilitate mapping of national policy locally.
3. Financial support to purchase software/ undertake the required analysis – though this is understood to be unlikely in the current economic climate.

4.6 Own Estates and Operations Carbon Management

Introduction

Data collection and reporting of own estates and operations carbon emissions has improved greatly over recent years, helped by the NI185 reporting requirement and standardised spreadsheet. While the NI set is no longer in use, local authorities are still required, as part of the Single Data List, to annually measure their own estate and operations carbon emissions, publish a report on their own local websites and submit their report to central government. A bespoke spreadsheet is not provided for reporting emissions as this could cause confusion, given that some authorities are already collecting data as part of the Carbon Reduction Commitment Energy Efficiency Scheme. Instead local government is asked to follow DECC and DEFRA guidance on how to measure and report on greenhouse gas emissions.

Most local authorities have signed up to the Nottingham Declaration on climate change and many have set themselves a carbon reduction target. Various tools exist to help local authorities identify and quantify carbon reduction opportunities, to help them reduce their carbon footprint and energy bill and lead by example.

Review of Tools Available

A number of tools have been developed to help local authorities calculate, analyse and reduce their carbon emissions. Ten of these are described in Appendix 2.

A number of these tools have been developed as part of the Carbon Trust's local authority carbon management programme, as follows:

- Baseline tool – helps organisations to collate and analyse carbon emission data from scope 1, 2 and 3 emissions. Enables organisations to measure and track progress over time, model different scenarios and calculate their value at stake. The outputs from the tool meet the Defra/DECC guidance for GHG reporting.
- Rapid Assessment of Potential Tool - helps organisations to identify new carbon reduction project ideas and provides a very high level carbon quantification to help prioritise areas for action.
- Carbon Management Project Register – helps organisations to manage the implementation of projects, including analysis to aid prioritisation and track progress towards a target.
- All tools are Excel based and are free and available on the Public Sector Carbon Network. However, without training and support, they can be difficult to use, although a more user friendly Access version of the tools is being developed.

For organisations looking at onsite renewables, the Encraft Renewables Portfolio Assessment Tool helps analyse the potential for renewable energy and microgeneration and prioritise investments across a number of sites.

All of these tools, and more, can be found on the online Environment Tools Directory.

Conclusions and Recommendations

While good tools exist to gather, analyse and manage own estates and operations emissions, and most organisations as a result of NI185 have a good handle on their data, reporting to the public and to DECC on these emissions should be more closely aligned. The compilation by local authorities of CRC data provides a useful framework and smaller local authorities (who would otherwise fall outside of the remit of CRC could be asked to submit similar data. Without this, comparison between local authorities will be difficult, as will measuring and monitoring progress.

4.7 Commerce and Industry

Introduction

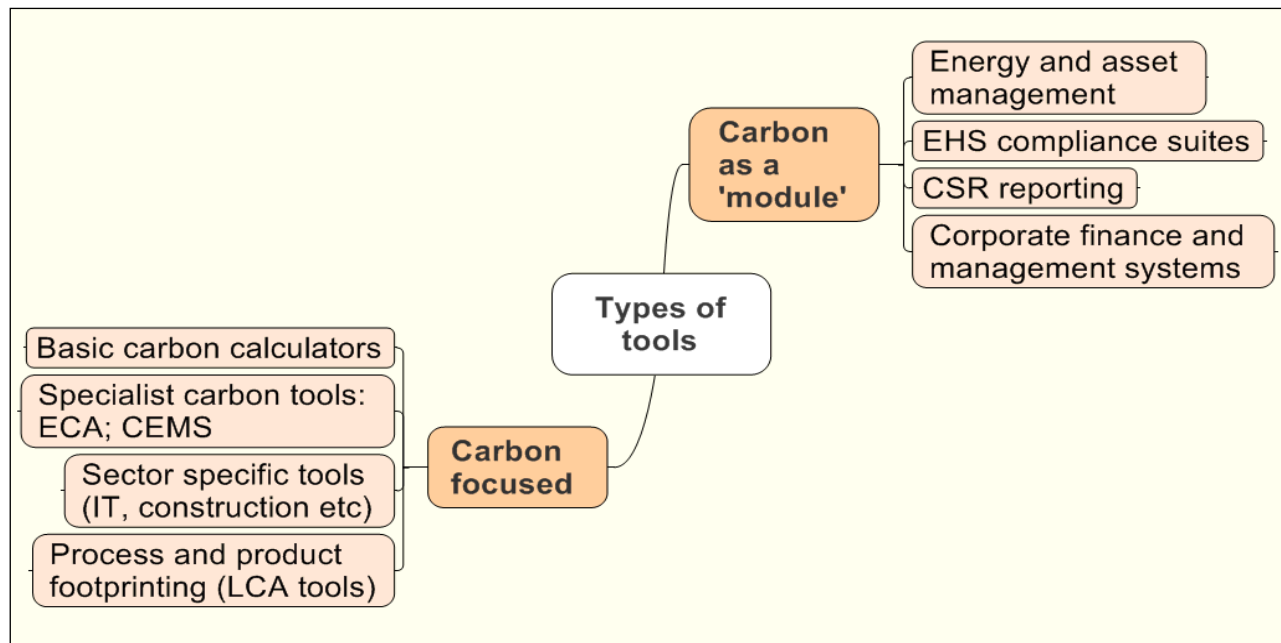
Appendix 2 lists a suite of tools developed by the Carbon Trust which range from a simplified carbon footprint assessment (Carbon Footprint Calculator) through product footprint calculations (The Carbon Reduction Label) which considers life cycle emissions to analysis of real time energy data (Energy Analyser tool). The list also includes a carbon reduction training tool and a method for assessing carbon impacts of planning decisions.

There are however a huge range of other software available from other commercial vendors which are relevant for local authority estate management as well as for businesses to use. A recent review of environmental business software is available as an ENDS Special Report³⁵ This considers the driving forces behind the booming market for this type of software but also sets out the purposes and functionality of the various types of software, such as CSR reporting tools, those designed for CRC reporting, asset management software and modules of wider corporate business systems. The choice of software to be used by an organisation will depend on a variety of factors including the scope of the carbon accounting required, audit and communication requirements for the data, integration with existing systems and of course the cost.

The diagram below shows a range of types of software available. Further information and examples are described in the ENDS special report. Further details of many of these tools are available on the Environment Tools Directory at www.environmenttools.co.uk.

Types of environmental business software tools:

³⁵ <http://www.endsreport.com/reports/ebs>



4.8 Tool Review (Appendix 2): Key Messages and Recommendations

In the absence currently of a legal requirement for local authorities to work towards national carbon budgets, improvements in the effectiveness and uptake of these tools and datasets is reliant on local drivers and ambitions associated with carbon reduction, for example:

These could relate to – for example:

- Identifying areas where local authorities could most effectively reduce fuel poverty and CO₂ emissions by working with energy suppliers through the delivery of their CERT/CESP (and in future ECO) obligation.
- Setting detailed supplementary planning guidance (SPG) in favour of reducing emissions in areas of significant regeneration or where key carbon reduction solutions exist (i.e. such as an existing/or planned district heating system)
- Identifying suitable locations where the local authority could either develop its own renewable energy system, or attract private sector developers to take forward a scheme.

Actions on the evolution of existing tools should therefore include:

- Hosting the current directory on the Environment Tools Directory
- Encouraging local authorities and housing associations to populate user reviews to provide a more balanced opinion of those tools available.
- Continuing the development and promotion of TrACE such that it can be used as a national repository for tracking and reporting activity data at a local level.
- Including some default intervention datasets to complement? Or supplement? the emissions baselining data for transport appraisal tools. The addition of intervention information would inform the user, and provide a useful policy exploration function, as well as provide a tool that can model and audit the users own experience. The effect would be to bring together within a single tool, emissions

datasets (intended for monitoring and benchmarking), with datasets that focus on the impact of specific measures and/or scenarios.

- Producing an overall template document/decision tree, endorsed by Government, to support local authorities in understanding which sources/tools to use, in what order, and how, in order for them to make an assessment of emissions in their local area.

The evolution of such tools should be driven by the requirements of local authorities.

5 Next Steps

5.1 Role of the Expert Group and Evaluation Team

The evaluation of the Local Carbon Framework Pilots is being led by the Local Government Group and will seek to establish whether the LCF Pilots have achieved the objectives set out in their proposals. The evaluation will also draw out the elements of the pilots' work that are replicable and provide useful lessons for other councils across the country. This will include several in-depth case studies that look at tools that are transferable, how councils can play a part in the Green Deal, institutional change, enhancing the reputation of councils on climate change, and working with communities. The evaluation will then stake out the key elements that will begin to shape the 'Council Framework on Climate Change'. This will be a portfolio of carbon reduction measures, information, tools and frameworks that councils across the country can use to develop local delivery plans to reduce carbon emissions, reflecting the work of the Local Carbon Framework Pilot Councils.

The Evaluation Team will be looking to the Expert Group to identify areas where councils need more support, understanding where and why the Expert Group was asked to provide additional information and support to the pilot councils. The Evaluation Team may also be looking to consult with the Expert Group to provide comment on the outputs generated by the pilot councils.

The Evaluation Report will be published by November 2011. We recommend that the evaluation team and expert group join together following the November reporting phase to provide a support role to the Local Government Group for the development and support of the work on the Council Framework on Climate Change.

5.2 Recommendations for the role of the Expert Group

The group propose that the following activity could be contracted and delivered by the Expert Group:

Data review and management

- Review and manage the list of data sources on a rolling basis to highlight changes to existing datasets, new datasets and best practice by local delivery agents in using this data. This will aid the implementation of the DECC-LGG Memorandum of Understanding.
- Support the development of new datasets that better integrate benchmarking and monitoring datasets with action planning tools to help local authorities explore 'what if' scenarios
- Monitor and evaluate the carbon impact of each of the pilot projects and make this information available to other Local Authorities through LEADER³⁶.

³⁶ LEADER (Local Environmental Actions Database: Expert Review) will be a public online library of local projects addressing air quality, noise and climate change. Expert reviews of projects will ensure that the information provided is fully validated and will highlight actions performing well and which are good value for money, but will also identify those projects that are under-performing. LEADER will provide a

- Maintain an ongoing role in data structure alongside Smart meter rollout to ensure that this can be aggregated in a useful way for local authorities.
- Review the use of the data as part of the remit of the renewed Nottingham Declaration steering group to obtain further insight into the strengths and limitations of the various datasets

Tool review and management

- Review and management of the tools directory list on a quarterly to half yearly basis to highlight new tools.
- Review those tools currently in development by the pilot authorities to assess their potential replicability by other authorities.
- Continue the development of TrACE such that it can be used as a national repository for tracking and reporting activity data at a local level.

Sharing Best Practice

- Convene a national workshop/conference for local authorities to disseminate the lessons from the Local Carbon Framework pilots, to promote the sharing of best practice, and to further understand the data requirements for effective action planning at the local level.

5.3 LG Group: Next Steps

From 1st April, the LG Group have taken responsibility for the Local Carbon Framework project, as set out in the Memorandum of Understanding between the LG Group and DECC. The Local Carbon Frameworks will inform part of the LG Group's Climate Change programme, particularly the Self-Regulation and Improvement Offer to councils. This is essentially a set of improvement tools that the LG Group is making available to councils, including ways to self-evaluate, self-regulate, and benchmark progress against other councils. Climate change will form part of the Self-Regulation and Improvement Offer.

Councils will be asked to demonstrate their continuing ambition on climate change through a rejuvenated Nottingham Declaration. Signatory councils will be asked to submit an annual update on their progress to reduce carbon emissions from their own estate and their local areas, and to set out their progress on supporting national initiatives such as the Green Deal and the roll out of smart metering. This will form part of an annual joint DECC and LG Group review into local authority action on climate change, and how the sector is contributing to meeting the national carbon budgets.

searchable database allowing local people and organisations see what is working in their area and will allow them to add their own commentary. This database will support the Localism agenda by enhancing accountability and aiding local decision making. For more information please contact Katie King at Aether on 01235 854054 or Katie.king@aether-uk.com



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