

South Tipperary County Council
Climate Change Strategy
2008-2010

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1 Introduction

South Tipperary County Council recognises that Climate Change is likely to be one of the key drivers of change within the county of South Tipperary this century.

Climate change is defined as any long-term significant change in the expected patterns of average weather of a specific region over an appropriately significant period of time. Evidence continues to mount that climate change is occurring and there is no doubt that it will have far reaching effects on the county's economy, society and environment.

Local authorities are keenly aware of their responsibilities to reduce greenhouse gas emissions from their own operations especially energy sourcing and use, travel and transport, waste production and disposal, housing and building projects, development management and the purchasing of goods and services.



South Tipperary County Council has prepared its own Climate Change Strategy, which is an initiative aimed at complying with the requirements of the National Climate Change Strategy 2007-2012. The strategy has been prepared by the Council's Climate Change and Energy Management Committee, which is representative of all relevant sections of the Council and has representatives from Clonmel Borough Council and from Carrick-on-Suir, Cashel and Tipperary Town Councils. The committee has been ably assisted in its work by the Tipperary Energy Agency Ltd., located in Cahir, which has played a key role in progress to date.

The intention of the strategy is to focus on the Council's activities in 2009 and 2010 and to define immediate and practical steps for direct action by the Council with timetables and targets. In compiling the strategy the Council looked at its work programme with a particular focus on where its own activities impact on climate change

This strategy highlights the key issues impacting on issues in relation to climate change and, importantly, the actions that the Council proposes to take to mitigate its greenhouse gas emissions and adapt to the risks and opportunities presented by climate change.

Energy efficiency, and the development of renewable energy resources, must play an important role in maximising progress.

The Climate Change and Energy Management Committee will monitor the progress of this Climate Change Strategy 2009-2010 against the actions needed and build on that progress to encourage all sectors in the local community to take the opportunity to reduce their own greenhouse gas emissions and to make public their commitment to action.

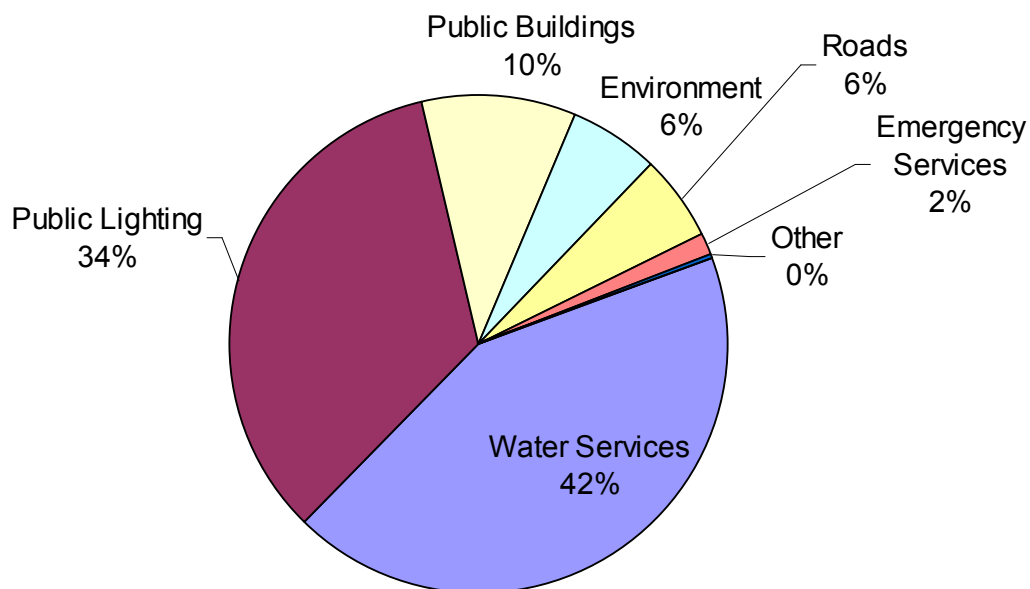
2 Baseline

The 2007 end of year Energy Use and carbon foot print is 20,500 MWh and 10,050 Tonnes of CO₂.

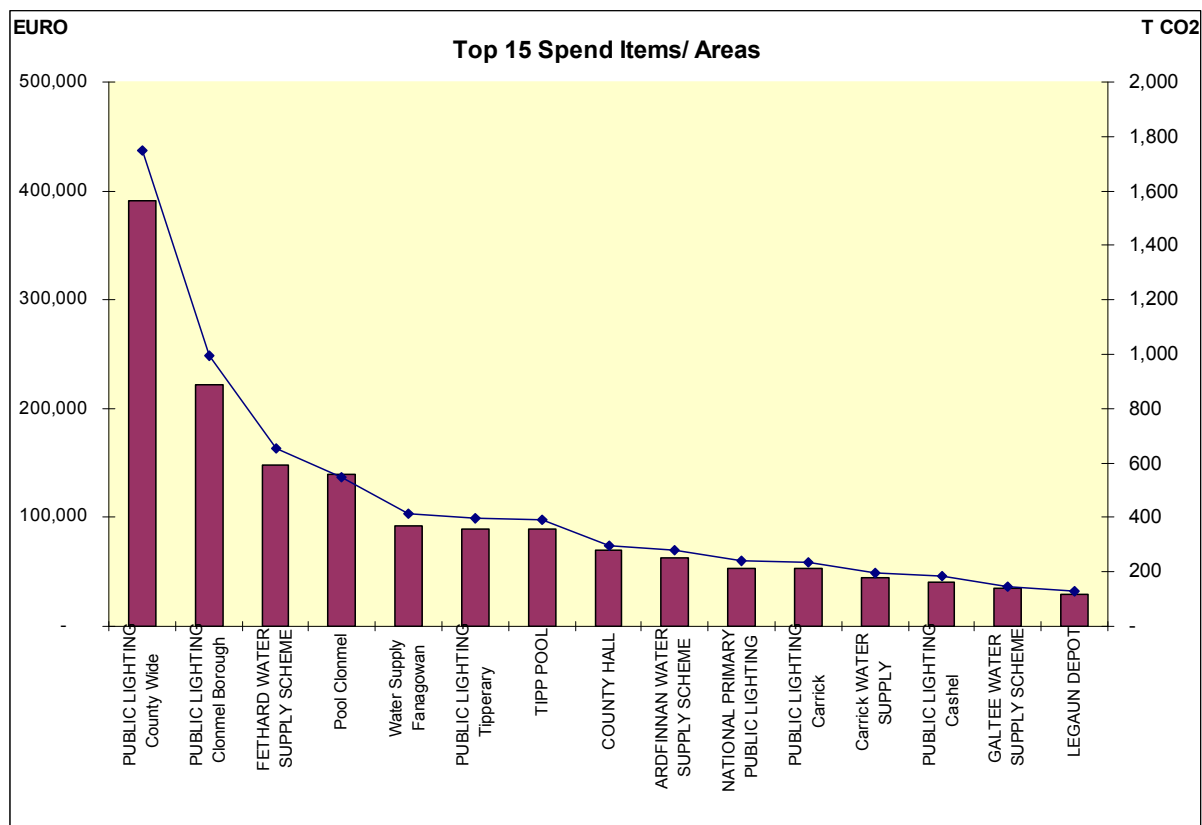
There will likely be a new, but broadly similar, standard local authority method for calculating the above figures in 2009 being produced by Office of Local Management (OLAM) and the Association of Irish Energy Agencies (AIEA). The Tipperary Energy Agency (TEA) produced a submission to this team for reapplication of the South Tipperary County Council's methodologies.

Energy cost and associated emissions can be broken down into the following areas for 2007:

CO₂



Energy Cost and CO₂ Emissions for 2007



Top 15 sites/ spend areas. Note that 13 out of 15 items have energy efficiency actions completed in 2007/8 or to be completed in 2009.

3 2009/10 Plans

3.1 Management

Climate Change and Energy Management has progressed well in 2008. In 2009 the roll out of Energy Map for the public sector to aid the progress of the climate change team’s objectives is expected.

Energy Map for the public sector is an amalgamation of the South Tipperary Climate Change Strategy (amongst other leading local authorities) and the Commercial /Industrial version of Energy MAP. The Tipperary Energy Agency is working with Sustainable Energy Ireland to tailor this to the Local Authority.

Some energy using functions are not represented at the Climate Change Team. This could be addressed going forward. It must be noted that machinery section are not represented but have completed substantial actions towards reduction of CO₂ emissions.

3.2 Projects for 2009

The projects in most instances will cross between a town and a section. It will be included under the Section/ Town that is leading the work.

3.2.1 Confirmed Projects:

| Action | Lead Authority/ Section | Cost Savings | Energy Savings (MWh) | T CO ₂ Savings | Expected Cost |
|--|--|--------------|----------------------|---------------------------|---------------|
| Energy Efficiency upgrade for Fethard Area Water Supply Scheme. | STCC Water Services | €70k | 420 | 230 | €40k |
| Hydro power plant on in feed to Rossadrehid from lake Muskry | STCC Water Services | €33k | 262 | 140 | €90k |
| Wind Turbine for Tipperary Town Water Supply | Tipperary Town Council | €33k | 22 | 62 | €140k |
| Savings Versus 2007 for Clonmel Borough CHP (1 st phase (pool/museum) of project completed) | Environment section/ Clonmel Borough Council | €45k | 174 | 192 | |
| Insulation and heating controls upgrade for County Hall | STCC Housing Section | €5k | 83 | 17 | €30k |
| Awareness campaign and lighting analysis (underway) | STCC Environment Sect. | €5k | 30 | 15 | €2k |
| Micro Wind Turbine for Wallers Lott | STCC Environment Sect. | €3k | 19 | 8 | €20k |
| Pool Cover For Tipperary Town Pool | STCC water services | €10 | 300 | 80 | €18 |
| Pool Cover For Clonmel Borough Council Pool | Clonmel Borough | €10 | 300 | 63 | €18 |
| LED Christmas Lighting (re-application from Cashel) | All towns | €14k | 116 | 63 | TBC |
| Public Lighting: CFL Pilot in 3 Rivers Drive. | Tipperary Town | €3k | 2 | 1 | €12k |
| Public Lighting Controls Pilot for Cashel South M8 Junction | STCC Roads | €3k | 2 | 1 | €5k |
| Public Lighting Renewable Energy Supply | STCC Roads | €4k | 20 | 10 | €45k |
| Total | | €248k | 1730 | 926 | €420 |

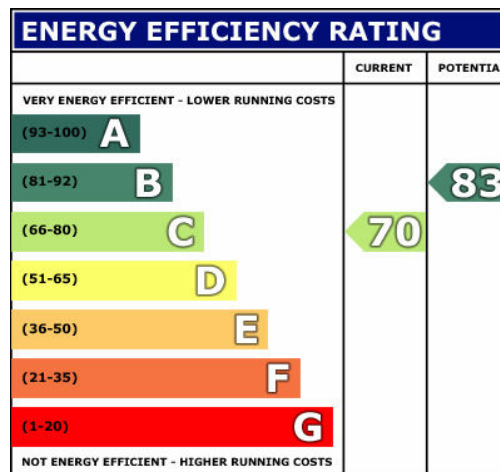
It must be noted that the above table represents a conservative approach to estimated savings.

| | Energy () | CO ₂ (tonnes) | % Reduction | % Reduction |
|-----------------------------------|-------------|--------------------------|-------------|-------------|
| Total Energy Use | 20,500 | 10,050 | | |
| Minimum Savings | 1200 | 600 | 6% | 6% |
| Planned work | 1730 | 926 | 8.6% | 9.2% |
| Additional Pump/ lighting effects | -180 | -100 | 0.9% | 1% |
| Total | 1550 | 826 | 7.7% | 8.3% |

3.2.1.1 Energy Efficiency upgrade for Fethard Area Water Supply Scheme.

The Fethard area water supply scheme consists of three sources, four reservoirs, five pump sets and many distributed customers along a geographically dispersed network. It has grown organically over time and is now near max capacity, running significantly away from design/ optimal conditions. The energy efficiency project in conjunction with the Water Conservation project will seek to reduce water loss and energy use while improving supply to customers. The main components of the upgrade are:

- Provision of automatic controls to balance water supply from mountain and well sources to ensure maximum production and use of the lower cost cleaner water from the mountain sources when available.
- Installation of well sources at extents of distribution network to decrease pumping flows through narrow pipes.
- Minimising overpressures in pipes by controlling pumps on the basis of pressure.
- Installation of Variable speed drives to ensure pumps are delivering required pressure and flows.
- Replacement of pump - sets and associated pipe work to ensure optimum design for new conditions.
- Installation of further booster pump sets to minimise pressure losses



This project is expected to decrease the energy consumed in the whole Fethard area system by 30% - 40% per m³ of water supplied in addition to decreasing leaks by a substantial amount. It is estimated that this will save between €50,000 and €75,000 and 230 Tonnes of CO₂

3.2.1.2 Hydro power plant on infeed to Rossadrehid from lake Muskry

The Rossadrehid water works in the Galtee Mountains has a significant untapped energy resource flowing into the plant. This is in the form of a large flow of water falling from 50 meters above. It is expected that this could produce 25-30 kW of energy from a hydro power turbine every hour of the year. This would effectively displace 95% of the energy use in the plant, in addition to some export of electricity. Similar projects have been undertaken in other water treatment plants in Kerry, and the technology is well established. It is expected that this project will be revenue neutral in 3 years.

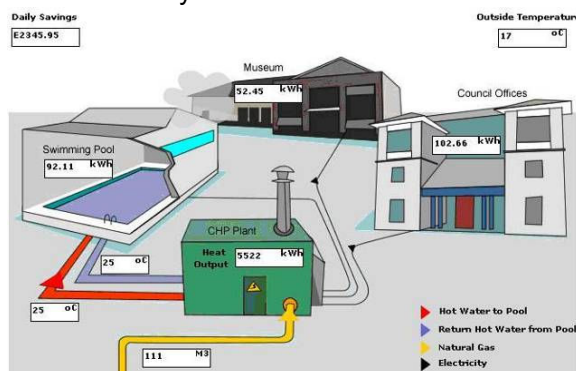


3.2.1.3 Wind Turbine for Tipperary Town Water Supply

Significant Energy Efficiency actions have been completed in the Tipperary Town water supply to decrease the energy consumption by 25%. This has been completed in addition to water conservation actions. It is expected that energy costs will rise substantially and as a result the Tipperary Town council wish to invest in a medium scale wind turbine to decrease the exposure of the town council to these increasing energy costs. The turbine location and size is yet to be defined.

3.2.1.4 Clonmel Borough Council CHP

The Clonmel Borough Council Leisure Centre installed a combined heat and power plant (CHP) to supply heat to the pool and electricity to the pool and museum. This plant burns natural gas in a gas engine, not unlike an engine in a car or truck. All the electricity and most of the heat is used on site making the engine significantly more efficient than generating electricity in large scale power plants and wasting the heat. In addition to this increase in efficiency, the cost of the gas is significantly less than that of electricity. It will result in savings of approximately €40,000 per annum. It was grant aided under sustainable energy Ireland CHP deployment program.



3.2.1.5 Insulation and heating controls upgrade for County Hall

County Hall refurbished and extended in 1991 – 1992, uses a substantial amount of energy, as do most large office buildings. There are several opportunities in decreasing the energy consumption in the building, not unlike domestic energy efficiency. The building suffers from significant overheating in winter, and as a result, wasting energy. The building has been rated a C3 on the BER scale, which is a relatively good result, it could be improved significantly. These measures will be all brought into one project as a Energy efficiency upgrade to the building:



- Increased attic insulation
- Increased Wall insulation
- Heating control upgrades (thermostatic control)
- Boiler management upgrade
- Lighting upgrade

3.2.1.6 Awareness campaign and lighting analysis

Several public buildings including County Hall and the Clonmel Borough Council building are currently working on the behavioural element of energy saving. Audits and assessments have been completed after hours to understand the level of energy use in hours where the building is unoccupied. Approx 30% of equipment was left on or standby resulting in unnecessary consumption. League tables and energy awareness materials have been used to bring the % of equipment left on down by a substantial amount.

3.2.1.7 Micro Wind Turbine for Waller's - Lot

The waste transfer station and recycling centre in Cashel, Waller's - Lot is leading the way in terms of environmental performance in addition to a widespread education program with local schools in addition to a waste reduction program with local businesses. As part of this very public face of South Tipperary County Council, a Micro Wind Turbine of approximately 11kW will be installed to provide a substantial portion of the energy use to the building and services on site. It will also be used as a showcase of the technology for other organisations.



3.2.1.8 Pool Covers For Tipperary Town Pool and Clonmel Borough Council Pool

Pools use a surprisingly large amount of energy per annum, with 2 out of the top 4 Energy using facilities in the Local Authority being pools. This energy is used to heat the pool water as it is changed, showers, through the walls and air, but also through evaporation of the pool water. One of the key ways to reduce this evaporation is to install an insulated pool cover over the pool for when it is not in use. These covers typically reduce pool energy use by up to 20%.



3.2.1.9 LED Christmas Lighting (re-application from Cashel)

The widely acclaimed LED (light emitting Diode) high efficiency lighting in Cashel, installed last year reduced energy consumption by 90% and will decrease maintenance costs by a substantial amount over the traditional incandescent lighting. This project will be rolled out as appropriate to other local authority areas for Christmas 2009.



3.2.1.10 Public Lighting Projects

A Tipperary Local Authority Public Lighting Team has been established in conjunction with North Tipperary County Council and the ESB. This team is working on producing a public lighting policy that will ensure all new lighting installations will be as energy efficient and that all maintenance will be done with a view to ensuring only the most efficient technology will be installed.

- White Light (PLL- Compact Fluorescent) in 3 Drives
The pilot project, installed in early 2009, of installation of new White light in the 3 Drives estate in Tipperary town has been widely acclaimed. This new high efficiency high quality light was in-

stalled as part of a lighting improvement project and resulted in substantial energy savings in addition to the main benefit of increasing the light quality. It is expected that this lighting type will be rolled out on a phased basis to other estates in Tipperary Town and indeed across the county. These lights ensure that 98% of the light is directed downwards with minimum light pollution.

- **Renewable Energy Supply**
A pilot wind turbine will be installed as part of an NRA road scheme junction. The aim is to install one wind turbine per motorway junction to displace the energy from the grid to supply the lighting. It is envisaged that a lighting column will be replaced with one that is capable of holding the lights and also a small wind turbine on top of the lighting column.
- **Controls Pilot for Inter-urban Routes**
Lighting standards are designed based on traffic densities and weather conditions. Generally speaking these are set for worst case scenario's for traffic and weather. In times of reduce traffic on motorways (12am -6am) it is envisaged to decrease the amount of light falling on the roads by approximately 25%. These dimming projects will be completed with regard to all the lighting standard IS EN 13201.

3.2.2 Other Potential Savings for 2009/ 2010

Other Potential Savings that will be pursued in 2009, but savings either not well defined, or unconfirmed:

| Action | Cost Savings | Energy Savings | T CO ₂ Savings | Expected Cost |
|--|--------------|----------------|---------------------------|---------------|
| IT Efficiency Program | €5k | 30 | 15 | €5k |
| Solar PV Array for Civic Offices (not County Hall) | 3 | 4 | 2 | €15k* |
| Carrick on Suir Town Council refurbishment. | N/A | 20 | | |
| Tipperary Town Council new offices. | N/A | 30 | | |
| Connection of County Hall to CHP | €15k | 4 | 50 | €2k |

3.2.3 Non Savings Based Projects

3.2.3.1 Implementation of Planning Section Climate Change Strategy

The aim of the Climate Change Strategy (CCS) is to clearly identify the solutions to the challenge of reducing energy related emissions and to outline the actions to be taken to meet the requirements under the Kyoto Protocol. The CCS of the Planning Section will focus on the impact of new development on climate change therefore, throughout the planning process there will be an emphasis on sustainable development. Training and development of planners, agents and the public will be integral to achieving sustainable development and a greater focus on sustainable development will be developed through existing Development Plans as they are reviewed.



The County Development Plan 2009 was adopted in February 2009 and the Draft Cashel and Environs Development Plan is due for adoption in May, both of these Plans contain new dedicated policies and objectives for sustainable development. The Clonmel and Environs Development Plan 2008, the Tipperary Town and Environs Development Plan 2007 and the Carrick-on-Suir and Environs Development Plan 2008 and any lower tier Plans i.e. Local Area Plans, contain policies designed to ensure that a sustainable approach to new development is achieved. As these Plans are reviewed each will be examined to ensure that they contain policies and objectives in

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line with those contained in both the County Development Plan and Draft Cashel and Environs Development Plans.

Monitoring of the effect of policy implementation for each Development Plan is provided for under Section 15 (2) of the Planning and Development Acts 2000-2006. This allows for a detailed assessment how successfully the objectives any Development Plan have been secured and is entitled a 2-year progress review report. This provision for reporting on each Development Plan will provide an opportunity to assess how successfully policies and objectives regarding sustainable development are being implemented.

While the CCS for the Planning Section is focused on achieving a more sustainable form of development throughout the County, this CCS also aims to provide a greater focus on sustainability in the work practices of all staff in the Planning Section and in the day-to-day running of the Planning Section at County Hall. The Planning Section has already signed up to EMAS (Environmental Management and Auditing System) which is co-ordinated by the Environment section. It is the intention of the Planning section to continue to adhere to the good practices outlined in EMAS.

The Planning Section Climate Change strategy for South Tipperary County Council is set out in the table below.

| South Tipperary County Council - Climate Change Strategy | | | |
|---|--|--------------------------|------------------------|
| Objectives | Comment | Timeframe | Responsibility |
| Implement the policies of the County Development Plan 2009 | The Plan contains detailed policies and objectives that relate to sustainability, new policies and objectives of note are as follows: <ul style="list-style-type: none"> - HSG 7: Sustainable building design. - HSG 3: DIA - INF 3: Public Transport - INF 4: Pedestrian and Cycle Routes - INF 11: Bio energy DM Standards: <ul style="list-style-type: none"> - C & D waste - Reuse of surface water/Suds - Rainwater Harvesting | March 2009-February 2015 | Development Management |
| 2-year review | Prepare 2-year review progress report in line with Section 15 (2) of the Planning Acts | March 2011 | Forward Planning |
| Implement the policies of the Cashel and Environs Development Plan 2009 | The Plan contains detailed policies and objectives that relate to sustainability, new policies and objectives of note are as follows: <ul style="list-style-type: none"> - HSG 9: Sustainable building design - INF: 16 Sustainable Building design – Non domestic. - HSG 1 Residential development – DIA, Sequential approach and Phasing. - INF 1: Integrated transport network DM Standards: <ul style="list-style-type: none"> - Sustainable Design Considerations - Cycle facilities - Public transport - Waste storage and sorting facilities - C and D waste - Reuse of surface water | June 2009 – May 2015 | Development Management |
| 2-year review | Prepare 2-year review progress report in line with Section 15 (2) of the Planning Acts | June 2011 | Forward Planning |

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| | | | |
|---|--|--|---|
| <p>Develop procedure for assessing planning applications in line with new policy of County Development Plan and Cashel and Environs Development Plan when adopted</p> | <ul style="list-style-type: none"> - Consider use of sustainable development checklist, to assist planners in assessing a planning application. (TEA have prepared a sustainability checklist which could be used) - Encourage the construction of new dwellings with a high BER Energy Rating - Develop conditions where appropriate to assist in attaining the environmental standards set out in the County Development Plan. | <p>Summer 2009</p> <p>March 2009</p> <p>March 2009</p> | <p>Forward Planning</p> <p>Development Management</p> <p>Development Management</p> |
| <p>Implement policies and Objectives of remaining Development Plans and LAPs in the County.</p> <p>At Development Plan review stage consider the inclusion of new policies & objectives in line with the CCS.</p> | <p>Each Development Plan has been prepared in line with the principles of Sustainable Development. Planners based in County Hall process planning applications on behalf of the Town Councils.</p> <p>Review policies and objectives of each Plan to ensure that they adhere to the same high standards as the County Development Plan and the Draft Cashel and Environs Development Plan 2009</p> | <p>Ongoing</p> | <p>Development Management</p> <p>Forward Planning</p> |
| <p>Increase planning section awareness of policies for sustainable development.</p> <p>Provide agent training seminar to advise on new County Development Plan.</p> | <p>Assist Planners in giving advice at pre-planning and in assessing planning applications. The first step will be in-house training and seminar on new Plans, in association with Tipperary Energy Agency (TEA).</p> <p>Agent seminar on new County Development Plan, in conjunction with TEA, area engineers, representatives from other sections in council i.e. Housing, Roads, Water etc.</p> | <p>Completed in March 2009</p> <p>Date to be set</p> | <p>Forward Planning and Development Management</p> <p>Forward Planning</p> |
| <p>Provide pre-planning advice</p> | <ul style="list-style-type: none"> - Planners will be required to give advice on Council policy regarding sustainable development, and be able identify development that will not satisfy the requirements of the Council. - Make TEA and SEI publications and leaflets available to public at pre-planning group and individual meetings. The Public Awareness Officer has selection of publications; these can be acquired for the planning section. | <p>March 2009</p> <p>March 2009</p> | <p>Development Management</p> <p>Development Management</p> |

| | | | |
|---|--|----------------------------|------------------|
| Strengthen links with TEA | <ul style="list-style-type: none"> - Insert internet link to TEA and SEI website on Planning Internet Page. - Work with TEA in preparing and updating the Planning Section CCS | Summer 2009 Ongoing | Forward planning |
| Continue Implement the objectives of EMAS | Ensure that all work practices that are part of the day to day running of the Planning section adhere to the principles of sustainability. | Ongoing | All Sections |

3.2.3.2 Information and Awareness Campaign for the public

South Tipperary County Council will provide an information resource through the libraries and town/ county council offices for residents:

- How to make their home energy efficiency
- Information about climate change
- How to make their business more energy efficient and aware of what supports there are available.



3.2.3.3 Support of Green Schools



South Tipperary County Council promotes energy conservation and efficiency in schools by providing the main point of contact for schools partaking in the Green Schools Programme. During this programme schools spend at least two years working on energy conservation with the support of the Public Awareness Officer.

3.2.3.4 Business support to cut Waste & Energy Consumption

South Tipperary County Council is working with ten businesses in Cashel as part of the Local Authority Waste Prevention Demonstration Programme, funded by the Environmental Protection Agency, over a two year period to assist them in cutting energy costs and conserving energy.

South Tipperary County Council in conjunction with North Tipperary County Council has applied for a further project to be funded under the EPA LAPD program. This will focus on helping heat energy intensive commercial and health based businesses to reduce their energy consumption and help switch to renewable based heating systems.

3.2.4 Further Investigation for 2010 projects:

- Widespread re-application of successful Pilot Public lighting projects
- Energy Audits of 10 -15 other water pumping stations.
- Renewable energy feasibility studies for all installations over €20k annual spend (10 further)
- Energy audit of other Civic Offices in County (Cashel & Clonmel Borough Council)
- Landfill gas feasibility study
- Transport Mobility Management

- Low Energy Social Housing development in Rosegreen

3.3 Additional Services & resulting impacts

3.3.1 Water services

Four new borehole pumps for 2009 and this will rise to an expected €25,000 (180MWh, 100 Tonnes of CO₂) in 2009. These figures are estimations, and will be available more accurately once the plants have been commissioned. Two new pumps have been installed in 2008.

3.3.2 Public lighting

3% Increase in public lighting installations has been (energy) budgeted for in 2009.

4 Conclusions

The projects listed for 2009 will be generally lowest cost impact energy savings available with a total simple payback of less than 2 years.

Removing the CHP project which has been paid for already, the other projects would yield an IRR for the selected projects is 67% (assuming 50% of the savings in 2009 and 5% energy inflation) and the 10 year NPV would be €1.2 Million. Further energy cost reduction work will not be as cost effective in the future and retaining some of these savings, and development levies, to fund future less cost effective projects would be a rational approach to energy savings.