Commission for Rural Communities
Tackling rural disadvantage

Durham County Council

Targeting Fuel Poverty

How to use a local energy housing database to target fuel poverty - a practical guide for Local Authorities

Do you want to know how to target fuel poor households more accurately? Do you want to maximise the impact of local energy efficiency schemes? Do you need to report on fuel poverty indicators and domestic carbon emissions targets?

If so then this guide is for you.

It sets out practical steps and advice on how Local Authorities can build a local energy housing database to target fuel poor households, reduce domestic carbon emissions and improve the health and well-being of local communities.

Commission for Rural Communities
Tackling rural disadvantage

The Commission for Rural Communities acts as the advocate for England's rural communities, as an expert adviser to government, and a watchdog to ensure that government actions, policies and programmes recognise and respond effectively to rural needs, with a particular focus on disadvantage. It has three key functions:
Rural Advocate: the voice for rural people, businesses and communities
Expert Adviser: giving evidence-based, objective advice to government and others
Independent watchdog: monitoring, reporting on and seeking to mainstream rural into the delivery of policies nationally, regionally and locally.

Durham County Council provides a wide range of public services to 500,000 county Durham residents. The County encompasses a diverse spatial geography stretching from the remote rural North Pennine Dales to the more densely populated East Durham Heritage Coastline. In close proximity to the Tyne and Wear and Tees Valley city regions, and with Durham City an important population and employment centre, the County is well placed to connect deprived communities with areas of opportunity.

Contents

"Fuel poverty effects the most vulnerable in our society - families on low incomes living in damp cold homes, the elderly struggling to heat just one room in the depth of winter. It is easy to take for granted the comfort of a warm home, but as fuel prices continue to rise this is a luxury that more and more people simply cannot afford. Accurate targeting of limited resources to the people who most need it is crucial to tackling fuel poverty in the future. I commend this guidance document as it clearly demonstrates a practical and cost-effective approach that other LAs can follow to reduce fuel poverty, improve housing efficiency and cut carbon emissions. The work undertaken by Durham Unitary on their local housing energy database shows the pivotal role that LAs can play in delivering real change through the application of local knowledge. Targeting the issue locally in this way is a key tool in eradicating fuel poverty in the future"

Cllr G Porter
Leader, South Holland District Council
Chairman Local Government Association Environment Board

Foreword

In 2009 one in every four rural households were living in fuel poverty. For these households not having an efficient central heating system and proper insulation can mean a choice between essentials like a healthy diet or keeping their property warm. The English Housing Condition Survey estimates that every second home in sparse English communities has an energy efficiency rating below 30, which is classified as a significant health hazard. Cardiovascular and respiratory illnesses, such as asthma, are aggravated by cold, damp living conditions.

It is clear that Local Authorities will be expected to play an increasingly important role in area based delivery of fuel poverty and climate change programmes over the coming years. But it is also clear that currently many councils do not have an accurate picture of the energy performance of their community's housing stock which is needed to channel limited resources to the people in most need. This practical guide, written by Durham Council with our support, aims to tackle this by showing how Local Authorities can build a housing stock database and use it to help people out of fuel poverty, reduce carbon emissions and improve the health and well-being of local residents.

The significant scale of rural fuel poverty sets an important challenge to local councils and I recommend this guide as a practical tool to help target action more effectively.

Sarah McAdam

Sarah McAdam
Chief Executive, Commission for Rural Communities

Cold homes, cold-related illness, increased winter deaths, housing in poor repair and high healthcare costs are all visible signs of fuel poverty – a problem that affects more than six million people nationally each year.

Improving the quality of life for residents is a key priority for Durham County Council. Helping the most vulnerable members of our community to afford to heat their homes to a healthy level is vital if we are to achieve that aim. Durham County Council's Warm Homes Campaign and the housing stock database described in this guide play a vital part in our ability to target fuel poor households across the county and provide them with the help and support they need.

I hope you find this step by step guide on how to establish your own local housing database useful and that it helps your council to strategically target fuel poverty in the future.

George Garlick

George Garlick
Chief Executive, Durham County Council

Introduction

There are three main causes of fuel poverty: poor energy efficiency performance of housing, low income levels and high energy costs. If you spend more than 10% of your income on fuel bills you are living in fuel poverty. For many the consequences of fuel poverty are discomfort, ill-health and debt. Reducing fuel poverty within local communities can help achieve economic, social and physical regeneration, improve public services, reduce inequalities and deliver sustainable communities.

Over the past 10 years the government has introduced a range of national targets for central and local government aimed at eradicating fuel poverty, reducing domestic energy usage and reducing domestic carbon emissions. Along with this a wide variety of funding, delivery and reporting mechanisms have also been introduced. Whilst this support is very welcome an unintended consequence is that these schemes often operate in competition with each other locally and are not joined up. This is confusing to the general public leading to a low take-up of energy conservation measures and inefficient use of limited resources. To tackle this the government's new Home Energy Management Strategy has indicated a much greater role for Local Authorities (LAs) in area based delivery partnerships with energy supply companies.

With a greater role for LAs arises the need for better data on the energy performance and condition of housing stock locally so that measures can be targeted more accurately. Currently many LAs rely on estimated data from the English Housing Condition Survey and do not have a comprehensive local picture of the energy performance of local housing or where measures such as cavity/solid wall insulation or boiler replacements have already been fitted.

Imagine if you were in the possession of a whole stock housing database covering all domestic properties within your local authority catchment area. When housing energy data is processed by the Standard Assessment Procedure (SAP) calculation software it will produce the essential energy, fuel poverty and carbon usage statistical data for every individual domestic property within a specified locality i.e. output area, ward, settlement, street etc. This is a powerful targeting tool and is vital when preparing, delivering and reporting progress in corporate regeneration and fuel poverty strategies. It provides factual information on the energy performance of the housing stock as a result of works undertaken. This allows programmes to be brought forward on a needs based priority system.

This guidance shows how such a local housing stock database can be built from scratch at minimal cost and used to maximise long term benefits from tackling fuel poverty. Effective targeting and delivery of schemes through the database maximises external funding opportunities offered to local communities through the Carbon Emission Reduction Target (CERT), Community Energy Saving Programme (CESP) and Warm Front schemes. It will also allow the development of robust reporting baselines and confidence in national reporting mechanisms using the nationally recognised SAP methodology.

Box 1: Costs and Benefits of the Database

Costs	Benefits
Officer Time Database set up: • In house: one officer full time for 12 months • Contracted out: one officer part time for 6 months to project manage • Plus liaison and input from other key officers including IT, Local Land and Property Gazetteer and Admin Support Database maintenance: • 2 days per month officer time and 2 days per month admin time	**Improved Access to External Funding** £5.75 million of external energy efficiency and fuel poverty funding has been levered into Durham in 2009/10 through use of the database.
Capital Investment • Approximately £3, 500 for combined SAP processing software and database package • Optional annual maintenance support £500 • If the initial set up of the database is contracted out to a consultant and approximate cost is between £5,000 to £8,000 for this service	**Improved uptake in Energy Efficiency Measures** 40 % improvement in uptake of energy efficiency measures through use of the database in East Durham.
Data • Most data sources are freely available	**Improved Energy Performance of the Local Housing Stock** In East Durham housing energy efficiency ratings have increased from an average of SAP 30 in 1996/97 to average of SAP 56 in 2008/09. This significant increase can be analysed within the database to indicate the numbers of properties that have been brought out of fuel poverty as result of targeted programmes supported by the database. **Reduced Carbon Emissions from Housing** Average household carbon emissions fell from 9.01 (tonnes of carbon per year) in 2003/4 to 7.54 in 2008/9 in East Durham. Between 1996 and 2009 total housing stock carbon emissions in East Durham have fallen by 162,183 tonnes as a result of targeted programmes supported by the database.

Box 2: Case Study: Hands Up to Rural Poverty Study

During April 2009 and April 2010 the Commission for Rural Communities in partnership with the Rural Services Network conducted a fuel poverty study with rural households in County Durham, East Riding and Shropshire. These three LAs were chosen for the project based on statistical data showing high levels of fuel poverty, properties off the gas network and 'hard to heat' houses, all of which can result in people living in cold, damp homes. The project known as 'Hands Up' gathered information from participating householders about their health and financial wellbeing, what type of fuel they use to heat their home and what concerns they have in relation to affordability issues. Based on responses and working with local partners the project is looking at solutions that can be delivered on a 'house-by house' basis to reduce fuel bills, save people money and make homes warmer and healthier to live in. Initial results from the survey show that one in three respondents suffer from asthma or other respiratory illnesses, one in three spend more than 10% of their income on fuel (and therefore are fuel poor) and one in two have turned off their heating in winter to save money on fuel. A full report can be found at www.ruralcommunities.gov.uk

How to Create the Database

Importance of SAP

The Standard Assessment Procedure (SAP) was adopted by Government as the methodology for calculating the energy performance of domestic dwellings. The SAP rating is based upon the energy costs associated with space heating, water heating, ventilation and lighting in a dwelling. It is adjusted for floor area so that it is essentially independent of floor area for a given built form. SAP ratings are expressed on a scale of 1 to 100, the higher the number the lower the running costs. The SAP rating calculation is based on the energy balance of the dwelling, taking into account (among other factors) the materials used for construction of the dwelling, thermal insulation of the building fabric, ventilation of the dwelling, efficiency and control of the heating systems and the different fuels used within the dwelling.

The Government currently uses SAP as a proxy for fuel poverty whereby if a property has a SAP less that 35 it is regarded to be in fuel poverty when the household is in receipt of a qualifying benefit. Therefore SAP is a critically important factor in reporting against the fuel poverty National Indicator NI 187.

All fuel poverty targeting databases must therefore be capable of calculating and reporting a SAP figure for individual domestic properties. This will allow households with low SAP figures to be directly targeted for assistance using a variety of promotional schemes.

SAP Software Requirements

This guide does not promote the purchase of SAP processing software or a proprietary targeting database. However it should be noted that in order to produce and analyse fuel poverty and SAP data at an individual property level it would normally be necessary to have access to a SAP processing software and database package.

Local Land and Property Gazetteer (LLPG)

It is very important to be aware that all existing and new domestic properties built in England have their own individual property record number along with their property address and post code details. This individual number is referred to as the Local Authority Local Land and Property Gazetteer (LLPG). It is maintained by the Local Authority Planning Department and is kept up to date via a National LLPG Reporting Hub. Local Authorities supply local data to the national hub, this data is then reported back to all local government operations such as Local Authorities, Fire Service and Police to ensure compatibility across public sector organisations.

In addition, Local Authority benefits and council tax data are linked to the LLPG property reference. This allows housing energy data and benefits data sets to be integrated and used for joint targeting exercises.

Data Characteristics

A whole stock local housing energy database contains an individual record for all domestic properties within a Local Authority catchment area. Each individual property record contains a complete set of energy data as shown in Table 1.

Table 1: Typical Property Specific Energy Data Set

Data Type	Data per individual property
Local Land and Property Gazetteer Number	100110432942
Postal Address Details	8 Acacia Avenue, Peterlee, Co Durham, SR8 3TN
Property Age	1930 - 1949
Property Type	Mid terrace
Number of Rooms	6 rooms
Type of Glazing and Frame	Double glazed / PVCu
Insulation Measures	Un-insulated cavity wall and loft insulation as built
Heating System Fuel	Solid fuel
Heating System Type	Back boiler with radiators
When processed the above data will produce the following results	
SAP Figure	22.0
Average Carbon Dioxide Emissions	12.33 tonnes /annum
Average Running Costs	£942 / annum

Obtaining Data

The introduction of the Home Energy Conservation Act in 1995 resulted in a range of organisations gathering and reporting domestic energy data directly to Local Authorities. This property specific data can range from fully complete data sets as shown in Table 1 to individual data sets on specific energy related topic areas such as cavity wall insulation, new boilers, double glazing etc. The majority of this data is already supplied free of charge to Local Authorities for reporting exercises such as the Home Energy Conservation Act, National Indicator 187 (fuel poverty) and Building Control approval. But in most LAs the information remains fragmented and used in different ways by different departments rather than being pulled together into a comprehensive housing stock database. An example of the data currently freely available to Local Authorities is shown in Table 2.

Table 2: Energy Data Available to LAs

Source of Housing Energy Data	Type of Data
Eaga plc – Warm Front Scheme	Whole house energy data set on individual properties
Energy Saving Trust – DIY Home Energy Check	Whole house energy data set on individual properties
Building Control – Building Notices	Partial data sets for individual properties cavity wall insulation, new central heating boilers, new double glazing
Warm Zones / Area Based Schemes / Community Energy Saving Programme (CESP)	Whole house energy data set on individual properties
Carbon Reduction Target / Fuel Utilities	Insulation schemes
Insulation Contractors	Property specific data
Registered Social Landlords	Property specific data
Council Properties	Property specific data
Planning Departments	New build properties

Using the Database

The housing database will allow the setting of a whole stock fuel poverty and carbon emissions baseline and allows progress reporting on a regular basis for NI 187 (fuel poverty) and PI 63 (SAP performance for social properties).

Table 3 shows the actual data from the East Durham Database in 2009, please note that the data can be broken down into smaller target areas such as a ward, town, village, street etc as required for reporting. Table 4 shows the type of targeting that can be achieved through the database.

Table 3: SAP and Carbon Emissions Reporting

Type of Data use in Report	Whole Stock Reporting
Private Dwellings	
Average SAP Result for 28, 500 private properties	Average SAP = 55.6
Total carbon dioxide emissions for 28, 960 private properties	218, 270 tonnes/ annum
Average carbon dioxide emissions for private sector properties	7.54 tonnes / annum
Council Dwellings	
Average SAP Result for 8, 634 council properties (PI 63)	Average SAP = 67
Total carbon dioxide emissions for 8, 634 council properties	53, 049 tonnes / annum
Total carbon dioxide emissions for 9, 600 council properties	53, 049 tonnes / annum
Average carbon dioxide emissions for 9, 600 council properties	5.06 tonnes / annum

Table 4: Targeting Activity

Type of Targeting	Schemes Promoted
Strategic settlement by settlement energy efficiency rolling programmes based on lowest performing properties	All currently available energy conservation and fuel poverty schemes
Targeting of properties with SAP figure less than 35	Warm Front, Priority Insulation Schemes (CERT) / door to door promotions
Matching low SAP data and benefits data for private sector households	Warm Front, Priority Insulation Schemes (CERT) / joint mail out exercises to maximise referrals and income maximisation schemes
Targeting properties without insulation measures	Door to door promotions and mail out exercises
Targeting properties with low SAP figure but not in receipt of a qualifying benefit	CERT able to pay schemes (fuel utilities)
Targeting rural properties off the gas network with low SAP figure and in receipt of benefits	Warm Front, CERT and renewable energy measures
Targeting properties with high carbon footprint	EST DIY Home Energy Check
Private properties with low SAP ratings off the gas network	Community Energy Saving Programme
Working with contractors and managing agents	Targeting properties for grant assistance packages

Getting Started: In House or Contract Out?

There are two main considerations to take into account when starting to build a housing database.

- How quickly do you need the database to be operational?
- Are funding and resource available to assist with building the database?

If you have minimal funding and are willing to take a prolonged period of time to build the database then doing it in house using officer time as shown in the Step by Step Guide Option A is the advised approach. If funding is available to accelerate the process then contracting out the development of the database may be your preferred approach. The Step by Step Guide, Option B 'Contracting Out' provides advice and guidance on this option.

Ideally you will already have database software to store the data and SAP software to process the energy data sets. However as an interim position you can commence the data gathering process using a spreadsheet providing that the information is gathered in a systematic way and all the data sets are stored separately to allow the data to be added into specialist software at a later date.

Act now

The Home Energy Conservation Act 1995 (HECA) requires all Local Authorities with housing responsibilities to report on total domestic energy usage. As a result 14 years of high quality property specific data is currently available to Local Authorities. This data will already have been supplied to the Local Authority HECA Officer and could still be available at no cost to Local Authorities under the current reporting agreements from agencies such as Eaga and the Energy Saving Trust. However a HECA reporting will come to an end in 2011 there is no guarantee how long this data will remain available beyond this date.

It is therefore of utmost importance that Local Authorities recognise this opportunity and gather this data while it is available for future usage. Act now while the data is still readily available!

Box 3: Case Study: East Durham (1998 – 2008)

East Durham has a total housing stock of 39, 500 domestic properties with 9, 000 of these properties being under council ownership. In 1998 and as a direct result of the Home Energy Conservation Act the development of a whole stock energy database was commenced. A full address and property data set was available for all council owned properties but at this time no property specific data was available for private sector properties.

In order to build the private sector element of the housing database it was necessary to gather together all existing data sets currently available from external partner organisations. But this still only supplied a relatively small amount of data. In order to fill the gaps a district wide door to door insulation rolling programme was commenced. The important factor in the rolling programme was the use of insulation contractors to gather property specific SAP data sets as door to door promotions and surveys were carried out using a specially designed SAP data spreadsheet.

Contractors agreed to gather this data at zero cost but were supplied with a letter of introduction from the Local Authority to assist them to maximise referrals to all current Local Authority endorsed insulation programmes operating at that time. As a result many thousands of private sector properties were SAP surveyed even where the householder had not engaged in any of the schemes being promoted.

Inputting of the hard copy survey sheets was carried out by one part time member of LA staff over a three year period. During this time other large data sets were supplied to the Local Authority from national schemes such as Warm Front, the Energy Saving Trust and a range of regeneration schemes and utility funded schemes.

Inputting of the hard copy survey sheets was carried out by one part time member of LA staff over a three year period. During this time other large data sets were supplied to the Local Authority from national schemes such as Warm Front, the Energy Saving Trust and a range of regeneration schemes and utility funded schemes. Most of these data sets were supplied in electronic format and were inputted electronically to save time. During this period of time a local data gathering network was established to ensure all internal and external energy data was supplied on a regular basis to keep the database up to date.

As a result after 3 years of data gathering East Durham had a fully complete energy database for all of 39, 500 domestic properties in 2001. A key result was an increase in partnership activity targeting energy efficiency promotions and advice to properties where the database had highlighted a low SAP rating, a high carbon footprint, poor insulation standards or solid fuel heating. Another key result was the alignment with data for households in receipt of a qualifying benefit to undertake targeted promotions of the Warm Front grant scheme. As a result there was a sustained and significant increase in Warm Front scheme referrals and funding leveraged into East Durham as shown below.

Table 5: East Durham Warm Front Funding

Year	Annual Warm Front Funding brought into East Durham
2006/07 (HECA 11 East Durham)	£0.45m
2007/08 (HECA 12 East Durham)	£0.6m
2008/09 (HECA 13 East Durham)	£0.8m
2009/10 (HECA 14 Durham County)	£5.75m (Countywide)

Building your database a step by step guide

Building a Local Housing Stock Database Option A, 'In House'

This step by step guide shows how to build a housing fuel poverty and carbon emissions database over time at minimal cost to the Local Authority.

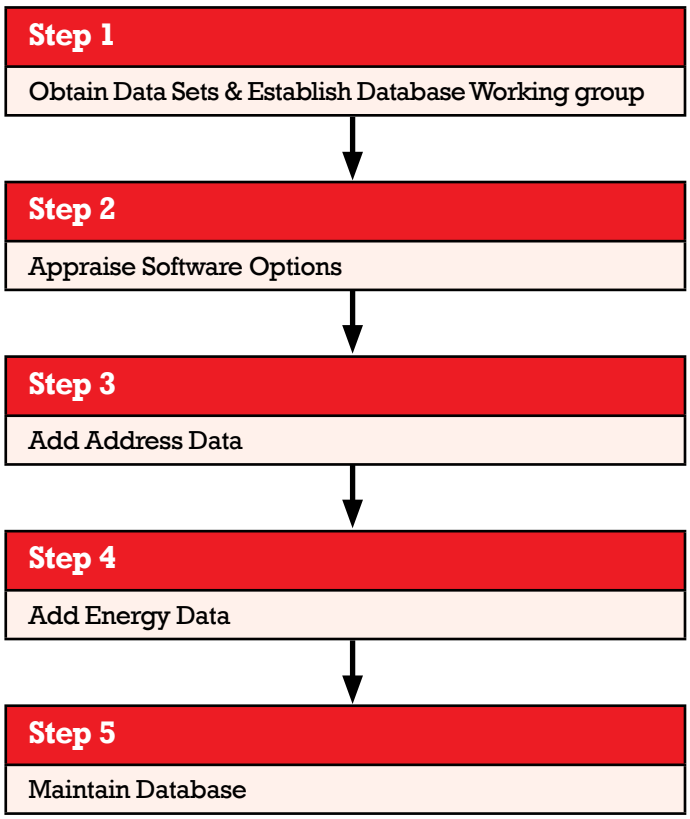


Table 6: Option A: In House Development - Step Guide and Check List

Step	Guidance
1	**Contact Key Staff and External Organisations for Data and Establish Working group** You are advised to contact the following internal staff and external organisations to obtain copies of all existing energy data sets for properties within your local authority area: • HECA / Carbon Officer for copies of all HECA Reports and electronic and hard copy data files • Eaga plc – Warm Front - electronic whole house property data • Energy Saving Trust – DIY Home Energy Checks - electronic whole house property data • Local Authority Building Control – CIGA Certificate; FENSA Certificates; Boiler Notice

Step	Guidance
	Establish a working group to oversee the process including HECA Officer, Carbon Management Officer, Local Land and Property Gazetteer Officer and IT support to ensure compatibility with local authority IT systems
2	**Appraisal of Software Options** Undertake an option appraisal on the regarding feasibility of purchasing a proprietary energy database with SAP software processing capabilities. Be aware that some energy databases require additional processing software to produce SAP results. Before undertaking any database assembly works ensure a computerised backup system is in place to safeguard against losing any data due to system crashes.
3	**Adding address data to the Housing Database** Contact the Local Authority Local Land and Property Gazetteer (LLPG) Officer usually based within the Planning Department to request a "data cut" from the LLPG for domestic properties only, excluding all non domestic address data (e.g. commercial buildings). The data cut should include the following items in a suitable database software format: • LLPG unique property reference number • Full LLPG postal address details • LLPG GIS point reference number It is essential that all individual address data must be assigned an individual database cell to allow flexible data searches to be carried out within the new database. Individual cells MUST be used for all of the following items: • LLPG number; • House number; • House suffix; • Building name; • Street name; • Locality; • Town ; • County; • Post code, • GIS number etc • Tenure type Download LLPG property address data into the proprietary energy database The housing energy database should now be populated with address data for all domestic properties.
4	**Adding property specific energy data to the Housing Database** Contact the local authority HECA and Carbon Management officers to obtain all information supplied to the local authority since 1996 for the Home Energy Conservation Act. If these officers are not available then contact the organisations listed below directly to request electronic copies where possible of their energy data sets: • Eaga plc – electronic whole house property data • Energy Saving Trust – electronic whole house property data • Local authority Building Control – CIGA Certificate; FENSA Certificates; Boiler Notices • Council Tax – demolitions and conversions from commercial to domestic properties • Legal Section – sold council properties • Council properties – updates on improvement schemes, maintenance programmes and decent homes programmes • Registered Social Landlords – property address lists and stock information

Step	Guidance
	Data sets will be supplied in either electronic or hard copy records and subsequently data input will be carried out using the following methods: • Hard copy data: Flag the property address in the database and manually input the hard copy energy data • Electronic data (preferred option): Mass download of the data, to do this the data will need to have the LLPG number attached to each individual record. It is unlikely that the electronic data coming from external agencies will have the LLPG number attached to it to allow a direct download. Request the Local Authority IT department to carry out the download or consider engaging a consultant to undertake the download When data is added to the database the property record history should always display where and when this information was supplied for auditing and reporting purposes. Most property databases use a history table to allow the database user to show where the data came from and when it was received. Example: Data supplier Warm Front; Date: Nov 2009; Measures installed: Cavity insulation, loft insulation and A rated gas condensing boiler Once the energy data is added into the database the SAP software will be able to process the data to produce an individual record to display the following results: • SAP number • Average energy costs • Average carbon dioxide emissions Even if the database does not contain all domestic properties some proprietary database systems will allow an extended data set to be produced displaying an assessment of the whole stock. This is very useful in the initial stages of database development as it allows a forecast to be made for reporting requirements such as NI 187 and total carbon emissions and allows basic targeting exercises to be undertaken
5	**Maintaining the Database** Develop lead responsibilities and processes to ensure regular data input is undertaken to maintain the development of the database. As new properties are built ensure that regular updates are received from the LLPG and added into the database. Likewise as existing properties are demolished these need to be deleted from the database and sold council properties should be re-designated as private ex council properties. This information is available from the Council Tax Section of the Local Authority Establish a system to obtain property specific updates from internal council departments i.e. Building Control, Council Tax, Housing Department etc and external agencies i.e. Energy Saving Trust, Eaga plc etc to ensure regular updates are received showing where energy conservation measures have been installed for social and private sector properties Ensure database is updated and backed up on a regular basis

Box 4: Case Study: Durham County Council

In 2009 Durham County Council was established as a new unitary council under the Local Government Reorganisation process. Durham is the fourth largest county in England with over 239, 000 domestic properties. Due to the size of the housing stock it was decided to undertake a tender exercise to engage data input support from an energy consultant to develop a whole stock energy and fuel poverty targeting database. This exercise will take approximately 12 months and the steps needed to take this approach are outlined in the Step by Step Guide Option B below.

The costs of building a housing stock energy database will vary from Local Authority to Local Authority but in Durham's experience the cost of this approach is between £5,000 and £8,000, plus the cost of a proprietary database and SAP processing software of approximately £3, 500

Building a Local Housing Stock Database Option B, 'Contracting Out'

This step by step guide shows how to build a housing fuel poverty and carbon emissions database over a 12 month period where internal and external data input support is available.

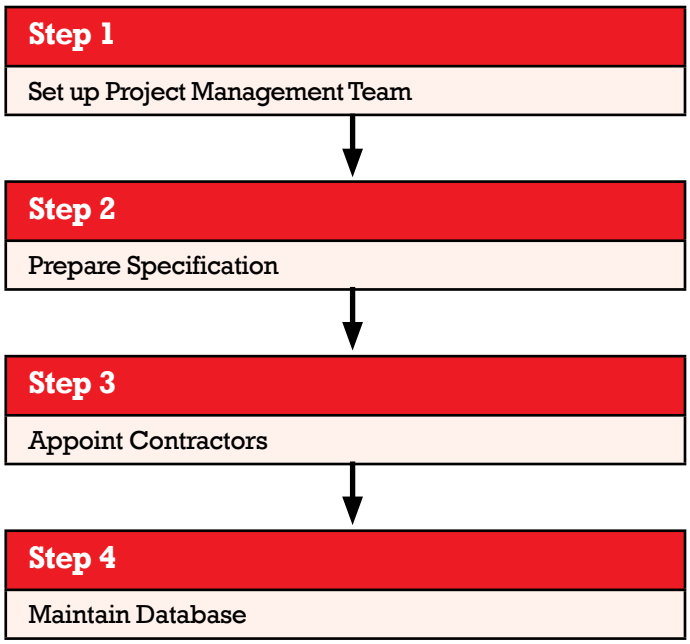


Table 7: Option B: Contracting Out - Step Guide and Check List

Step	Guidance
1	**Pull Together Internal Project Management Team** If you are intending to engage an internal or external IT specialist to build your databases it is essential to pull together an internal team to manage the project. The team should comprise officers from Housing, Carbon/ Energy Management, IT, LLPG and Asset Management. All members of this team should be aware that they will be required to allocate time to delivering the project. The lead Officer can expect to spend 4 days per month and support Officers 2 days per month.
2	**Prepare Design Brief and Performance Specification** The internal team need to prepare a design brief and performance specification for the project. All performance requirements should be itemised at the beginning of the development process to ensure the completed database complies with all operational and reporting requirements. If a procurement exercise is undertaken to appoint an external consultant it is recommended that you contact Durham County Council to obtain guidance (contact details are located on the back cover). The specification should be split into sections to ensure the costs to build the database are itemised for comparison between quotations. **Check list for specification:** ***Section 1 – Overview of database operational requirements*** • Database to include all domestic properties • Each property to have an individual property address file from the LLPG • Each individual property to use the LLPG as the unique property reference number • All individual properties to be flagged to allow a wide range of search groupings within the completed database i.e. geographical areas, settlements, output areas, super output areas, wards, property tenures etc • Database to be fully compatible with all existing IT systems

Step	Guidance
	Section 2 - Importing internal data held by Local Authority • Clarify who will be responsible for capturing all property data held by the Local Authority • Clarify who will be responsible for the importing of all existing property data from existing council operated databases such as council property asset management systems and Building Control • Clarify who will be responsible for undertaking data quality check of this information ***Section 3 – Importing External Data*** • Clarify who will be responsible for capturing all property data held by external agencies • Clarify who will be responsible for importing of all external data sources into the Housing Database from Warm Front, EST, Warm Zones, RSLs etc ***Section 4 – Local Authority IT Section*** • Specify what services if any will be supplied by the local authority IT Section and the consultant ***Section 5 – Timetable*** • Clearly state the timetable and requirements for regular update reports ***Section 6 – Confidentiality Agreement*** • Before awarding the contract a confidentiality agreement must be signed by the contractor to ensure that none of the data supplied will be used by them for any purpose other than for the project or passed to a third party without the full agreement of the Local Authority.
3	**Prepare and agree a delivery timetable for the project** If carrying out the exercise with an internal IT department agree the performance specification with them to ensure you have a shared understanding of the service agreement to construct the energy database. This specification must include delivery timescales. If the database will be built by an external contractor ensure the performance specification is very detailed to enable an accurate costing for the works required and to avoid any later cost increases due to additional requirements. As part of the tender process consider interviewing all of the consultants to fully discuss how they are proposing to carry out the works along with the timescales. You must also clearly establish and agree the level of input the contractor requires from the Local Authority in building the database and gathering property data. This is a critical element as it will have an impact on the internal resources necessary to undertake the project Once an internal or external contractor has been appointed hold a pre start meeting to fully discuss all of your requirements. Minute all meetings so a record is kept and all parties are aware of project requirements. Ensure regular update meetings take place to monitor progress and avoid delays. If the project is broken down into stages the data should be supplied back in these stages to allow the local authority IT section to undertake validity checks of the data provided.
4	**Maintaining the Database** As with option A once the database is developed agreement on lead responsibilities and processes need to be established to ensure regular data input is undertaken and the database is maintained and up to date. As new properties are built ensure that regular updates are received from the LLPG and added into the database. Likewise as existing properties are demolished these are to be deleted from the database and sold council properties should be re-designated as private ex council properties. This information is available from the Council Tax Section of the Local Authority. Establish a system to obtain property specific updates from internal council departments i.e. Building Control, Council Tax, Housing Department etc and external agencies i.e. Energy Saving Trust, Eaga plc etc to ensure regular updates are received showing where energy conservation measures have been installed for social and private sector properties.

Using the database to target properties

In order to undertake effective targeting it is essential to ensure the database has flexible search capabilities on a wide range of geographical areas including: individual property address, street, post code, ward, super output area, output area, village, town, locality etc. The database should also be capable of integrating the SAP figures with the geographical data and data from the Local Authority Revenue and Benefits Service in order to highlight where disadvantaged residents have low SAP performance within a specified locality. The database is invaluable in working with managing agents, utilities and approved insulation contractors to undertake promotional area based exercises. Examples of targeting activity are outline in Box 5.

Box 5: Targeting Activities

Door to Door Promotions

Door to door promotions are an excellent opportunity to promote fuel poverty and energy conservation schemes to private sector properties. The database allows the Local Authority to work with approved insulation contractors on a settlement by settlement programme where properties have low SAP ratings as it is likely that these properties are uninsulated. The contractor can be issued with a letter of introduction from the local authority to provide credibility and maximise referrals to fuel poverty grant schemes and 'able to pay' home insulation schemes. When door to door surveys are undertaken, the contractor should be required to complete a single page SAP questionnaire for all properties visited and this data is fed back to the local authority for input into the database. As more council properties are sold under the Right to Buy scheme it is becoming increasingly difficult to find these properties as they are located within large estates of social properties. However as the database shows property by tenure these properties can still be targeted to ensure they are part of the scheme. Also it is often difficult to persuade insulation or renewable energy contractors to provide door to door promotions in remote rural communities due to the additional cost of travel and distances involved. However the database can direct contractors to specific rural communities with the lowest SAP ratings and highest fuel poverty levels cutting out any unnecessary wasted journeys and time.

Postal Promotions

As all properties in the energy database have an individual LLPG number the Local Authority IT Section can link together the properties with low SAP ratings to private households who are in receipt of a qualifying benefit. The resultant lists of households may qualify for free energy conservation grant schemes such as the Governments Warm Front grant scheme and free schemes from the fuel utilities. By undertaking a joint mail out exercise between the Local Authority and energy conservation grant schemes residents can be encouraged to engage with relevant support schemes. Properties with low SAP ratings or a high carbon footprint can also be targeted for postal promotions to inform them about discounted 'able to pay' insulation schemes that are currently on offer to help them reduce their fuel bills, use less energy and reduce their carbon footprint.

In December 2009 Durham County Council in partnership with Eaga plc targeted benefit claimants in properties with low SAP ratings. Households received an introductory letter from Durham County Council encouraging homeowners to apply for the Warm Front grant scheme of up to £6, 000 in off gas rural settlements. As a result 900 households registered for the scheme equating to over £5m of grant funding allocated to vulnerable off gas fuel poor households. It is estimated that these measures will reduce county-wide domestic carbon emission by 6, 000 tonnes every year.

Key Outcomes from Using the Database

Strategic Evaluation and monitoring

Strategic use of the database will allow settlement by settlement tables to be produced highlighting areas with greatest need and allowing prioritisation to take place based on low energy efficiency performance (low SAP figures)

Strategic housing standards can be put in place based on a minimum SAP standard and the database will provide a robust monitoring system to track progress towards achieving this SAP performance

The database can be used to produce a cost model indicating the investment capital required to bring housing stock up to a minimum SAP standard whilst monitoring progress towards that standard.

Reporting NI 187

Using the Governments' NI 187 reporting methodology it is necessary to report the percentage of all households within a local authority area that are in receipt of a qualifying benefit and have a SAP figure less than 35 and more than 65. As the whole of the domestic stock will be contained within the energy database reporting NI 187 is relatively simple by aligning the SAP data with Local Authority benefit recipients' data as shown in Box 6.

Reducing Fuel Poverty

Use of the database will help to reduce local levels of fuel poverty. In East Durham the SAP ratings have increased from an average of SAP 30 in 1996/97 to an average of SAP 56 in 2008/09. This significant increase can be analysed within the database to indicate the numbers of properties that have been brought out of fuel poverty as (See table 8)

Reducing Carbon Emissions

Use of the database will help to reduce carbon emission from local housing. In East Durham carbon emissions from housing have reduced by 162, 183 tonnes from 1996/97 to 2008/09 (See Table 8)

Greater Funding Leverage

Use of the database will attract funding from energy utilities helping them deliver their CERT commitments. Durham has attracted significant amounts of external funding from Warm Front, fuel utilities, capital resources and Neighbourhood Renewal Funding, NHS and other partners due to the targeting potential the database offers.

Table 8 : Key Outcomes of Using the Database in East Durham

Annual Home Energy Conservation Act Report	Year	Average SAP for NI 187	Total Domestic Carbon Emissions (tonnes per annum)	Average Carbon Emissions per Dwelling (tonnes per annum)
HECA 13	2008/09	56.0	218,270	7.54
HECA 12	2007/08	55.4	221,129	7.57
HECA 11	2006/07	53.4	227,553	7.86
HECA 10	2005/06	49.4	244,168	8.43
HECA 9	2004/05	48.4	252,083	8.62
HECA 8	2003/04	45.8	264,677	9.01
HECA 1	1996/97	30.0	406,351	n/a

Box 6: Using the Database to Report on NI 187

NI 187 Reporting Stage 1: undertake a search on the housing database for all property addresses details (including LLPG) with a SAP less than 35 and above 65

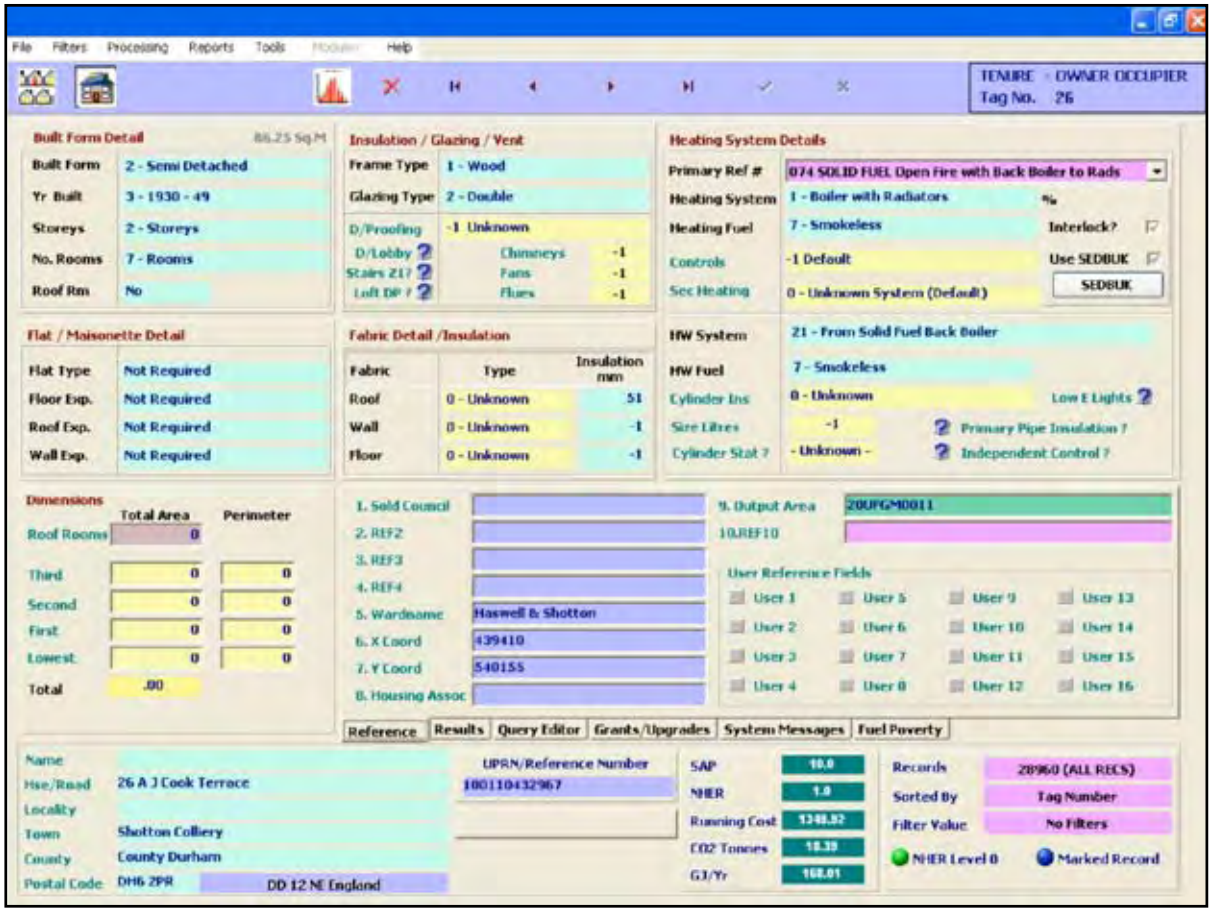
NI 187 Reporting Stage 2: supply the address records highlighted in Stage 1 to the Local Authority IT section which manages Revenues and Benefits Data. Request that the local authority IT Section amalgamates the two data sets using the LLPG number to highlight where both data sets align. This simple process shows the following outputs:
Numbers of households with a SAP less than 35 in receipt of a qualifying benefit
Numbers of households with a SAP more than 65 in receipt of a qualifying benefit

Where private properties have been highlighted as having a SAP less than 35 they must be contacted to inform them that grant schemes may be available due to their circumstances. Where the energy database does not have an individual SAP record for every property, the same process would be followed providing there are a minimum number of results to comply with DECC reporting guidance.

Annex 1: Database Screen Shots

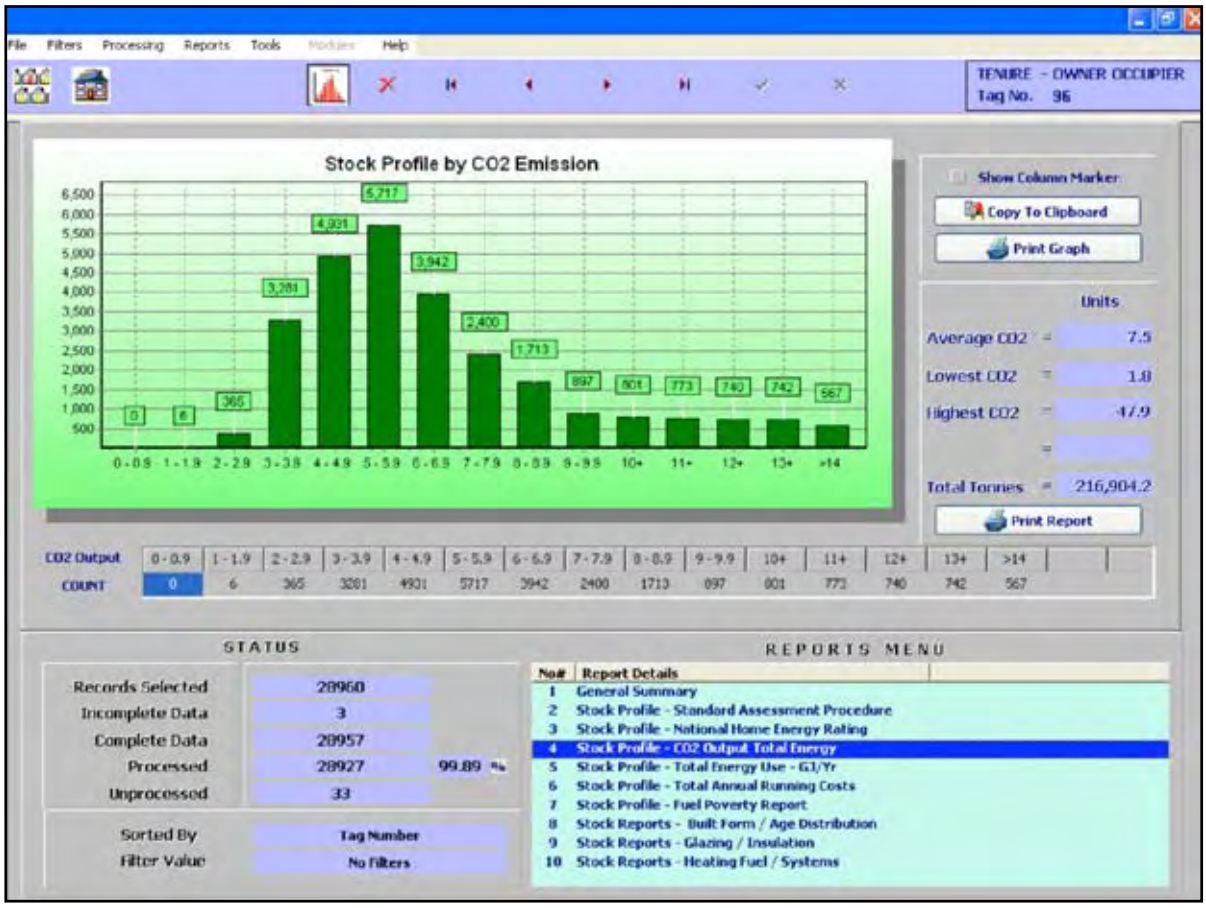
Screen shots taken from East Durham's database to illustrate the information that the database can capture.

The screen shot below shows an individual private property record with a very low SAP figure of 10. If the household was in receipt of a qualifying benefit this property would be in fuel poverty and qualify for free energy efficiency measures.



The screen shot below summarises the energy efficiency performance of the housing stock profile by SAP Rating

The screen shot below summarises the housing stock profile performance on Carbon Emissions



Annex 2: Lessons Learned

Avoiding problems with address-matching

The energy database takes energy data from a number of different sources to populate and update the stock values. A constant issue is that new record sets need to be matched to the existing data-sets, or records added if the data is for newly built stock. Because of local addressing discrepancies the matching will rarely be 100% complete. This can be a potentially expensive part of the exercise as it needs to be repeated every time a new data-set becomes available. The easiest solution is to ensure the data has a unique property value that is recognised by the Local Authority – i.e. the local land and property gazetteer. Your IT department may be able to provide you with an algorithm that can successfully match 90% of addresses i.e. typically those with a house number, street and postcode.

Otherwise the data import process consists of two stages: address matching and then appropriate data field updating with the correct code (e.g. NHER codes). It maybe worth considering the use of specialist to perform the first part of the process (the address matching) as they are likely to have developed software to do this. When address matching data from sources that are likely to be repeated (such as from a housing provider) you will want to match the unique identity field in their property database with the local land property gazetteer unique reference number. Once this address match has been performed once, it will not need to be done again, provided that the new data you request always comes with their unique reference value.

Avoiding problems with data accuracy/ provenance

One of the biggest challenges with an energy database is tracking of data provenance. Once data is imported into the database, there is no simple way to record which data fields were updated. This therefore needs to be addressed externally to the database by UPRN-stamping any new data sources that are used for UNO. This will enable later comparisons of data from different sources as well as providing an audit trail of where individual data items have come from. When importing large new data sets, e.g. from Warm Front or EST, a check can be made on the number of records accurately matched as well as a record of those that couldn't be matched. Without this UPRN stamp, you will not know where a particular data item held in a database has come from.

Avoiding problems with data confidence

Different energy data sets come from different sources and these sources employ different methods to collect the data. This could be from a survey conducted by a qualified technical surveyor. Data may come from door-step assessments based on an external visual inspection by a non-professional and augmented with information given verbally by the occupant (such as through a local area based scheme). Or it may be provided by a written check-box style survey completed by the occupant (DIYHEC form) or given verbally over the telephone by the occupant (EST, DIYHEC or Local Authority energy advice officer).

Consideration needs to be given to how conflicting data will be utilised, as only one value can be held for each data item in the Home Energy Database. Keeping a record of the original data-sets, but stamped with the UPRN value (i.e. addressed matched) can help resolve these conflicts.

Avoiding complex referral pathways

The energy utilities all have their own schemes to promote and deliver domestic energy conservation measures to vulnerable households. The Governments' Warm Front energy conservation grant scheme also targets the same client groups. These schemes have different branding, marketing mechanisms and messages which are confusing to the general public. Avoidance of a complicated referral pathway is essential in order to avoid confusion when engaging with the general public. Durham County Council has an in house Warm Homes Campaign which promotes energy conservation countywide via a network of 600 local community venues and community champions. All enquiries generated are handled by the Local Authority call centre and energy team. This process is used to generate enquiries for fuel poverty and able to pay grant schemes. All referrals are recorded by the customer management team within our call centre and all physical measures installed are then input into the database as an audit trail for measures installed.

Avoiding problems with Energy Databases

If you are considering purchasing an energy database ensure that the following issues are discussed prior to purchase:

- Database should use SAP 2005 not 2001
- Records individual data change sources (data provenance)
- Takes into account conservatories for heat loss
- Supports renewable energy technologies
- Allows multiple filtering of fields
- Auto-completes defaults rather than leave blank data items

Be aware that some energy databases require an upfront cost to purchase and may require an annual maintenance fee. Some databases have integrated SAP processing software included but others may require external SAP processing software that will require an annual support fee. Some databases cannot record the provenance of each data item so a separate check has to be performed by retaining the original data-set with its UPRN added. A maintenance service offers a safeguard that your IT department may not provide given the complex nature of the UNO engine.

An alternative approach could be to use your own database in Access or Paradox, built by linking to new UPRN-stamped data sets as new data becomes available. This would not be able to produce SAP results but as the new national indicator NI187 is based on SAP calculations it has been suggested that software may be provided free of charge to Local Authorities and housing associations, based on a reduced data set. However this is very uncertain and we recommend you contact DECC's fuel poverty team for further clarification. The underlying data is the key to a housing provider or Local Authority, i.e. does the wall have a cavity and has it been filled with insulation? While this may require possible IT support, the property list can be linked to the dynamic gazetteer, rather than having to check and update the property list on an annual basis. It also enables differentiation between different levels of trust in data-sources.

Annex 3: Current National Energy Efficiency Funding Table

National Funding Table

Programme	Budget 2008 - 2011	Funding Supplier / Managing Agent	Main Client Group
Warm Front	£959 million	Central Government / Eaga plc	Fuel Poor Households
Carbon Emissions Reduction Target (CERT)	£3.36 billion	Energy Utilities / internal staff / Warm Zones / Managing Agents	Fuel Poor households and able to pay schemes
Community Energy Saving Programme (CESP)	£350 million	Energy Utilities / internal staff / Warm Zones / Managing Agents	Fuel Poor households
Low Carbon Buildings Programme (Phase 2)	£84 million	Central Government / Energy Saving Trust	Fuel Rich households
Decent Homes	£2 billion	Central Government / ALMOs / INMOs	Fuel poor households and non fuel poor
Winter Fuel Payments	£8.1 billion	Central Government / DWP	Fuel poor households and non fuel poor
Cold Weather Payments	£209 million	Government / DWP	Fuel poor households and non fuel poor

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