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Local Authority Climate Change and Energy Efficiency Measures:

Best Practice and Current Initiatives.

A summary paper prepared by the Office for Local Authority Management

December 2008

Executive Summary / Recommendations from CCMA Climate Change Working Group

1. The Working Group recognises that a number of different approaches to climate change have already been developed by local authorities with regard to local requirements. It is recommended that all local authorities adopt a written climate change policy. The policy should reflect the commitments contained in the National Climate Change policy and the draft National Energy Efficiency Action Plan and relate to energy savings and reduction of greenhouse gas emissions. It should also facilitate the reporting of progress in the local authority's annual report.

2. In developing the climate change policy, local authorities should consider all aspects of their functions, identify their energy usage and appropriate actions to reduce that usage, specify targets and timeframes by which reductions can be achieved, outline the savings (i.e. energy, greenhouse gas emission and cost) that will accrue and outline a plan for implementation. That plan should also indicate the structures in place and procedures being pursued by the local authority to ensure appropriate monitoring and reporting of progress on an annual basis.

3. As detailed in the best practice document, local authorities have adopted different approaches in developing their climate change strategies / policies especially having regard to the resources available to local authorities. Examples of such strategies / policies, and links to these documents are provided in the Association of Irish Energy Agencies website, www.aiea.ie and these should greatly assist local authorities in developing their own actions.[1]

[1] For additional materials from Kilkenny Climate Change conference: http://www.kilkennycoco.ie/eng/Services/Environment/National_Climate_Change_Conference/. For additional materials from Dublin City Climate Change Conference, see http://www.change.ie/en/Conference-Centre/.

4. In general the local authority climate change policy should refer to the following, as outlined in the NCCP:

- Energy Use
- Housing/Building Projects
- Waste Management
- Transport
- Planning Policies
- Procurement Activities
- Raising Awareness
- Other Statutory Functions

Commitment

5. It is recommended that a cross-departmental team be established within each local authority which would be responsible for taking action on climate change and energy efficiency. Ideally a member of this team should be nominated to lead the group to ensure that progress is being made with regard to objectives and targets being achieved.

Management 'buy-in'

6. To ensure successful implementation of energy efficiency / climate change policies, commitment and *'buy in'* is required by both council members and senior management;

Identify

7. Data on energy use and emissions needs to be captured in order to measure progress. The Working Group has devised a template to assist local authorities in capturing this information on a consistent basis. We recommend that local authorities begin by capturing baseline data for 2007.

8. Emissions / energy data should, where possible, be broken down by department in order to identify areas where meaningful reductions can be made.

9. Local authorities should initially examine the information available to them from max demand accounts, as these accounts will potentially identify areas where

significant reductions can be realised. As Water Services are by far the largest consumer of energy within local authorities, comprehensive energy management strategies should be developed to account for the complexities of integrated water supply and waste treatment networks, changing operational patterns and energy price structures, as well as the importance of ensuring that Water Services staff at all levels are involved in assessing, implementing and monitoring energy management strategies on an ongoing basis.

10. Local authorities should liaise with local energy agencies and bodies such as Sustainable Energy Ireland (SEI) to ensure they have access to best practice and expertise.

Plan

11. Set clear objectives and targets for achieving energy savings and outline details of how these objectives will be met, measured and monitored.

Take Action

12. Identify opportunities for raising energy efficiency awareness and practices throughout the organisation.

Review

13. Throughout the year, monitoring of progress on the various actions can be undertaken by local authorities and a report of the progress should be included in the local authority's annual report.

Future

14. The approaches being adopted by local authorities in developing their climate change policies and the progress in measuring the carbon emissions using the newly developed tool will be kept under review by the Climate Change Working Group / Environment Committee.

Membership of the Working Group

The Working Group consisted of representatives from local authorities, energy management agencies, OLAM and the DoEHLG namely:

Con Coll, Dublin City Council (Chairman)
Dr. Gerry Wardell, Co. Dublin Energy Agency
Liam Fleming, Waterford Energy Agency
Rory McConnon, Carlow Kilkenny Energy Agency
Gabriel Hynes, Waterford County Council
Shirley Groarke, DoEHLG [replacing Mark Bohan]
Alex Hurley, DoEHLG
Anne O'Keeffe, OLAM
Ronan Murphy, OLAM
Linda Horan, OLAM

The Working Group would also like to acknowledge the assistance of Sustainable Energy Ireland; Casey Malynn and Denis Twomey, OLAM.

Purpose of Best Practice Paper

The purpose of this paper is to highlight best practice among local authorities on energy efficiency and climate change.

The paper makes use of material submitted to the DoEHLG on energy efficiency initiatives and provides a number of examples of action already being taken by local authorities in this area.

The analysis confirms that local authorities are taking the lead on many levels, including:

- Promoting best practice in sustainable building design
- Developing local awareness campaigns
- Enabling community projects
- Using innovative renewable technology

This document details examples of innovative ideas and practices and offers a tool to practitioners and managers who can make us of this material locally.

Based on this material and discussions, the Climate Change Working Group has made a number of recommendations which are outlined in the summary above.

1.1 Context

Climate Change has been confirmed as a key cross-cutting policy issue for national government. In recent years, soaring oil prices matched by Ireland's dependence on foreign energy supplies mean that energy sustainability has become a national priority. Ireland's goals on energy policy are to reduce energy-related climate change emissions, to promote renewable energy sources and sustainable transport options and to maximise energy efficiency across the economy (*Delivering a Sustainable Energy Future*, 2007: p. 6).

The National Climate Change Strategy 2007 – 2012 (NCCS) outlines how Ireland will reduce its greenhouse gas emissions in the period of the Strategy. It draws together the Government's collective effort across all sectors to tackle climate change. It is one of a number of inter-related Government initiatives that will address energy and climate change issues. *In practice, Ireland's climate change and energy strategies recognise common goals and are interlinked.*

1.2 Energy Efficiency – The Public Sector Response

The NCCS contains commitments for the public service in general and specific commitments for local authorities. The public sector is required to achieve energy savings of 33%. Every public service organization is required to adopt specific targets for reducing emissions and to measure and report on progress in their annual reports.

This commitment was initially outlined in the Energy White Paper published in March 2007 and was also outlined in the draft National Energy Efficiency Action Plan (NEEAP), issued for public consultation in October 2007. That draft NEEAP outlined the methodology associated with calculating the 33% energy savings, the timeframe of 2020 for achieving this target and the baseline reference data to be used for this purpose. In addition, the Energy White Paper and draft NEEAP noted that energy efficiency programmes would be introduced across the public sector, including local authorities. All

public sector bodies would need to produce annual reports setting out their energy efficiency actions and progress towards the 2020 target.[2]

The NCCS acknowledged the significant influence that local authorities can have over emissions in their local areas both directly to reduce emissions through their own energy use and procurement activities, in raising awareness and stimulating action in local communities, and indirectly through the exercise of their housing, planning and other statutory functions. In addition to the general commitment of local authorities to achieving 33% energy savings, the NCCS outlined specific commitments for local authorities. These are:

I. to provide for the sole use of energy efficient lighting in offices and other public buildings;
II. to purchase CFL light bulbs for the authority's use;
III. to provide that all street lighting and traffic lighting should be energy efficient;
IV. to display the Building Energy Rating for all new public service buildings over 1,000m2 from 1 July 2008 and to applicable existing large public service buildings from 1 January 2009; and
V. to ensure that the existing transport fleets of local authorities use biofuels at up to 5% blends and that newly purchased vehicles are capable of using biofuel blends of up to 30%.

In summary, local authorities together with all public sector organisations are required to produce some form of action plan / programme which would outline the body's proposed action with respect both to climate change and energy efficiency and provide mechanisms to report on progress in their annual reports.

It is envisaged that such an action plan should identify how the local authority is to address the general commitment to achieve the 33% energy savings. These actions should also reflect specific commitments contained in the NCCS and requirements contained in the NEEAP, relating to energy savings and reduction of greenhouse gas

[2] The relationship between energy savings and greenhouse gas emissions and the appropriate converters to be used is expected to be outlined also in the NEEAP. The final version of the NEEAP is expected to be published shortly.

emissions across all functions of the local authority from corporate services to water services to waste management. The plan should also indicate the structures in place and procedures pursued to ensure appropriate monitoring and reporting of progress. Ultimately, progress in pursuing these actions should be outlined by local authorities in their annual reports.

1.3 The CCMA and Climate Change / Energy Efficiency

Local authorities are already playing a key role in the implementation of national policy on energy reduction. The analysis carried out by OLAM confirms that on a local level, many innovative projects are underway to promote public awareness, manage public infrastructure and provide for efficiency gains. To this extent local authorities are already leading the way in taking action both on the climate change and energy efficiency agenda.

Local energy agencies, where they exist, play a key role in assisting local authorities to target energy reduction measures and offer a good example of a shared services approach.

Energy agencies are involved in a range of activities including:

14. climate change projects;
15. information awareness;
16. energy management projects;
17. renewable energy projects;
18. community energy projects.

The CCMA has supported a number of local authority initiatives to highlight the significance of climate change and promote energy efficiency:

- In its 2006 submission on energy efficiency, the CCMA maintained that:
  "Local authorities can make significant contributions to the development of Sustainable Energy Practices/Technology, and to the implementation of national policy on a local level through the adoption of Local Policies/Practices that are supportive of National Policy (December 2006)*"*;
- A number of meetings have taken place to discuss climate change issues, principally to share experiences to date and to develop a co-ordinated response to the challenges posed;
- In early 2008, the CCMA Environment Sub-Committee held a seminar to discuss local authority develop climate change strategies;
- Following on from this, in April 2008, Kilkenny County Council, in partnership with Waterford County Council and OLAM, hosted a conference for local authority staff to share information and best practice on responses to climate change;[3]
- As part of the Government's Change Campaign, a follow-up conference was held on October 16th 2008, hosted by Dublin City Council;[4]
- A key challenge for local authorities will be to devise mechanisms to report on progress on emissions / energy reductions on an annual basis. Therefore, the CCMA established a Climate Change Working Group to develop a basic template to assist local authorities to measure carbon emissions.

[3] http://www.kilkennycoco.ie/eng/Services/Environment/National_Climate_Change_Conference/

[4] http://www.change.ie/en/Conference-Centre/

- The Working Group was Chaired by Con Coll (Dublin City Council) and included: Liam Fleming (Waterford Energy Agency); Rory McConnon (Carlow-Kilkenny Energy Agency), Dr. Gerry Wardell (Dublin City Council), Gabriel Hynes (Waterford County Council), Shirley Groarke and Alex Hurley (DoEHLG), Ronan Murphy, Linda Horan and Anne O' Keeffe (Office for Local Authority Management).
- The Working Group will report on its findings to the Environment Sub-Committee in December 2008.

1.4 Energy Efficiency

In April 2008 the DoEHLG sought information on energy efficiency measures by local authorities. In the context of national energy reduction targets, Ms. Geraldine Tallon, Secretary General of the DoEHLG, wrote to local authorities seeking information on actions taken to date in relation to energy reduction, stating that:

> *"The Department places a high emphasis on good environmental performance and, given its remit, it is particularly important that this Department, the Agencies under its remit and local authorities be at the forefront in addressing energy usage….I would appreciate it if you could advise us as to the measures taken or planned in relation to your organisations buildings and services so that we can together promote the sharing of best practice across our overall sector* (April 2008: 2)*"*.

Given the extent of ongoing work in this area, it was decided to maximise the use of information already supplied to the Department. The Office for Local Authority Management (OLAM) analysed the responses to provide an overall sectoral perspective on climate change / energy efficiency and to highlight best practice for local authorities. This material forms the basis for this paper.

1.5 Method

OLAM collated available responses from some local authorities and used this information to develop a database of energy efficiency initiatives. The range of responses was broken down under a number of broad headings and themes to facilitate

analysis[5]. A small sample of case studies was then identified with a view to promoting best practice and to make recommendations to local authorities.

1.6 Responses

- OLAM received information from 22 local authorities in relation to energy efficiency measures being taken. Over 430 separate initiatives that are either ongoing or planned were identified;[6]
- Responses were then coded into further sub-categories for analysis. These sub-categories are presented in Table 1, over;
- The responses demonstrate a wealth of measures being explored by local authorities to progress national climate change and energy efficiency strategies. The following sections contain details and analysis of the material;

[5] Further more detailed analysis of overlapping categories was then carried out using STAFS (SPSS Text Analysis for Surveys) software.

[6] OLAM received additional information from local authorities on a range of other initiatives, which are also included in this report.

Section 2: Webgraph: Range of energy efficiency / climate change measures taken by local authorities

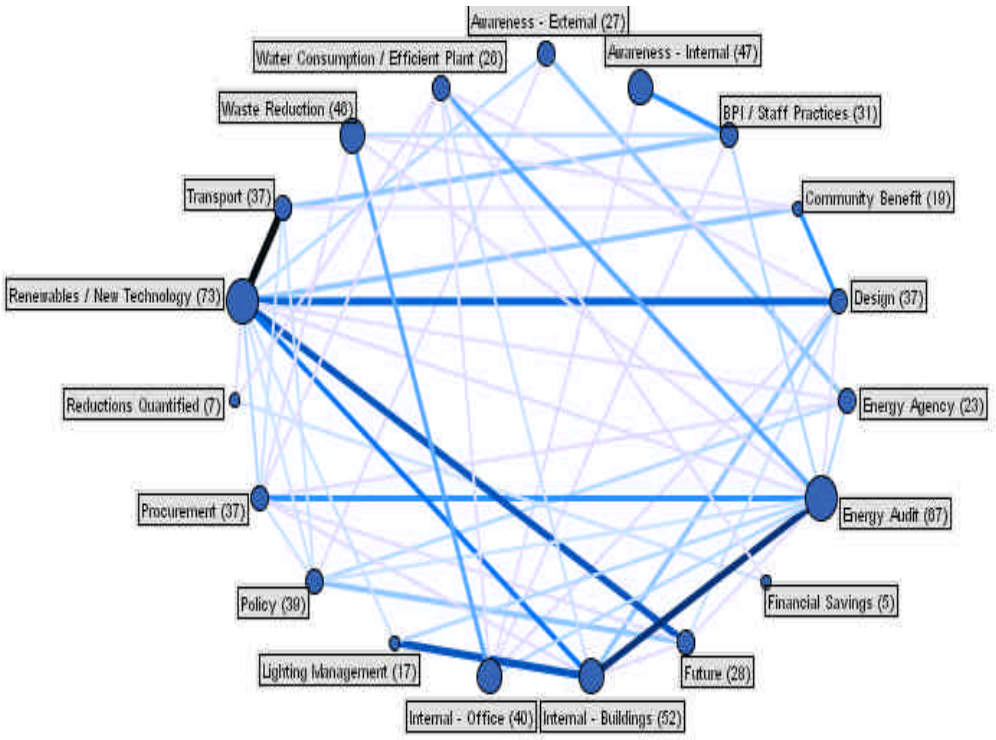

Table 1 – Range Of Actions Broken Down By Sub-Categories

Category	%	Cases
Renewables / New Technology	16.9	73
Energy Audit	15.5	67
Internal – Buildings	12.3	53
Awareness – Internal	10.9	47
Waste Reduction	10.7	46
Internal – Office	9.3	40
Policy	9.0	39
Procurement	8.6	37
Design	8.6	37
Transport	8.6	37
BPI / Staff Practices	7.2	31
Future	6.5	28
Awareness – External	6.3	27
Water Consumption / Efficient Plant	6.0	26
Energy Agency	5.3	23
Community Benefit	4.4	19
Lighting Management	3.9	17
Reductions Quantified	1.6	7
Financial Savings	1.2	5

- Approximately 17% - of initiatives involve local authorities in planned development of new technologies or renewable sources of energy, demonstrating the progressive approach of the local authority system to energy efficiency;
- The local government sector has made a considerable investment in *sustainable buildings* and *energy efficient housing stock* - around 12% of responses relate to actions taken in this category;
- An additional 4% of measures relate to *energy efficient lighting management systems* which are becoming the norm within the sector, and responses provided help to capture this level of innovation;
- 8.6% of other measures relate to *energy efficient planning and building design*;
- Almost 16% of measures relate to *audits of energy usage,* or analysis to reduce energy consumption;
- Approximately 11% of all measures identified relate to examples where some form of *internal awareness raising activities* i.e. with local authority staff have been carried out, or are planned;

- The lead role played by energy agencies in these campaigns is also apparent from responses. Feedback also suggests that energy use/climate change issues are gaining *'buy in'* from senior management.

2.1 Examples of Best Practice:

Further detailed examples of actions taken by local authorities are described in the following paragraphs. These actions all relate to the National Climate Change Strategy under various headings. In order to identify best practice, our analysis has broken them down under more detailed sub-categories.

2.2 Internal awareness raising activities

Most local authorities have proceeded with internal awareness raising activities, examples of which are captured in the following paragraphs:

- **Dublin City Council, Mayo and Cork County Councils**: Three local authorities – Dublin City, Mayo and Cork County Council – were involved in a national pilot *'Action at Work Programme'.* This was designed to reduce the carbon footprint at work through changes in everyday practices. **The Mayo pilot** was carried out in three administrative buildings with the goal to reduce the amount of waste / energy consumed. The project also involved community awareness campaigns along with a number of awareness initiatives for staff, such as reminder emails and stickers placed on all PC's and electrical equipment;
- Actions are often carried out in conjunction with a local energy office or environmental awareness officer. In the case of **Cork County Council**, actions during energy awareness month included: an energy clinic which was held for staff; an energy exhibition/stand placed in the foyer of County Hall for the month; tips were also sent to employees via the intranet each morning;
- **North Tipperary** plans to ensure all social housing staff and residents participate in an energy awareness programme. A climate change awareness programme, which includes energy awareness, is being undertaken by the Environmental Awareness Officer;

- **Roscommon County Council** carried out an electronic survey of staff based in public buildings in Roscommon town. This provided baseline information to raise staff awareness of measures they could take to reduce the environmental impact of council actions;
- A number of local authorities include energy awareness themes in staff orientation/training days. For instance, **Dublin City Council** floor staff recently received training from the Green Business Officer, to change business practices and reduce energy consumption, and such information is now included in the Staff Handbook. **Sligo County Council** is running awareness initiatives relating to waste management; a staff seminar on water conservation was also held in September 2008. Similarly, new staff in **Limerick City Council** received an environment presentation, including material on in-house waste prevention and energy conservation practices;
- **Kildare County Council's** facilities manager completed the FÁS course in Energy Efficiency and Renewable Technologies, to ensure local authority compliance with legislation. A number of other local authorities also cited in-house training of relevant staff to raise efficiency standards in planning, including the new National Guidelines and Regulations.
- Two simple examples of typical changes to business practices, taking place in many local authorities are worth citing by way of illustration:
  - In **Dublin City Council**, the rotas for cleaning staff have been altered to allow lighting in the civic building to be switched off earlier, saving an hour of lighting a day;
  - In **Wicklow County Council**, a high level of environmental awareness means that outdoor staff clothing, including gloves, reflective gear and overalls etc. are washed at centres for re-use. Office staff are encouraged to source stationery equipment from other sections for re-use prior to purchasing new materials.

2.3 Public Awareness

Although most awareness-raising initiatives recorded relate to educating staff, approximately 6% of responses refer to efforts to raise awareness among members of the public.

Local authorities already have a proven record and strong experience in promoting environmental awareness campaigns to encourage recycling and efforts to reduce levels of waste going to landfill. Similarly, local authorities have worked well with energy agencies and other bodies to promote general advice to members of the public on energy efficiency. The establishment of the environmental awareness networks in particular has allowed local authorities to show leadership in rolling out "*Green Schools Campaigns*", by providing advice on recycling and waste prevention, while the provision of waste infrastructure for recycling has now been well documented.[7]

Together with LEA awareness campaigns, many local authorities are now broadening their Greens Schools and environmental awareness campaigns to include energy conservation themes. OLAM research identified local authority involvement in a wide range of projects to promote renewable technologies, reduce water/ waste / electricity consumption, and to provide advice to members of the public. A small number of examples are cited below by way of illustration:

- **Sligo County Council** highlighted involvement in a concerted awareness campaign which targets schools, community groups, the business and agricultural sectors on waste management, energy efficiency and water consumption themes.
- **Limerick County Council's** planning section continues to advise the public on energy efficiency issues in relation to planning. Planning applications now include guidelines on energy efficiency;
- **Wexford's** Holmestown landfill and civic amenity site features a low energy administration building which will be used to promote energy and environmental awareness to visiting school groups;
- **Waterford City Council** highlighted a number of talks, workshops and competitions which have taken place in local schools to promote renewable forms of energy;

[7] You can find evidence of the most recent statistics in this area by downloading the Local Authority Service Indicators 2007 from www.lgmsb.ie. Green Schools Campaign and Green Flag Schools;

- In addition to a range of energy measures relating to their social housing portfolio, **Kildare County Council** have now included an energy awareness theme in their *"Green Schools Campaign"*;
- Kilkenny and Carlow County Councils have partnered to launch a Climate Change Tips and Facts slot on the local radio station, KCLR. The launch of the Climate Change Tips and Facts campaign includes a CD and took place on 15th September 2008. The campaign includes 4 Climate Change Tips/Facts per day, in addition to a once per fortnight 10 minute slot on KCLR to discuss Climate Change issues. Carlow and Kilkenny County Councils, through the Carlow Kilkenny Energy Agency and other local organisations, also support numerous Energy Awareness campaigns, seminars and workshops for local residents, businesses and community groups.

2.4 Waste Prevention

- Around 10.7% of all measures identified relate to waste reduction and waste prevention activities. The survey found evidence of a strong commitment by local authorities to the recycling of in-house waste, and to waste prevention measures, including steps taken to further increase recycling in the community via expanded networks of recycling facilities, and other changes in business practices to minimise waste materials;
- Most local authorities have used in-house expertise to carry out waste characterisation studies to ensure that recycling is being centralised to a greater extent than before. For example a waste audit was conducted on council buildings in **Roscommon town,** while in **Dublin City Council,** waste bins underneath office desks were removed and centralised recycling areas.
- **Waterford County Council** has installed five constructed wetlands for effluent treatment, which has several benefits. Firstly the primary energy input to operate wetlands is from natural daylight and secondly wetlands act as "Carbon Sinks", which soak up Carbon Dioxide and temporarily store the carbon in wood roots, leaves and the soil.
- **Free Trade website: The Dublin Local Authorities** have been running a highly successful online Free Trade facility on www.dublinwaste.ie. This website is operated by RPS Consulting on behalf of the local authorities. Discussions are ongoing with the DoEHLG in relation to the potential roll-out of a nationwide site.

2.5 Local Authority Building Design

Many modern local authority buildings and facilities already incorporate high spec environmental standards, innovative renewable technology or design features. The survey also identified the reduction of energy consumption in local authority offices as a major theme. To this extent local authorities are playing a leadership role in encouraging sustainable building design.

Examples:

- The administrative building in **Wexford** includes Solar Thermal Panels, Solar PV panels for electricity generation, a Wind Turbine (due for installation), solar street lamps, a wood pellet boiler, BMS, heat recovery ventilation and rain water harvesting;
- **Limerick County Council's** new County Building includes Solar PV Panels generating 50 Kw of power;
- The building expansion project for **Kerry County Buildings** will use woodchip, geothermal and solar heating technologies;
- In **Kildare County** Buildings, domestic hot water is heated by a solar thermal array on a south facing roof, thus reducing the gas load. Rainwater is also 'harvested' in underground tanks and re-cycled for use in flushing toilets, reducing the amount of treated water consumed;
- In **Dublin City Council's** Civic Offices a Natural-Gas powered CHP system is installed. This is capable of supplying a large proportion of the electrical load at Civic Offices, and giving district heating for several premises in the adjoining neighbourhood. This reduces the overall CO2 emissions of the electricity consumption and heating plants.
- **Sligo County Council's** new machinery yard will have facilities to pump and store bio-fuels;
- **Cork County Council** utilises geothermal heat pumps in local authority swimming pools and in the new county library facility;
- **Waterford County Council** installed a small scale wind turbine at the **Tramore** Civic Amenity site, which is generating enough power to light the building;

- **Galway City Council** is exploring the use of solar panel heat sources in the Leisureland swimming complex. A feasibility study has been completed for an 850 KW Wind Tubine to be integrated with the Mutton Island Sewage Treatment Plant;
- **Tralee** Firestation and Council Offices have a 150kW Woodchip boiler which replaces an existing oil fired boiler.

2.6 Office Energy Consumption / Waste Prevention Measures

The survey confirms that features such as computerised lighting management systems or energy efficient lighting measures (for instance motion and daylight sensors) which maximise the use of natural daylight and switch off any unnecessary lamps, are becoming the norm. In most local authorities, energy audits of lighting and office/IT equipment have either already taken place or are planned.

Other examples of measures taken to reduce energy consumption, or prevent waste in local authority offices include:

- The use of demand control devices or *'powersave'* functions on office equipment
- The use of default settings to promote energy consumption;
- Use of timers on heating systems and the introduction of energy rating standards
- The regular monitoring of electrical meters in council buildings;
- Water meter readings and water pressure tests conducted on local authority office buildings in order to reduce consumption through demand control measures;
- Working with Green Teams all local authorities have demonstrated a strong commitment to the in-house recycling and minimisation of waste including the development of segregation systems for the disposal of confidential and non-confidential paper, newspapers and magazines, ink cartridges, mobile phones, batteries, plastic bottles, drink cans and tetrapaks;
- Local authorities have highlighted steps taken to ensure that all IT equipment is recycled or disposed of correctly by outside contractors.

2.7 External Measures To Reduce Carbon Emissions

Local authorities have a proven ability and expertise in promoting recycling and waste prevention campaigns in the local community. They are now building on this experience, often on their own initiative, in adopting a positive role promoting sustainability and carbon reduction measures at a local level. In this section we illustrate some of the ways in which local authorities are collaborating with LEAs and on a regional basis to develop local responses which support national action on climate change. These efforts include projects to promote sustainability, enhance sustainable design standards, and develop renewable technologies.

2.8 Community Buildings and Sustainable Design

- In 2006 **Galway City Council** was involved in the construction of 54 units of low energy design housing at Gleann Bhan Housing Development. This project, which won an SEI *"House of Tomorrow"* Award, included 40 fabric upgrades, a solar water heating system, NG Condensing Boilers and a heat Recovery Ventilation System. This followed on from a 2005 scheme to provide an energy upgrade to 96 flats in the Walter Macken scheme, also winning an SEI *"House of Tomorrow"* Award;
- **Limerick County Council** is involved in advising social and affordable housing associations on energy conservation issues, and ensuring that new and existing houses receive Building Energy Ratings and are to House of Tomorrow standards;
- **Wexford's** Community and Enterprise Section have promoted energy efficiency and emission reductions in Community Buildings through their Sustainable Community Buildings Grants Scheme. In its fourth year, the scheme has part funded energy audits; insulation measures; wood pellet boilers; heating controls; water conservation measures and energy efficiency lighting upgrades;
- **Waterford City Council** provided low energy housing in 34 of 158 social and affordable houses at Kilcaragh village. Technological improvements include evacuated tube solar water heating, gas fire condensing boilers, circuit heating and digital control features, room thermostatic control and CFL lighting features;
- **Kilkenny Local Authority's** Social and Affordable housing development of 21 dwellings in Mooncoin incorporates a high level of building fabric upgrade, solar panels and wood pellet central heating stoves which has resulted in the occupants'

heating costs being cut by over 70% and the elimination of heating related CO_2 emissions amounting to 70 tonnes/year for development;

- **Kilkenny** Local Authorities New Leisure Centre incorporates biomass and solar systems to meet all heat requirements, and state-of-the-art plant and pool filtration systems to minimise electrical energy consumption;
- **Carlow County Councils** newly refurbished waste recycling facility incorporates solar thermal panels to supply hot water to the facility.

2.9 Local Community Projects / Investment in Renewables

The survey has also highlighted other initiatives designed to directly benefit the local community, to encourage local sustainable agriculture or to drive research to reduce levels of consumption.

- **Wexford County Council** has trialled biomass heating systems in its social housing stock. Solar water heating will be integrated into all new social housing projects.
- In Tralee Town, a district heating project has led to the installation of 2 500 kW woodchip boilers in a new 42 apartment development. The woodchip boilers will also be used to supply heat to a neighbouring library. The district heating system may also supply heat to a neighbouring school;
- **Mayo County Council** has installed a combined wood pellet burner and solar thermal panels to replace oil fired heating in Ballina swimming pool. The Council are also investigating the feasibility of installing combined heat and power (CHP) plants in Westport Leisure Park;
- Enniscrone Leisure Centre, for which **Sligo County Council** is a partner, uses solar panels. Sligo County Council has also partnered with Sligo IT and UCD in a research project on water conservation across all categories of water users – farms, commercial and domestic – exploring the potential for rainwater harvesting, and water saving in cisterns;
- **Waterford County Council** The South East Regional Authority & Local Authorities / Energy Agencies of the South East Region have collaborated to develop a "South East Bio Energy Implementation Plan", which is a plan that details the development of bioenergy with the South East Region;
- The **Waterford** Regional Sports Centre is another innovative example where the installation of renewable energy sources and energy efficient equipment is used to

power community facilities. Here, the swimming pool will be heated by landfill gas, collected from the nearby remediated Kilbarry Landfill;

? A partnership has been formed with the **Tipperary** Centenary Co-Operative Society for the growing of energy crops on Council's land. The fuel manufactured from these crops will be used by **North Tipperary County Council's** transport fleet.

2.10 Transport

Many local authorities have developed "Rural Transport Initiatives", which involves a rural bus service linking rural communities and urban communities. The benefits of the RTIs have resulted in significant C02 savings through the reduction in private vehicle use.

In the area of transport, measures identified fall into three major categories:

I. Road construction / public lighting projects.
II. Encouraging the use of bio-fuel in the transport fleet;
III. Encouraging the use of public transport by staff;

The majority of transport measures relate to internal actions i.e. to encourage public transport use by staff or to facilitate the use of renewable fuel sources in transport fleets.

2.10.1 Examples of Road Construction / Public Lighting Projects

✍ **Waterford County Council** are involved in the "Joule Save Program" for the design and implementation of all new roads, which allows engineers to quantify energy requirements for all phases of road construction and compare different options;

✍ **Mayo County Council** is trialling research on environmentally friendly surface dressing binders, which could significantly improve the environmental impacts of surface dressing. The Council are also involved in two pilot projects, one on wind-powered public lighting and one on solar-powered public lighting, both of which are due to be commissioned shortly. They are also trialling high efficiency LED lighting and hope to extend this to a pilot roadway project. An intelligent roadway lighting control project (E-Street) has been commissioned on the recently opened N5 Charlestown Bypass. This uses energy efficient street lighting and includes dimming to match road usage. The benefits are reduced energy, environmental and maintenance costs as well as optimal lamp output and life;

- **Sligo County Council** is currently piloting a road reconstruction project with the NRA using recycled insitu road materials, sourced from a reconstructed road. The Council is also surveying all public lighting in the town and county with a view to negotiating a new maintenance contract based on energy efficiency;
- **Roscommon and Mayo County Councils** support the provision of solar panels to power schools crossing signs and lights. In Mayo County Council's case, solar power is used to supply school flashing lights, with over 200 in operation. This is an innovative example of a road safety measure which also feeds into climate change goals. Solar power also powers Mayo's parking metres and marine navigation lights.

2.10.2 Use of Renewables in Transport Fleet

- Many local authorities are converting some of their vehicles to bio-fuel use. In addition, a concerted effort is made to maintain vehicle fleets to a high standard in order to minimise fuel use, and to replace old fleet with new vehicles incorporating environmentally friendly technologies;
- SEI is working with Louth County Council on strategies to reduce fuel consumption in its transport fleet.
- In June 2006, **Galway City Council** was the first Council to introduce a low energy (Hybrid) Mayoral Car. The City Council also introduced a Tendering and Purchasing strategy to secure a 5% blend of Recycled Vegetable Oil for the vehicle fleet, and is exploring ways to increase the proportion in due course.
- In **Cork County Council**, 5% of all the vehicle fleet now run on biofuels. A pilot project is taking place for vehicles running on 100% bio-fuel.
- **North Tipperary** has also started a pilot to use biofuels in its vehicle fleet, while **Sligo County Council** has committed to using 100% biofuel in 2 – 3 vehicles on a pilot basis in early 2009, coinciding with the provision of a new machinery yard which can store and pump biofuel.
- **Wicklow County Council's** Renewable Energy Sub-Committee of the Environment SPC oversaw the conversion of the Waste Enforcement Team's jeeps to biofuel.
- **Carlow County Council,** in 2006, modified 2 vehicles to run on Pure Plant Oil. The cost of installing the 2 kits was €3,000 with an annual cost saving of €700/year and a CO_2 saving of 7 tonnes/yr.

2.10.3 Actions taken to encourage the use of public transport by staff

Local authorities are encouraging staff to use public transport to get to work and to travel to meetings, and this is facilitated where possible. Most local authorities have bicycle parking facilities. Individual submissions highlighted specific actions to promote public transport as follows:

- **Cork County Council** promotes the annual travel pass scheme for Council staff and there is dedicated parking at Cork County Hall for bicycles;
- **Waterford City Council** established a car polling initiative as part of European Mobility Week 2007, with a space reserved in City Council car park for participants;
- **Galway City Council** installed an additional 10 Cycle spaces (2 racks) at City Hall, in consultation with and to the specification of Galway Cycling Campaign Association;
- **Limerick City Council** encourages train travel to meetings which are on main rail routes, particularly to Dublin and Cork. The rail tickets are also available for staff to purchase for personal travel to Dublin. The City Council also provides five bikes for staff use on business around the City.

On public transport generally, urban authorities are increasing the volume and quality of cycle lanes and bus corridors by implementing Green Route Strategies with the aim of improving the roads for cyclists, pedestrians, bus users, etc. Cork County Council is involved in a European pilot project currently being carried out on a commuter route between Cork City and East Cork aimed at creating a modal shift to public transport. Waterford County Council has highlighted efforts taken to improve the public transport network and to reduce car dependency. It has calculated that the formation of *"Waterford Rural Transport Initiative"* in 2004 has resulted in 45,000 using the service in 2007, with a resulting CO2 Saving of 90 tones.

3.1 Measures taken where financial savings have been identified

Although most of the actions taken by local authorities will have long-term cost benefits, isolating and identifying cost savings can prove to be time-consuming. As a result, it appears that specific cost savings have thus far only been attributed to actions in a small number of cases.

Examples:

- **North Tipperary County Council**: The first Tipperary 3-year Energy Management Plan (2001 to 2004) resulted in savings of €122,000, with the second Energy Management Plan (2004 to 2007) resulting in savings of €190,000;
- **Wexford CC** estimates that a water conservation project is currently saving the council €.5m per annum in operational costs (in comparison with 1996).

3.2 Procurement

Many local Authorities have made significant cost saving's within the deregulation electrical market through the purchasing of green electricity, which is generated from renewable energy sources from independent electrical suppliers.

3.3 Quantified Reductions in Energy / Water Consumption

A key finding of the research is that, whereas a lot of positive actions to tackle energy efficiency are in fact already taking place, in the vast majority of cases, energy reductions have not yet been quantified. A small number of examples where energy reductions have been quantified, or carbon emissions have been identified, are presented below by way of illustration.

- In the case of **Waterford County Council**, a constructed Wetlands leads to the saving of 7.7 tones of CO2 each year;
- Eradication of 10 – 15% water leakage rate on **Galway City** mains water infrastructure over the past 4 years;
- **Gorey Community School** Water Conservation Project is saving the school an estimated 50% in water usage;

- A new wastewater facility was built in **Donard** to cater for the wastewater from the village in 2006/2007. The pumping station pumps the liquid effluent out on to a willow plantation. The crop of willow will be harvested for the first time in 2009; it will produce 188 tonnes of woodchip of fuel per annum. It is envisaged that this alternative fuel will replace heating oil in the local area, potentially saving 179 tonnes of CO2 per annum. This fuel source is carbon neutral;
- **Sligo County Council** involvement with DOEHLG in water conservation project – active leak detection & repair and rehabilitation of mains. This project has reduced water consumption in Sligo by 20% since 2006;
- **Kilkenny County Council** are installing a booster pump at a reservoir that will offset a river based pumping station and result in the delivery of improved quality water to Kilkenny City. The new booster pump will save 400,000kWh/year, 240 tonnes of CO_2/yr, €56,000/yr and have a payback on investment of less than 18 months;
- **Carlow County Council** has invested in a €17,000 state-of-the-art energy monitoring and management system at its largest water treatment facility. It is expected that the improved treatment and pumping regimes will result in an annual energy saving of 170,000kWh/yr, €20,000/yr and 100 tonnes of CO_2/yr.

So that further progress can be made on quantification in a uniform way, the CCMA Climate Change Working Group is devising a basic template so that in future local authorities should be able to measure their baseline carbon emissions on a consistent basis, and also to provide a common set of headings under which emissions could be measured. This work is has just been completed.

4.1 Potential for Improvement – Future Plans

The varied responses from local authorities offer a positive indication of future plans to make progress on energy efficiency / climate change issues. Broadly speaking most future plans relate to further investment in renewable energy projects, building and design innovation, the development of climate-friendly office policies and more structured responses to climate change.

Future Plans by Local Authorities

Sub-Category	%
Renewables / New Technology	39.3
Policy	17.9
Design	10.7
Internal – Buildings	7.1
Procurement	7.1
Energy Audit	7.1
Energy Agency	3.6
BPI / Staff Practices	3.6
Water Consumption / Efficient Plant	3.6
Awareness – Internal	3.6
Lighting Management	3.6
Awareness – External	3.6

4.2 Future Plans – Policy development

Under this heading, a number of local authorities are looking to make progress on policy development, for instance:

- **Wexford County Council** has reported that the draft Climate Change strategy is 75% complete.
- On the strategic level, **Kildare County Council's** SPCs are examining a range of potential initiatives including for example, the use of biofuels in the Council's fleet, energy efficient lighting measures and the potential for gas extraction at a former landfill site.
- In **Wicklow County Council**, following recommendations from the Renewable Energy Sub-committee of the Environment SPC, Wicklow County Council and Wicklow Rural Partnership Ltd. are jointly assessing the feasibility of establishing a Wicklow Energy Agency.

4.3 Future Plans – Operational

On an operational level, most local authorities have signalled that they are working on paper saving initiatives and introducing green procurement policies. Some other initiatives in this area are summarised as follows:

- **Cork County Council** is in the process of calculating the carbon footprint of the entire organisation, with the project currently being piloted in one section. In September 2008 the Council has commenced involvement in a new European project on energy monitoring and management of public buildings. In addition, future recycling centres are now being used as showcases of domestic size renewable energy technologies. The first of these was due to be opened in Mallow in October 2008;
- In **Kildare County Council** work is ongoing on an operational level to further improve the lighting management system for the County Building;
- **Clare County Council** expects to shortly receive the ISO 14001 standard for its Central Waste Management Facility at Ballyduffbeg;
- By adopting a structured approach to environmental management **Roscommon County Council** are also working towards achieving this certification standard;
- In its future plans, **North Tipperary County Council** anticipates that by 2009 it will be in a position to have all its buildings energy rated, with all new buildings and major refurbishments undergoing an energy supply review. The Council is also developing an Information Technology programme which will result in best power use and management. Alternative energy assessments are also being planned for all sites (hydro, wind and biomass);
- **Limerick City Council** is currently implementing a number of *"low cost no cost"* recommendations, resulting from a report drawn up by Sustainable Energy Ireland, in relation to energy conservation within City Hall. The environment department was also trialling two vehicles on pure plant oil on a pilot basis and the department is due to trial an electric vehicle for one week within the month of August 2008;
- The Water Services sections of **Carlow County Council** and **Kilkenny County Council** are developing comprehensive Water Services Energy Management Strategies with the Carlow Kilkenny Energy Agency. These strategies incorporate procedures for determining efficient use of equipment, equipment replacement and procurement, operator training and knowledge transfer, and water conservation measures.

4.4 Organisational Structures and Strategy

The research suggests that local authority actions need to be underpinned by a local policy, setting out agreed goals on climate change / energy efficiency. Management *'buy-in'* is also a key factor if a local authority is to make substantive progress. In many local authorities, new structures have already emerged to monitor and drive the process.

Although these structures can vary according to particular local needs (i.e. climate change / Green / energy efficiency teams), a cross-departmental approach is essential to ensure a strategy's success. Importantly, management support needs to be at an appropriate level so that meaningful action can be taken across an organisation.

Whereas some local authorities have well-developed policies on climate change / energy efficiency, others may be in the relatively early planning stages or indeed may not have access to local resources and expertise, for instance, in the form of energy agencies.

In a number of cases, local authority efforts are strongly supported by the expertise of local energy agencies (i.e. in cases such as Waterford, Carlow-Kilkenny, Cork, Dublin and Galway energy agencies have been involved in developing and implementing significant elements of policy).

- In the case of **Dublin City, Galway County Council, and Roscommon County Council**, Green Teams have been established to co-ordinate action and to discuss progress. These Green Teams meet regularly to review progress and to provide updates on activities. **Limerick City Council** is in the process of reviewing its Green Team. The Council also set up a cross-departmental team, which is specifically devoted to climate change issues. The current aim of this committee is to draw up a climate change strategy for Limerick City Council and its activities;
- **Mayo County Council** has established an inter department energy awareness committee with representatives from Finance, Architects, Areas, Mayo Energy Agency, Environment, and Mechanical & Electrical Services;
- Similarly, **Fingal County Council** has established an internal team drawn from all relevant departments to examine its energy and resource usage and greenhouse gas emissions;

- **Kilkenny Borough Council** and **Kilkenny County Council**, led by the Environment SPC, have established an inter-departmental Climate Change Steering Committee;
- **Waterford County Council** established a Climate Change Strategy for the organisation as a whole. A Climate Change Steering Committee was first set up to develop the overall strategy and to initially measure the organisation's carbon footprint. The Committee is made up of representatives from each Directorate, led by a senior engineer who can raise issues at senior management meetings. Proposals were developed for inclusion in the strategy to reduce the overall carbon footprint. A Climate Change Forum was also held to ensure mass participation in the discussion of various departmental ideas to reduce the carbon footprint.

4.5 Measuring Carbon Emissions

As this paper shows, local authorities are already actively engaged in taking action on climate change. Most local authorities are pro-active and are adopting strategic approaches to the issues involved. Many actions have been identified which will contribute to the implementation of national policies on climate change and energy efficiency. In order to assess the effectiveness of these actions, it is also important that reductions can be measured wherever possible. As indicated in Section 3.3 above, our survey highlights the lack of available baseline information on carbon emissions, or energy usage in most cases. As a result, in most cases where local authorities have taken positive steps to address climate change, it may be difficult to identify the energy / financial savings achieved from specific projects.

To assist local authorities in quantifying carbon emissions reductions on a consistent basis, a Climate Change Working Group was established under the CCMA Environment Sub-Committee. A basic tool has now been designed with the assistance of a number of practitioners to help local authorities capture data on energy usage on a consistent basis.

4.6 Collaborative Approaches

The benefits of collaboration between local energy agencies and local authorities have already been highlighted in this paper. Sustainable Energy Ireland also offers a useful collaborative model that may be worth exploring, particularly where a local authority does not have access to a local energy agency resource.

Louth Local Authorities have collaborated with Sustainable Energy Ireland to adopt a structured approach to energy reduction. The Dundalk 2020 project began with the aim of creating an exemplar sustainable energy community in Dundalk, with sustainable energy zones which demonstrate how a combination of programmes and technologies can deliver the most efficient use of energy. The project also sought to demonstrate how Government targets on energy efficiency, could be implemented and accelerated through a collaborative process.[8]

Over the past year, Sustainable Energy Ireland has worked closely with Louth Local Authorities to implement a structured approach to energy conservation, used by industry, called Energy Mapping. This project involves a comprehensive energy mapping and benchmarking exercise to quantify / monitor energy use, along with training to change staff behaviour. The potential benefits from such projects include financial and energy savings. Council management's commitment and support has been central to the project, and a staff member has been identified to champion energy efficiency in the council.

In the meantime, SEI plans to launch a Sustainable Energy Communities Programme in the near future and is seeking Local Authority collaborators in the project which will lead to the creation of a number of additional sustainable energy zones.

[8] http://www.sei.ie/Dundalk2020/