Sub Title: Eco Driving in North and South Tipperary County Council

Company Name: Tipperary Energy Agency

Project Officer: Siona Daly

Date: 10/08/10
Progress Report: the status of implementation by work package

1. Project objectives and major achievements during the reporting period

1.1 Project objectives

The implementation of a smarter travel program for local authority drivers in North Tipperary County Council and South Tipperary County Council is the overall objective of this project. This involves both fuel monitoring and eco-driving training. The eco driving training of these drivers will be outsourced to the company Authentic Solutions who are independent energy managers and advisors, specialised in transport. By training 40 drivers to drive more energy efficiently [ECOdrive], they can reduce their fuel costs and travel times.

Through monitoring of fuel use before, during and after the Eco Driving practical training, the objectives are to reduce emissions, diesel costs and stress for the drivers.

According to Authentic Solutions, each vehicle not on the road reduces fuel usage to zero. Each vehicle driven in the new driving style [ECOdrive] reduces emissions by 5-15%.

The project is split up into four work packages with each work package representing 3 months. To date, work package 1 and 2 have been completed in both North and South Tipperary County Council. The deliverables of work package 2 are listed below:

Deliverable from Work Package 2: Eco drive practical course implemented with 40 drivers. The potential of each vehicle on the day of the eco drive course will be recorded. The fuel consumption is monitored thereafter to assess the sustainability of the course.

1.2 Summary of activities and results for the reporting period

The project activities that were implemented in order to deliver the required baseline data is outlined below:

1. Organisation and implementation of Eco Drive course in South Tipperary Roads (19 drivers).
2. Organisation and implementation of Eco Drive course in North Tipperary Environment (3 drivers).
3. Data analysis of North and South Tipperary County Council fuel consumption
4. Creation of feedback loop for data back to drivers.
5. Reporting of results to drivers and the Department. These results are illustrated in Appendix A.

1.3 Identified problems and corrective action taken

One problem that arose was associated with the organisation of the Eco Drive Practical course in the North Tipperary Roads department. The summer season is the busiest time of year for these drivers and it was not practically possible to schedule this training course. This course will take place in the Autumn for this department.

2. Overall management of the period
The management of the project has been good to date and the project is on track with the exception of the North Tipperary Roads department. Siona Daly from the Tipperary Energy Agency attended the theoretical element of the eco drive course in each section.

3. Work package progress of the period

**WP1: Baseline Data Collection and Monitoring**

This work package has been completed in North Tipperary Roads, North Tipperary Environment and South Tipperary Roads. The results of the baseline data collection can be found in the first progress report.

**WP2: Practical Eco Drive Course and Continuous Monitoring**

This work package is complete for South Tipperary County Council Roads and North Tipperary Environment. It is hoped to complete the Eco Drive training in North Tipperary in September. The results of this work package can be found in Annex 1 of this report.

**WP3: Continuous Monitoring, illustrating Sustainability of Eco Drive program**

This work package will not start until August 2010.

**WP4: Continuous Monitoring and Dissemination**

This work package will not start until November 2010.

3.2 Update of time schedule

<table>
<thead>
<tr>
<th>Work package</th>
<th>Actual/Planned Achievement</th>
<th>% Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP 1: Baseline Data Collection and Analysis (Feb-April 2010)</td>
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<td></td>
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<td>WP 2: Eco-drive training and monitoring of results (May-July 2010)</td>
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<td>WP 4: Dissemination events and final monitoring of results (November – Jan 2011)</td>
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<tr>
<td></td>
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</table>

3.3 List of deliverables
For work package 2, the deliverable is eco drive results on the day of the course and also pre and post monitoring results after the course was completed. The data or performance indicators measured are outlined in Section 4.

4. Progress regarding performance indicators (1 page)

For each selected vehicle across North Tipperary Roads, South Tipperary Roads and North Tipperary Environment, miles per gallon (mpg), litres diesel consumed, CO2 and diesel spend have been collected on a monthly interval. These performance indicators are displayed graphically in Annex 1.

A comparison has been made across the different fleet vehicles.

See Annex 1.

6. Annex 2 to the progress report: Overview table on the state of advancement (in %) of the budget expenditure

<table>
<thead>
<tr>
<th>Work package</th>
<th>Actual/Planned Achievement</th>
<th>% Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP 1: Baseline Data Collection and Analysis</td>
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<td>100%</td>
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<tr>
<td>WP3: Monitoring of results</td>
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<tr>
<td></td>
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<td>100%</td>
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<td>Actual</td>
<td>0%</td>
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<tr>
<td></td>
<td>Planned</td>
<td>100%</td>
</tr>
</tbody>
</table>

The planned time for the Tipperary Energy Agency for Work Package 2 was 10 hours and in total 49.5 hours was spent by the Tipperary Energy Agency on this project. This is illustrated clearly in the “Project Management Sheets” in Annex 2.
Annex 1:

Overview of Performance Indicators

The primary objective of this project is not to compare one County Council’s fuel consumption with the other. Each county council’s department is compared over the course of 1 year and it is hoped that the fuel consumption will improve over time.

For each of the departments involved in the project, the average miles per gallon is illustrated below.

![Average MPG per Month](chart.png)

The yellow bars represent work package 1 or base line results. The red bars represent the eco drive practical course. The blue bars represent work package 2 or ongoing monitored results since the eco drive course.

As is evident from the results illustrated in the graph outlined above, the mpg in North Tipperary Environment has improved since the Eco Drive training course by 6%. However, the eco drive course only took place at the start of July so further monitoring is required to verify this.

The mpg in South Tipperary Roads appears to have reduced by 15% since the Eco drive practical course. However, one has to take into account the fact that the trucks are carrying heavier loads, travelling to locations at the top of mountains surrounding Clonmel etc.

The mpg in North Tipperary Roads has improved by 24% over the course of the first 6 months of the project. This is a result of better attention to data tracking by the drivers.
Now that the data collection in North Tipperary Roads has improved, it can be seen that the approximate spend on energy is approximately the same in North and South Tipperary Roads.

It can be seen that over the course of the first six months, the average diesel consumed per vehicle per month in the two roads departments is similar. The difference between diesel consumed in North and South Tipperary Roads is only ~25%. It must be remembered that the data tracking in South Tipperary is automatic through a computer and the data tracking in North Tipperary is manual. Therefore it is difficult to compare results and this is not the purpose of this project.

Once again, the primary aim of this project is not to compare one County Council’s fuel consumption with the other. Each county council’s department is compared over the course of 1 year and it is hoped that the fuel consumption will improve over time.
The carbon dioxide emissions were calculated based on the actual diesel consumed by each vehicle with the carbon dioxide conversion factor being set at 2.68kgCO2/litre diesel consumed. This conversion factor was extracted from the section “Mobile Emissions by Fuel Use” in the report “Energy in Ireland 2000 – 2007” created by SEI, 2008.

Feedback is given to the drivers that have completed the eco drive course on a monthly basis through a one-page report. This indicates baseline results, eco drive results and post eco drive results.

South Tipperary Roads Performance Indicators

The data collected for South Tipperary Roads is extremely accurate because of the fuel management system that is in place. Drivers cannot fill their vehicles with diesel without inputting both the number plate and the mileage on the odometer. This data can then be transferred directly on a computer with mpg, litres diesel, km etc. all calculated automatically.

Additional vehicles were added to the list of vehicles that is tracked in South Tipperary County Council Roads after the Eco Drive course.

As is evident from the graph outlined below, the fuel consumption was approximately 16mpg on average across the fleet. During the eco drive course, the drivers completed one initial drive and then a second “eco” drive after coaching. It can be seen that on the day of the audit, the fuel consumption increased by 70%. The average mpg achieved across the entire fleet was 17mpg. If one considers the average baseline of 16mpg per month, one would expect that an overall average increase to a target of 17mpg would be achievable. This is an increase of 5%.
Since the eco drive course, however, the mpg has decreased. This may be a result of a heavier load on trucks, a larger volume of work in the mountainous areas and a higher degree of stop-start work in tar-spreading etc.

**North Tipperary Roads Performance Indicators**

As stated in Section 1.3, it was not possible to schedule the eco drive course in North Tipperary during the summer season. This is the busiest time of the year for the Roads Department. Therefore, this training course has been postponed until the Autumn. There has been ongoing monitoring and analysis. The resulting data can be seen below:
The data collection has improved over the course of the first six months and so the margin of error has reduced in the months of the second work package.

**North Tipperary Environment Performance Indicators**

There are 3 drivers in the Environment department in North Tipperary County Council that are taking part in this Eco Drive project. Two of the drivers are litter wardens and one of the drivers is in charge of dog control. All of the vehicles are Citroen vans.

The three drivers from Environment were trained in the Eco Drive course on the 6th July 2010. The results from the fuel consumption analysis of these vehicles are illustrated below:
Before the eco drive course, the average fuel consumption per month across the three vehicles was 36 mpg. On the day of the eco drive course, the 1\textsuperscript{st} drive was 24 mpg and after the coaching the 2\textsuperscript{nd} drive resulted in an average figure of 28 mpg. This is a 16\% increase in fuel consumption across the 3 vehicles.

Since the eco drive course (3 weeks of data), the fuel consumption has increased by approximately 6\%. This will be monitored closely going forward. It is hoped that over the course of the next six months the mpg will increase by 5\% to 37.8 mpg.

**Conclusion to Date:**

As is evident from this report, good work has been completed as part of Work Package 1 and Work Package 2. There has been no significant increase in fuel consumption yet as a result of the eco drive course. However, this will be monitored closely in the months ahead. The feedback mechanism to the drivers is also helping in keeping the drivers informed of their progress,
Annex 2:

May 2010

Actual Hours Spent – 23.5 hours

June 2010

Actual Hours Spent - 7.5 hours
Actual Hours Spent – 18.5 hours