SOUTHERN METROPOLITAN REGIONAL COUNCIL

Report
on

REGIONAL GREENHOUSE GAS ABATEMENT – ***BUSINESS*** PROGRAM

STAGE 3: LOCAL CENTRES PILOT PROJECT

May 1, 2006

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with CCP officers at the Cities of Canning, Cockburn and Rockingham

This is a project in the *Regional Community Greenhouse Abatement Project* funded by Cities of Canning, Cockburn, Fremantle, Rockingham and Towns of East Fremantle and Kwinana.

This project was part-funded by a Community Assistance Grant from the Department of Environment and Heritage.

Words from participating Businesses…

The program has not only helped save money for my business but it has made me reassess energy use in my home. Tranquility

I am thrilled to see that local governments are taking action and working with the community to help small local businesses Continental Deli

EXECUTIVE SUMMARY

From October 2005 to May 2006, the Greenhouse Project Officers at Southern Metropolitan Regional Council (SMRC) together with CCP officers from the Cities of Canning, Cockburn and Rockingham conducted a pilot project engaging the small business retail sector based in small neighbourhood shopping centres (referred to in this report as *local centres*) to undertake greenhouse gas abatement. This pilot project was carried out as part of the Regional Greenhouse Gas Abatement – Business Program, building on foundation work carried out during the two previous stages of the same program.

These two sectors are common across the region and hence suitable for a regional program, and they also have added benefits like being point of contact for Greenhouse Education Programs with residents, and approachable through Environmental Health Officers respectively.

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1 INTRODUCTION

This report presents the findings of the greenhouse gas abatement pilot project in Local Centres in the Cities of Canning, Cockburn and Rockingham.

This is a project in the Regional Community Greenhouse Abatement Project funded by Cities of Canning, Cockburn, Fremantle, Rockingham and Towns of East Fremantle and Kwinana.

This project was part-funded by a Community Assistance Grant from the Department of Environment and Heritage.

The project objectives and methodology are described, followed by results, conclusions and recommendations.

1.1 BACKGROUND

From October 2005 to May 2006, the Greenhouse Project Officers at Southern Metropolitan Regional Council (SMRC) together with CCP officers from the Cities of Canning, Cockburn and Rockingham conducted a pilot project engaging the small business retail sector based in small neighbourhood shopping centres (referred to in this report as *local centres*) to undertake greenhouse gas abatement.

This pilot project was carried out as part of the Regional Greenhouse Gas Abatement – Business Program, building on foundation work carried out during the two previous stages of the same program:

Stage 1 (Nov 2003 – Jan 2004): a review of government programs in WA, interstate and overseas engaging with businesses with environmental performance objectives.

Stage 2 (Mar 2005 – July 2005): a survey with selected small-to-medium enterprises (SME) to investigate potential for two models of engagement and the level of interest and opportunities for greenhouse abatement. The two small and medium sized business sectors chosen were Local Centres and Food Processing.

Two models, Enterprise Facilitation and Community based Social Marketing, were identified in the literature review (Stage 1) as effective methodologies with potential for delivering the Regional Greenhouse Gas Abatement Business Program. A brief description of the models is given in the following section.

1.1.1 Enterprise Facilitation (EF) Model

This model has been developed by Ernesto Sirolli, a noted authority in the field of sustainable economic development. Sirolli believes that transfer of new technology and practices are unlikely to succeed if undesired or not requested by the business. Instead

Sirolli espouses a bottom-up approach to economic development, and aims at improving the climate for entrepreneurship in a community.

The approach targets motivated businesses and supports them through free confidential advice to transform their good ideas into viable and sustainable business practices. These champions then spur on others in the sector to seek advice and make changes.

The model operates via an Enterprise Facilitator, whose key role is to:

- Identify and understand ideas and motivation of business owners / entrepreneurs
- Support businesses through free and confidential advice to materialise their ideas by:
    - Testing the personal motivation and skills of the business owner / entrepreneur and teaching them to assess their own management strengths and weaknesses.
    - Linking them with experts / trainers / mentors in the concerned field.
    - Guiding them into effective partnerships.
    - Encouraging them to learn from each other and build networks.

The role of the Enterprise Facilitator adapted for the purpose of this Program to facilitate SMEs with ideas that relate to energy and waste, and hence achieve greenhouse gas abatement.

1.1.2 Community Based Social Marketing (CBSM) Model

The concept behind this model has been pioneered by Doug McKenzie-Mohr, a leader in the field of community based social marketing.

Traditionally, programs intending to promote sustainable behaviour have relied heavily or solely on media advertising, information campaigns or financial rebates. Although they may be effective in creating public awareness, they are limited in their ability to foster long-term behaviour change.

Instead, CBSM emphasises the importance of directly targeting the individual actions through the following steps:

- Identify barriers & benefits of these actions as viewed by the target group through focus groups and/or surveys.
- Develop and conduct a pilot program to overcome the barriers (remove barriers from the action the project aims to encourage and simultaneously add barriers to the activity one wants to discourage)
- Refine the program until reasonable confidence is attained about its effectiveness
- Implement the program across the intended target audience
- Evaluate/Measure the effectiveness of the program

This model has been directly applied with minimum changes in its structure, to satisfy the objectives of the Regional Greenhouse Gas Abatement Business Program.

1.2 PROJECT OBJECTIVES

The overall aim of the Local Centres Pilot Project was the reduction of greenhouse gas emissions from the small-to-medium retail business sector. The project's principle objective was to:

- Develop an effective strategy to support businesses to implement greenhouse reduction actions and pilot with 35 local centre businesses.

Within this objective, were the following sub-aims:

- Assess the effectiveness of the Enterprise Facilitator model with local centre businesses in a program with specific environmental objectives. This meant pursuing ideas of the business people to reduce energy consumption and waste (rather than beginning with an energy audit). In this sector, which is very time-constrained, business owners often have good ideas but lack the time to pursue them.
- Identify specific barriers to the implementation of specific energy efficiency and waste reduction actions.
- Test means to measure achievements by the participating businesses.
- Test means and need to provide feedback and support to participating businesses over the course of the project.

1.3 REPORT LAYOUT??

Maybe – leave to the end to see if necessary-SJ

2 WHO WAS ENGAGED

2.1 THE LOCAL CENTRE BUSINESS

Local centres business sector were identified in the Stage 2 Survey of this Business Program as a sector that showed high potential to engage with in an effective program. The key attributes include:

- Separately metered –hence have a financial driver that large malled shopping centres do not have. This also supports collection of energy meter readings from individual participating businesses and hence quantification of project outcomes.
- Many opportunities for greenhouse gas abatement through energy efficient hot water, lighting and air conditioning practices and technology, plus reducing waste to landfill.
- Common across the region – so can be expanded across the region
- Approachable for Council staff as many have an existing relationship through the Environmental Health Officer – a big plus for a business program where this step is a common stumbling block.
- Interested in reducing energy use and the majority surveyed indicated they valued an environmental image for their business, and
- Local centres provide a point of access to the local community in raising greenhouse awareness and publicising education programs.

2.2 WHO WAS APPROACHED

The participating businesses were initially selected and approached by the local CCP officers based on the above-mentioned criteria. Several or most businesses were selected in each identified local centres (see locations on Figure 1). A mix of business types was approached to evaluate the number and diversity of greenhouse opportunities.

In the Cities of Canning and Rockingham, the CCP officers contacted businesses (via telephone and face-to-face) to ask them if they would like to participate in the program. In the City of Cockburn the businesses approached in the survey of Stage 2 were again invited to participate, building on the existing relationship. The outcomes of engaging businesses in each Council are given in section 4.

In total, 36 businesses participated in this pilot project. Table 1 illustrates the nature of the businesses and the City Council they belong to.

Type of Business	Canning	Cockburn	Rockingham
Deli / Grocery Shop	4*	2	
Pharmacy	1	1	
Liquor Shop	2	1	
Beauty Salon / Hairdresser	1	4	1
Butcher	1	1	1
Restaurant / Café	2		6
Fish & Chips / Takeaway		1	2
(Medium) Supermarket i.e. Dewsons		1	
Video Shop		1	
Camping & Leisure			1
Restaurant / Tavern / Liquor Shop		1	
Baker		1	
Total	11	14	11

*Includes one Deli that joined the project at a later time (month 5) as a result of a recommendation from a neighbouring business.

Table 1 **Businesses participating in the Local Centres Pilot Project**

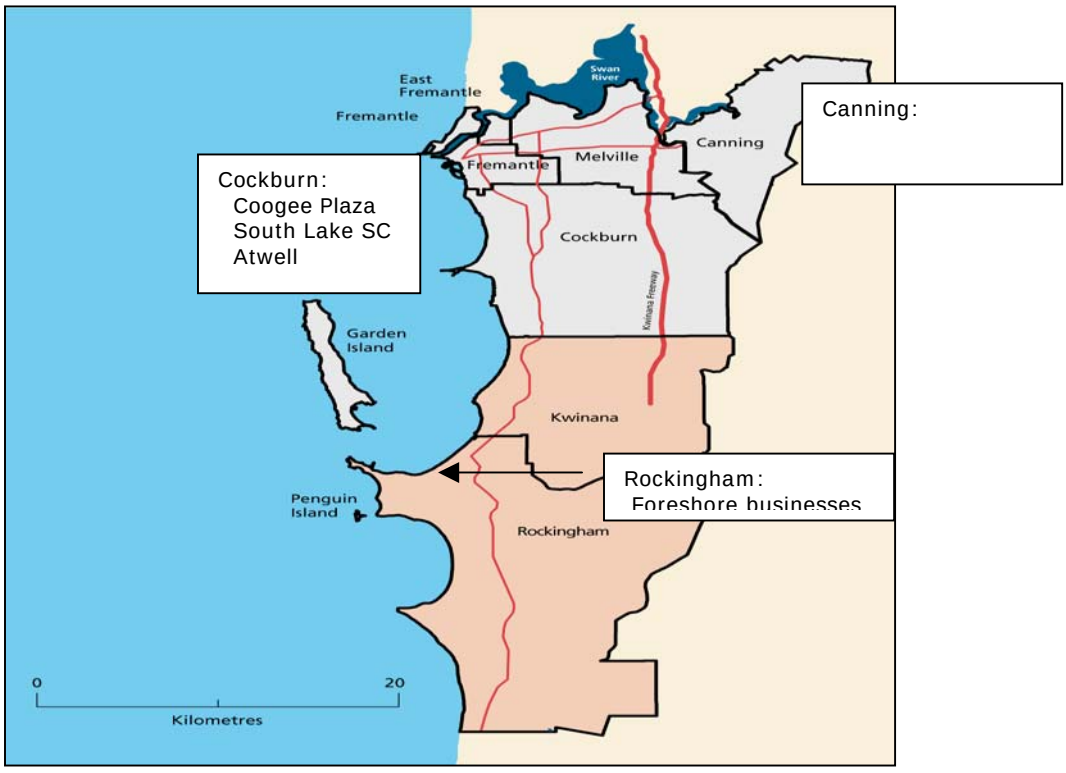


Figure 1 Location of Local Centres with participating businesses

2.3 ROLES AND RESPONSIBILITIES

Roles were clearly defined at the start of the project and revisited mid-way through the project. The roles and responsibilities are illustrated in Figure 1.

The SMRC team was made up of the Green Enterprise Facilitator (Luis Bustamante) and Regional Greenhouse Coordinator (Dr Stephanie Jennings). The Green Enterprise Facilitator had day-to-day delivering and management of the project. The Green Enterprise Facilitator undertook the first visit to the business with the CCP Officers, investigated information queries from businesses and communicated responses back to the businesses by phone or face-to-face.

The CCP Officers at Canning (Meredith Chidlow), Cockburn (Trena Ward) and Rockingham (Luke Rogers and James Stanford, later Ronald Goodwin) took on the role of identifying and approaching the businesses and monitoring their monthly electricity use. They arranged and attended the first round of businesses representing the local council. They also attended some followup visits where there were media opportunities and conducted some final feedback interviews.

City of Canning (Peter Morrison) managed the grant funding in liaison with SMRC.

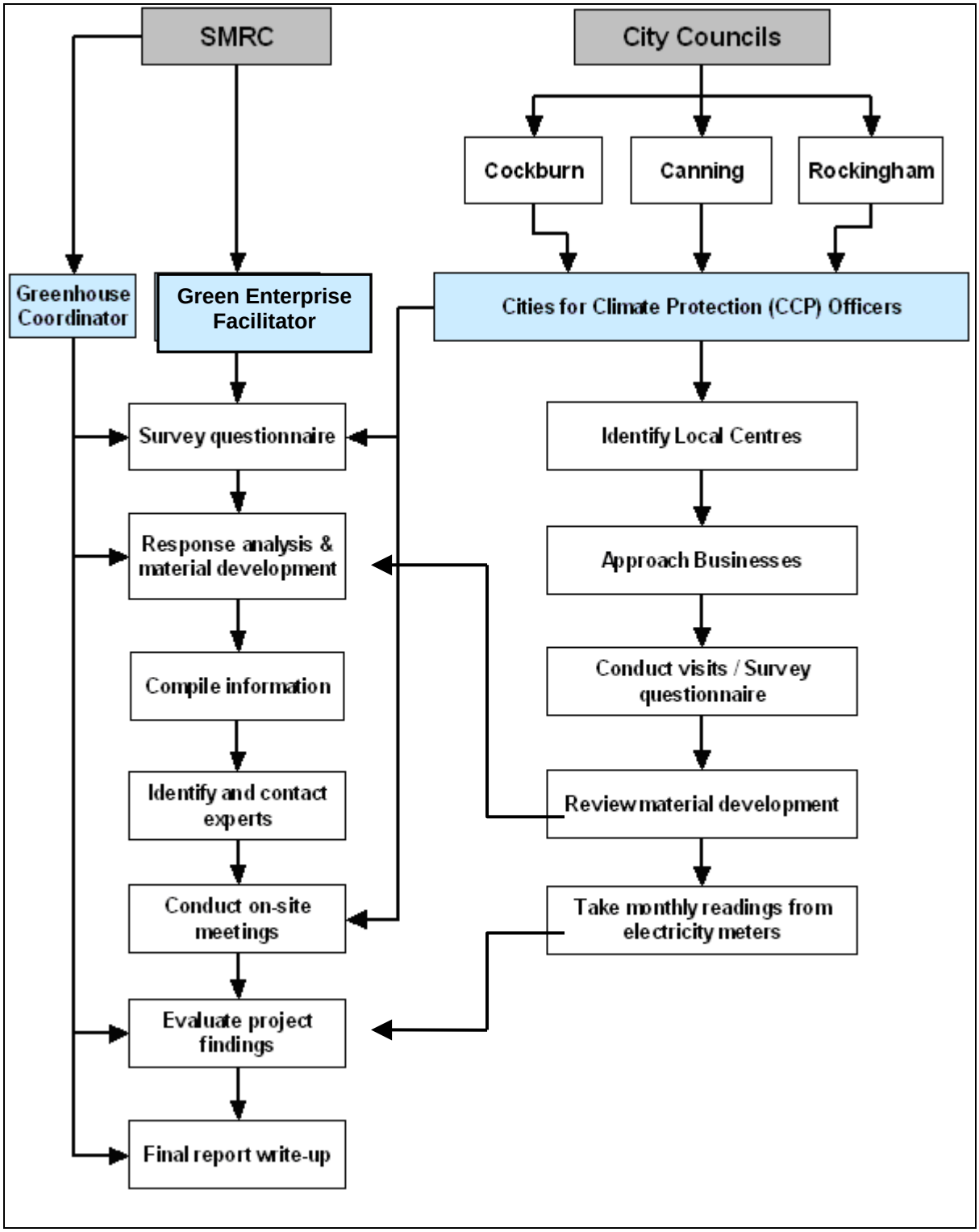


Figure 2 Roles and Responsibilities

3 THE ENGAGEMENT APPROACH

3.1 APPLYING THE ENTERPRISE FACILITATOR MODEL

A common difficulty in programs with the small business sector is the first step of getting participants. In this time-poor sector they are wary of potentially time-wasting salespersons.

As outlined in section 1.1.1, the Enterprise Facilitator model works with businesses who are already motivated and interested, and allow their success stories to motivate others.

The offer to participate was given to businesses once and only those who were interested were visited. By month 5 we had our first approach from a businessperson encouraged by his neighbouring business operator to contact us and participate in the program.

On the first visit, rather than arriving armed with materials and solutions for the businesses, free, confidential advice was offered for any issues the businessowner or manager was interested in having followed up. This clearly separates it from a sales approach where a product or service is offered that the business owner may have not interest in. This approach was experienced to turn around first meetings with businesses from a negative start to an open and welcoming finish. These businesses then went on to make energy reduction steps by month 6 of the project.

3.2 DEVELOPING RELEVANT MATERIALS

Small businesses are often an easy target for receiving unnecessary and irrelevant leaflets and brochures from the hands of salespersons. With this in mind, the information to be provided to businesses needed to be concise, easy to understand and relevant to their needs.

Information gathered during the initial visit was used to identify specific areas of concern that were common to several businesses. A research stage followed, during which specific actions were identified along with their associated barriers and the steps needed for their implementation.

A series of flyers were designed to target each of the identified actions (See Appendices). The flyers included information in response to commonly expressed barriers (such as where to source them, how much it would save their business), in line with the principles of Community-based Social Marketing. The flyers were distributed to businesses with potential for taking action.

4 PROJECT OUTCOMES

In this section the outcomes of the project are presented including the project's success at engaging local centre businesses, the nature of the actions taken or anticipated to be taken and the greenhouse emissions this amounts to.

As explained in section 2.3, Council officers invited local centre businesses to participate in the program. Figure 2 below shows the number of businesses approached to participate and then finally met in the first round of visits in November 2005.

The City of Cockburn officer had a high success rate. Some of the participating businesses had previously been approached by this officer and engaged in the research survey undertaken by SMRC in May 2005 and hence had an existing relationship. City of Rockingham invited all their identified businesses through face-to-face impromptu visit and this seemed to receive a good response. The City of Canning officer approached businesses through a mixture of phonecalls and visits. The lower success rate is likely to relate to the demographics of businesses (more English as a second language??), no pre-existing relationship with these businesses and EHO role? Meredith what are your thoughts here

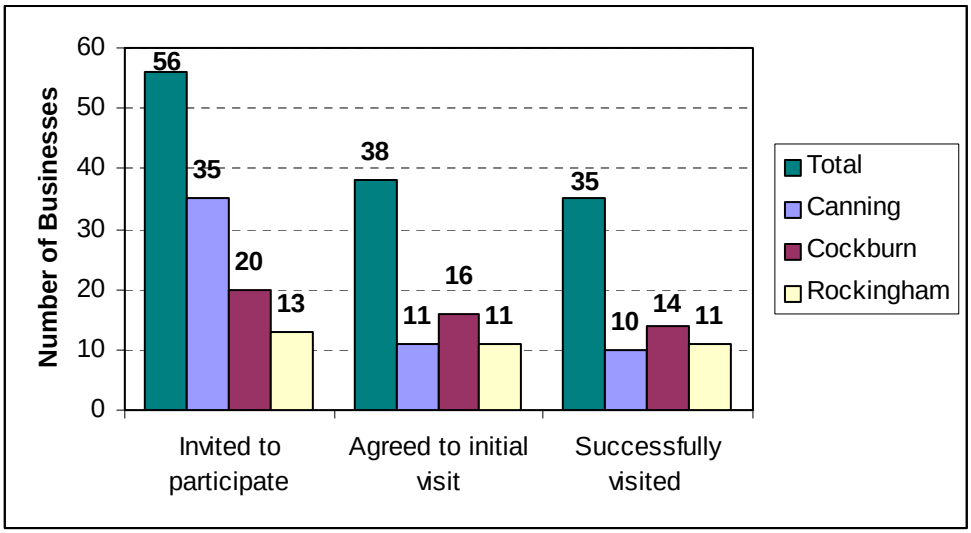


Figure 3 Response of businesses to initial invitation

The 35 businesses were visited in November 2005 (and another business later following a reference from his neighbouring business). These businesses are those referred to as the 'participating' businesses and their achievements and engagement are now presented.

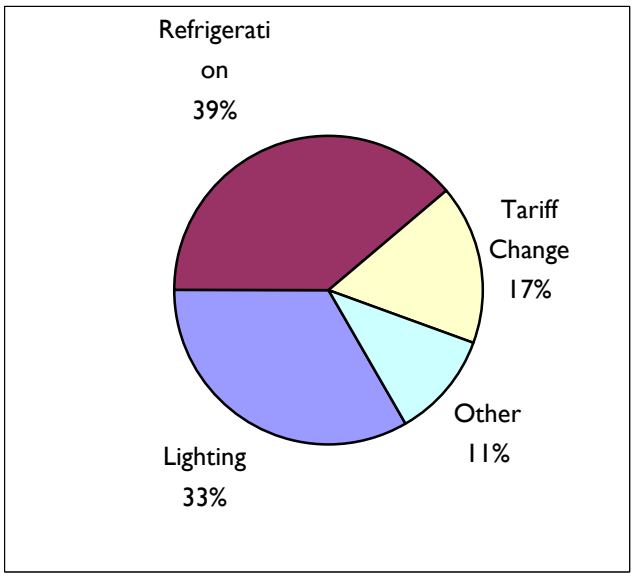
4.1 ENERGY REDUCTION AND GHG ABATEMENT ACHIEVED

Actions can be categorised into three areas:

- Lighting
- Refrigeration, and
- Miscellaneous,

with the first two areas dominating actions in participating businesses (as shown in Figure 4)

Figure 4 Common Areas for Actions amongst participating businesses



In the following sections the nature of these actions are discussed in more detail and the estimated energy reduction that results from these actions.

In the final section, actions taken and anticipated to be taken are listed and energy and greenhouse reduction totalled.

There were no waste reduction measures undertaken in the course of this short project, but pathways to achieving this in a longer program were identified and concerns documented. This is discussed further in Section 5.

4.1.1 Lighting

This area demonstrated a large potential for energy reduction. In many cases, lighting was found to be inefficient and lighting levels were often excessive. There were few exceptions having both adequate and efficient lighting. A lux meter was used to check illuminance levels in businesses. Australian Standard AS 1680.1 for general illuminance of **

The measures taken or anticipated are as follows:

1. **Replacement of 50W halogen downlights with 35W**
   This action is applicable to many businesses including cafés/restaurants, beauty salons, and pharmacies. The saving per lamp is estimated to be 0.15 kWh per 10 hour day of operation, giving a shop with 20 downlights savings of up to $200 per year. The 35 W lamps are not easy to source, so a flyer was produced with details on locating them and savings for different scenarios. Discussions were held with Osram who then offered a reduced lamp price for local centre businesses participating in the project.

2. Replacement of Incandescent lamps with compact fluorescent lamps (CFL)

This action is applicable to any business having traditional incandescent lamps for general lighting purposes; some restaurants and liquor shops were found to be the case. An 18W CFL will have a light output equivalent to a 100 W incandescent globe. In one particular case, 24 incandescent globes were replaced by CFLs, yielding savings of over $1000 per year. Another Liquor store replaced 100W incandescent spotlights with CFLs using a homemade aluminium reflector, as shown in Figure 5.

Figure 5 CFL Lamp with homemade reflector

3. Fluorescent tubes upgrade / de-lamping

This action is applicable to many commercial shops such as delis, supermarkets, liquor shops, video shops, etc. Fluorescent tubes can vary significantly in terms of their efficiency. Several businesses were found to be using older, inefficient fluorescent lamp models with poor light outputs. A liquor shop owner upgraded all of his fluorescent lamps after a special bulk price was negotiated with a local lighting supplier on his behalf. The lighting levels in the shop were significantly improved, eliminating the need for additional spotlights.

De-lamping coupled by an upgrade in fluorescent lamps and use of reflectors can cut lighting energy consumption by half while still improving lighting levels. A deli having more than 120 fluorescent lamps in twin fittings was found to be in this case (see Figure 6).

An initial quote from a lighting consultant provided a payback period of 1.1 years to replace two lamps (in a twin fitting) with a single triphosphor lamp and a clip-on reflector. The business owner has committed to taking this action in the near future. The annual electricity savings of this action are expected to be close to $2000.

Figure 6 CFL Lamp with homemade reflector

Several businesses were also found to have excessive lighting levels. This was especially the case of medium sized supermarkets.

4. **Changing 40W for 25W (decorative)**
   This action is applicable to some businesses using 40W incandescent (often coloured) globes for decoration purposes. They are usually located on external marquees and therefore are often subject to be vandalised. Hence businesses were relentless to the option of changing them for a more expensive (perhaps CFL) lamp. The easiest option here was to replace them with similar available 25W lamps. A camping shop went ahead with this option for the replacement of 20 globes.

4.1.2 Refrigeration

This area was often the single largest source of energy consumption for businesses such as delis, liquor shops, butchers, supermarkets and cafés/restaurants.

The refrigeration measures taken or anticipated are as follows:

1. **1. Installing timers on drinks fridges / turning off overnight**
   Some product suppliers provide "free" fridges or freezers to retail outlets to promote a particular brand or product. Unfortunately, there is little incentive for the providers of these units to supply more energy efficient units for it is not them who carry the energy costs. Tests using a watt-hour meter over 24 hour periods were carried out on units supplied by a particular soft drink company. From these tests, annual energy costs of between $1100 and $1500 were estimated to be incurred by a single two-door unit. In cases were these units were used only for soft drinks and other non-perishable products, businesses were recommended to use timers or to simply turn the fridges off overnight. This action is expected to save up to 35% of the energy consumed by these fridges, yielding annual savings of more than $500 per fridge.

   In one particular case, a number of these units were eliminated by locating all the products in a single large coolroom with several glass doors for customers to access.

2. **Equipment upgrade/replacement**
   Aging inefficient appliances were commonly found in businesses. When these were identified during visits to businesses it was pointed out to the owners that replacing old appliances with newer, more efficient ones could be an expense with a relatively short payback period due to the lower running costs. Old refrigeration appliances were replaced in at least two of the businesses. Some upgrades were also made, such as moving a large compressor from an area inside the shop to the roof. This action significantly reduced the air conditioning load of the shop.

3. **Use of freezer covers**
   This action is applicable for medium to large supermarkets as well as smaller delis. Open chest freezers are large consumers of energy given that they must maintain below-zero temperatures for products that are in direct contact with air at ambient temperature.

After extensive research on the subject, a local manufacturer of freezer blankets was found and contacted. With the purpose of persuading the operations manager of a medium sized supermarket (the largest business participating in this program) to use the freezer blankets to cover these units during non-opening hours, a meeting between him and the freezer blanket supplier was arranged. It is anticipated that the supermarket will use freezer blankets on two 10-metre units in the participating store and possibly extend their use to two more in another store. The use of freezer blankets is estimated to save roughly 6% of the energy consumption of these units, which may seem insignificant. However, the energy consumption of one of the above mentioned can be in the range of 70 MWh per year. Hence, the anticipated reduction in energy consumption for this business could be as much as 17.5 MWh per year*.

4.1.3 Miscellaneous

The miscellaneous measures taken or anticipated are as follows:

1. Lowering thermostat on electric HWS and insulating pipes.

This action is applicable to any business having a water heater installed. In the particular case of a liquor shop, health regulations required that running hot water be available at the premises. The system at this business was an electric storage 50 litre unit. Hot water is rarely needed at this business. The thermostat was set to the lowest setting (closer to 60°) and the pipes were insulated to minimise heat losses (see Figure 7). During a visit to this business

Figure 7 Pipe insulation on electric HWS

3. Use of timers on miscellaneous appliances

The use of timers was identified during this project as an easy approach to energy reduction.

For example, in one particular beauty salon, electric heaters are used for heating wax. The common practice in this business was to leave them on overnight so the wax would be hot in the morning. A timer was purchased and installed to demonstrate to the owner that this could be a simple operation. Subsequently, the

Figure 8 Timers on Wax heaters

* Financial savings have not been quantified due to unknown tariff structure for this particular business.

owner agreed to install timers on four wax heaters in the shop (each having a rating of 350 W). An initial test using a watt-hour meter was carried out to determine the energy consumption of the heaters (without the use of timers). A second test using timers is scheduled for the near future in order to quantify the energy reduction of this action.

4.1.4 Summary of Actions

Table 2 lists the energy and greenhouse reduction from actions taken or anticipated to be taken within 1-2 months of project close. The quantification of savings is based on energy calculations rather than meter readings. A discussion on meter reading results is given in section 4.4.2.

The table shows energy reduction of 36,240kWh per year from actions taken and 36,650 kWh per year from anticipated actions. This amounts 72 tonnes of greenhouse gas savings per year.

Table 2		Lighting				Refrigeration			Miscellaneous						
	Status of action	Replacement of 50W halogen downlights with 35W	Replacement of Incandescent lamps with CFL	Fluorescent tubes upgrade / de-lamping	Changing 40W for 25W (decorative)	Installing timers on drinks fridges / turning off overnight	Equipment upgrade/replacement	Use of freezer covers	Lowering thermostat on electric HWS	Insulating pipes on HWS	Use of timers on miscellaneous appliances	***Actual* Energy Reduction kWh/year**	***Anticipated* Energy Reduction kWh/year**	**Actual + Anticipated Energy Reduction kWh per year**	**Actual + Anticipated GHG Abatement kg CO_2-e**
Deli / Grocery 1	Actual					2,245						2,245		2,245	2,227
Liquor Shop 1	Anticipated	449											449	449	445
Liquor Shop 2	Actual		1,498									1,498		1,498	1,486
Deli / Grocery 3	Actual					4,490						4,490		4,490	4,454
Deli / Grocery 4	Anticipated			13,240									13,240	13,240	13,134
Beauty Salon 3	Anticipated	406											406	406	403
Butcher 2	Actual											-		-	-
Liquor Shop 3	Actual						15,630		80	112		15,822		15,822	15,695
	Anticipated												-	-	-
Beauty Salon 5	Actual											-		-	-
Supermarket 1	Anticipated							17,520					17,520	17,520	17,380
Restaurant / Café 3	Anticipated	570											570	570	565
Restaurant / Café 4	Actual					4,490			635			5,125		5,125	5,084
	Anticipated	712							317				1,029	1,029	1,021
Camping & Leisure 1	Actual		328									328		328	325
Restaurant / Café 5	Actual	711										711		711	705
	Anticipated	1,424											1,424	1,424	1,413
Restaurant / Café 6	Anticipated	591	1,241										1,832	1,832	1,817
Butcher 3	Actual											-		-	-
	Anticipated	187											187	187	186
Restaurant / Café 7	Actual		6,022									6,022		6,022	5,974
Total												**36,241**	**36,657**	**72,898**	**72,315**

4.2 COMMUNITY ENGAGEMENT ACHIEVED

Figure 9 shows the level of engagement of the Local Centre business participants in actions to reduce energy and greenhouse emissions. The 'Other' category relates to businesses who changed ownership during the project, had taken many energy efficiency actions already or may undertake further action in the future.

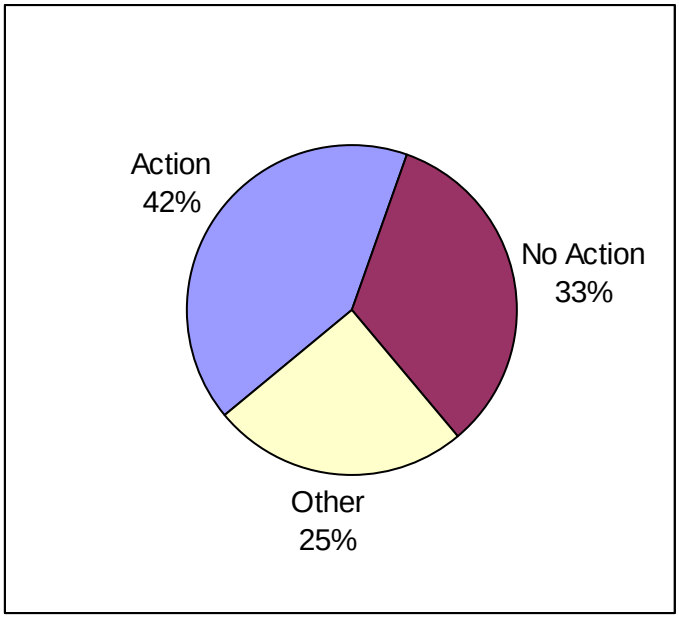


Figure 9 Engagement of participating businesses in greenhouse action

Beyond the participating businesses the pilot project showed the potential to reach further into the community with posters giving to businesses to promote their involvement in greenhouse action and the advertising of a free community sustainability course for local residents through participating shop windows. Through this the project has potential to engage local residents.

4.3 EDUCATION AND AWARENESS OUTCOMES

In working with the participating businesses, it was evident that there was some awareness of energy efficiency opportunities, but key information was missing, like the magnitude of the energy savings and key criteria to look for in new appliances. The Green Enterprise Facilitator could follow up these information gaps and enlighten businessowners with the necessary information to make a decision.

In many cases new knowledge gained was also applicable to the home, and business owners indicated they would be changing household choices too.

A spot survey to gain feedback from some participating businesses indicated appreciation for the gain in education and awareness. Below are some statements from businesses:

It was very informative. The program enlightened me to a lot possibilities that were originally unknown to me. Business Manager of Joe's Butcher

I was very surprised to find out the amount of energy used by fridges and lighting, and the knowledge I have gained will play a role in future decisions. It is good to be educated on what savings can be made. Business Manager of Aussie Liquor Discounts

This program has really drawn on my awareness of energy efficiency and energy efficient measures both for my business and in my home. In the future when purchasing appliances for both the home and office I will use the information that has been provided to me in making my choices. Business Manager of Tranquility

4.4 ADDITIONAL OUTCOMES

4.4.1 The adapted Enterprise Faciitator Model

The adapted version of the Enterprise Facilitator model for this greenhouse abatement project appeared to perform well in both attracting businesses and retaining their interest. An approach that was not sales or audit focussed but working initial with the interest and ideas of the business people seemed to turn around some initial reluctance at the first visit and build a trusted relationship.

This is indicated in some statements below from participating businesses.

Very useful and very surprising. I had no expectations to begin with, it was more curiosity that grabbed me at the beginning. Business Manager of Aussie Liquor Discounts

It is a great service and a great way to share ideas and see what other businesses are doing to save energy and money. The overall service was fantastic. Business Manager of Continental Deli

The service was great, they didn't take up too much time but spent enough to get the necessary information across. Business Manager from Joe's Butcher

4.4.2 Meter Trends

The monthly meter readings taken over the course of this project did not provide a clear means for measuring energy reductions from the actions associated with this project as seasonal variations in consumption that in many cases were substantially larger than the actions taken. Comparisons using records on bill also could not be made as most changes were taking place in the last 1 –2 months and so had not appeared on bills yet.

The meter readings are however a useful record of consumption patterns in a range of business types and can provide useful benchmarks.

4.4.3 Reduction of Waste to Landfill

Waste reduction was identified as an issue of concern for many businesses. The following common issues regarding waste were identified to be:

- Lack of recycling bins/collection service available through the Councils.
- Unwillingness of business owners to pay for a private recycling service.
- Large volume of recyclables treated as general waste.
- Significant amounts of organic waste going to landfill.

Only 29% of the participating businesses had bins for co-mingled recyclable waste. Otherwise, some centres provided a separate "cardboard only" bin. A very small proportion of businesses had a separate collection service for specific types of organic waste. These businesses were mainly butchers having waste meat, bone and grease. Otherwise, organic waste was not being separated and would most likely be taken to landfill facilities.

There are substantial greenhouse abatement opportunities in waste reduction, however some infrastructure barriers need to be crossed. The Regional Greenhouse Team working on the Local Centres presented findings to the Regional Waste Managers Committee in December 2005 with a viewing to finding avenues to addressing these in the future through Council and/or commercial services. See in appendices the summary paper.

5 FUTURE ACTIONS RESULTING FROM OUTCOMES

5.1 FUTURE DIRECTIONS FOR SMRC

The Regional Greenhouse Abatement Project coordinated by SMRC is committed to addressing greenhouse emissions in the business sector. With the success of this program in engaging businesses and achieving energy reduction, a larger program with 100 businesses over a longer timeframe is proposed for next financial year. It will depend on grant funding however to go ahead.

Waste reduction concerns were considerable amongst businesses, however the steps needed to address this issue needed a longer timeframe to run. In a future program, SMRC are keen to tackle waste reduction measures and some discussion on this have already been had.

5.2 FUTURE DIRECTIONS FOR PARTICIPATING BUSINESSES

Many owners or managers of participating businesses indicated they would undertake new or further actions in the further using the information provided. As indicated in Outcomes, many businesses are about to undertake lighting retrofits. Replacement of inefficient refrigeration in the business and home is also being considered but this will occur over a longer timeframe.

6 CONCLUSIONS AND RECOMMENDATIONS

- Successful service delivered – valued, meet a gap
- Relevant information to make decisions
- Many actions achieved even in a short project, many more anticipated from information given
- Potential for greater community impact – new businesses to join through existing business participants, through media and publicity materials (See Appendices) and growing an information hub for local residents through participating businesses.

7 months too short to get a most businesses to take action that are able to. A longer project can engage new businesses through participating businesses and media exposure, support businesses that need a longer timeframe to make changes and more clearly identify energy savings achieved.

7 APPENDICES

7.1 INITIAL QUESTIONNAIRE

Add later

7.2 WASTE SUMMARY FROM INITIAL VISITS TO BUSINESSES

Background

The Local Centres Business Program commenced in October 2005 under the Regional Greenhouse Abatement Program. Coordinated by Southern Metropolitan Regional Council, the program's objective is to pilot strategies to reduce business greenhouse emissions through energy and waste reduction in local centre businesses. This program has been developed from research conducted by SMRC with Cities of Canning and Cockburn to identify a SME sector with willingness to take on greenhouse abatement and is commonly found throughout the region.
The program commenced with the first set of visits to 35 Local Centres businesses in Canning, Cockburn and Rockingham during the second half of November 2005.

Summary Purpose

This summary gives preliminary findings related to waste management at the participating businesses. The purpose of this summary is to inform relevant staff within SMRC and Councils in the region participating in the Regional Greenhouse Program, with a view to exploring solutions.

The Findings

A total of 35 businesses were visited (10 in Canning, 11 in Rockingham and 14 in Cockburn). The following common issues and attitudes regarding waste were identified:

- Lack of recycling bins/collection service available through the City Councils.
- Unwillingness of business owners to pay for a private recycling service.
- Large volume of recyclables treated as general waste.
- Significant amounts of organic waste going to landfill.

The following table illustrates the nature of the visited businesses.

Type of Business	Canning	Rockingham	Cockburn
Deli / Grocery Shop	2		2
Pharmacy	1		1
Liquor Shop	2		1
Beauty Salon	1	1	4
Butcher	1	1	1
Restaurant / Café	1	6	
Fish & Chips / Takeaway		2	1
Medium Supermarket	1		1
Video Shop			1
Camping & Leisure		1	
Restaurant / Tavern / Liquor Shop			1
Baker			1
Total	10	11	14

Note: We are still awaiting survey data from two businesses in Canning, so they are not included in the following analysis.

Current Means of Waste Collection

An absence of council-provided waste collection was noticeable for businesses in Canning and Cockburn. Hence, a large proportion of these were found to have some kind of private waste collection service, whether it be provided by the centre management or individually sourced by the businesses. Five businesses in Canning (55%) and eleven in Cockburn (73%) were found to be in this situation. On the other hand, only one of the businesses in Rockingham (9%) had a private waste collection service. The rest have Council pickup often via green and yellow-topped Sulo bins.

Current levels of recycling

Only 10 of the visited businesses (29%) had yellow-topped recycling bins, 1 in Canning, 6 in Rockingham and 3 in Cockburn. A number of these businesses complained about the collection not being frequent enough and/or not having enough bins to cope with their recyclables. Otherwise, only cardboard was recycled in some cases. Some centres provided a separate "cardboard only" bin. However, some business owners complained about these bins often being used for general waste as well as cardboard.

A peculiar finding was that while some of the businesses had a free cardboard collection service or were even being paid for their cardboard waste, others were found to be paying for a similar type of service.

Organic waste collection

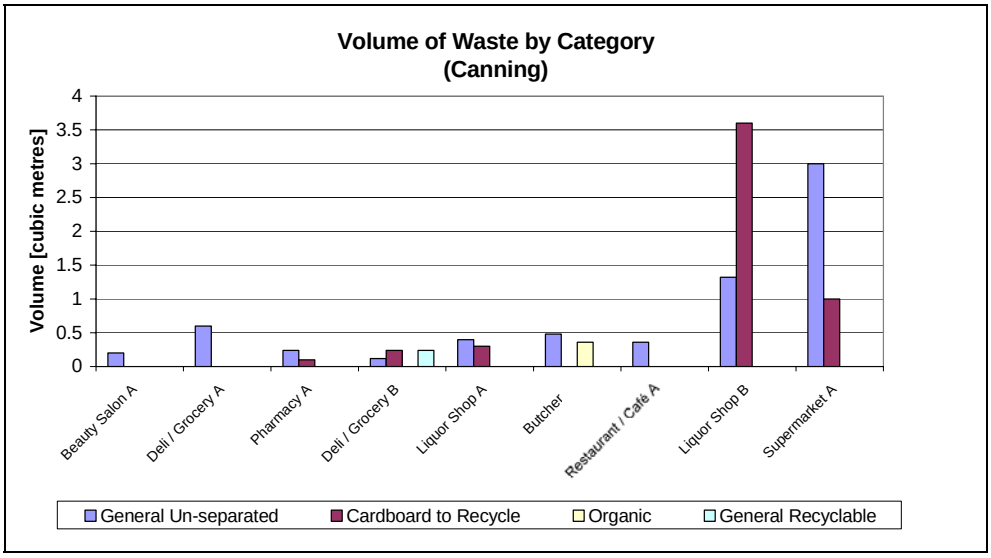
A very small proportion of businesses had a separate collection service for specific types of organic waste. These businesses were mainly butchers having waste meat, bone and grease. Also, fish and chips / takeaway food shops and some restaurants had a collection service for used cooking oil. Most of this waste would be converted into feedstock. Otherwise, organic waste was not being separated and would most likely be taken to landfill facilities.

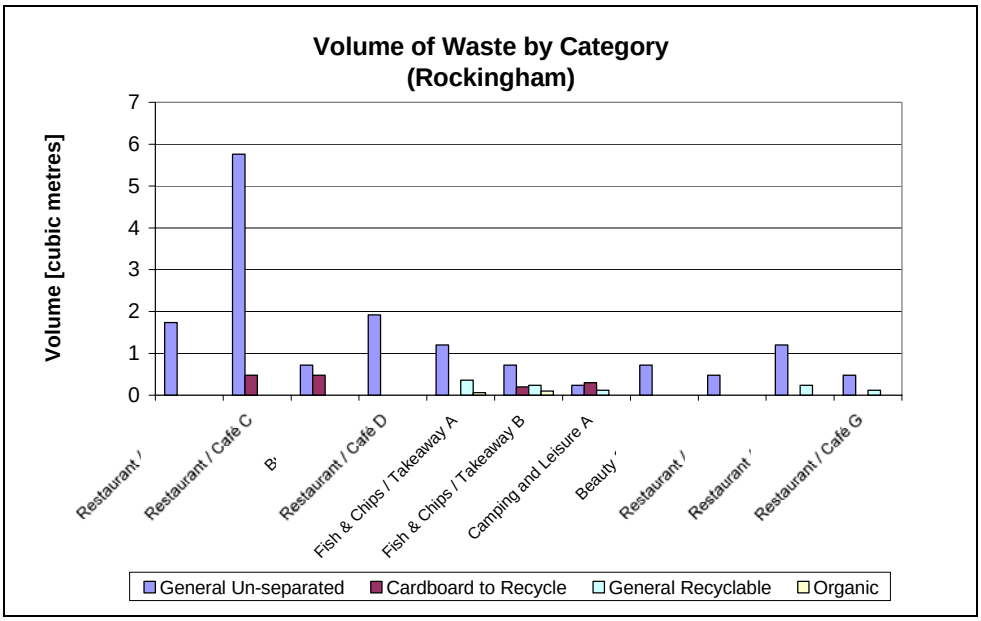
Volumes of waste and recyclables

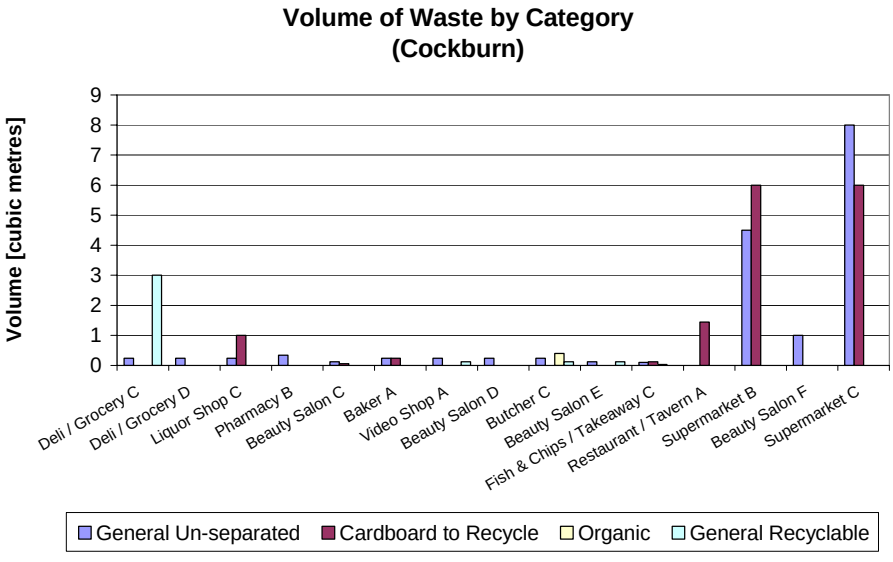
The volume of waste produced varied significantly from one business to another, from approximately 0.2 m^3 to 8 m^3 per week, reflecting the nature of the business. Small supermarkets, large cafes and restaurants were the highest generators of waste.

The charts below show estimates of the volume of waste by category for the businesses of each of the three cities. These estimates were done based on the information provided by business owners/managers. The categories *'Cardboard to Recycle', 'Organic'* and *'General Recyclable'* constitute waste that is actually being separated and presumably recycled or, in the case of organic waste, converted into feedstock. All other types of waste fall under the category *'General Un-separated'* and were collected in a single bin.

Note that the y-axis scale is different for each chart.


Volume of Waste by Category
(Canning)
Volume [cubic metres]
4
3.5
3
2.5
2
1.5
1
0.5
0
Beauty Salon A
Deli / Grocery A
Pharmacy A
Deli / Grocery B
Liquor Shop A
Butcher
Restaurant / Café A
Liquor Shop B
Supermarket A
General Un-separated
Cardboard to Recycle
Organic
General Recyclable


Volume of Waste by Category
(Rockingham)
Volume [cubic metres]
7
6
5
4
3
2
1
0
Restaurant /
Restaurant / Café C
B
Restaurant / Café D
Fish & Chips / Takeaway A
Fish & Chips / Takeaway B
Camping and Leisure A
Beauty
Restaurant /
Restaurant
Restaurant / Café G
General Un-separated
Cardboard to Recycle
General Recyclable
Organic


Volume of Waste by Category
(Cockburn)
Volume [cubic metres]
9
8
7
6
5
4
3
2
1
0
Deli / Grocery C
Deli / Grocery D
Liquor Shop C
Pharmacy B
Beauty Salon C
Baker A
Video Shop A
Beauty Salon D
Butcher C
Beauty Salon E
Fish & Chips / Takeaway C
Restaurant / Tavern A
Supermarket B
Beauty Salon F
Supermarket C
General Un-separated
Cardboard to Recycle
Organic
General Recyclable

7.3 ARTICLES IN THE MEDIA AND OTHER PUBLICITY MATERIALS

Cockburn Soundings newsletter January 2006

small businesses think big

As Cockburn keeps growing, we need to look at ways of making our lifestyle more sustainable and less wasteful. The City of Cockburn has recently involved small neighbourhood shopping centres in a new project to reduce greenhouse gas emissions and energy bills.

The pilot project offers a free and confidential service to help small businesses reduce their energy use, waste and greenhouse gas emissions.

"Local centre businesses have said they are interested in improving their environmental performance and having as many low-cost ways as possible to achieve this," says City of Cockburn Environmental Officer Trena Ward.

Trena works with the SMRC's Green Enterprise facilitator, Luis Bustamante to show the businesses involved how to be more energy efficient. "Some of the things we look at include finding the most efficient and appropriate lighting and water systems for their needs, checking their air conditioning, thermostat and refrigeration settings and closing off open fridges and freezers," says Trena.

The pilot project is going to form the basis for a regional program that will be more widely offered in the future.

Canning Concern newsletter March 2006

Energy Savings for Local Small Business

Small neighbourhood shopping centres are the focus of a new project that assists local shops reduce both energy costs and greenhouse gas emissions.

Funded by an Australian Government Community Abatement Assistance Grant, the project follows a survey of small to medium businesses, undertaken by the Southern Metropolitan Regional Council (SMRC) in the Cities of Canning and Cockburn, in early 2005.

The survey showed local centre businesses were interested in improving their environmental performance and were able to take advantage of low-cost alternatives.

"These shops have been chosen for a number of reasons," Mayor Dr Mick Lekias said. "They pay their own power bills, so using less power means financial savings, plus they have opportunities for greenhouse gas abatement through energy efficient hot water, lighting and air-conditioning practices and technology, as well as reducing waste to landfill."

A free, confidential service is being offered through the pilot project to support the proprietors' efforts to reduce energy use, waste and greenhouse gas emissions from their business.

"Initial visits have indicated potentially large savings for business owners," Dr Lekias continued. "Main areas for improvement were lighting, air conditioning, refrigeration and hot water. There were also a considerable number of business owners unaware there were different options for their electricity tariff, which could provide financial savings."

The pilot project, a regional partnership between the Cities of Canning, Cockburn and Rockingham, is coordinated by the SMRC's Greenhouse team and is part of the regional greenhouse program that also involves the City of Fremantle and Towns of Kwinana and East Fremantle.

For further information on the pilot project or the greenhouse program, please contact City of Canning Environmental Health Officer, Meredith Chidlow on 9231 0666 or SMRC's Green Enterprise Facilitator, Luis Bustamante on 9316 3988.

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1317 Albany Highway, Cannington
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Website: www.canning.wa.gov.au
Patrol & Security: 9231 0699 (24-hour/ 7 day week)

Editorial contact: Public Affairs Officer, Penny Wright on 9231 0709
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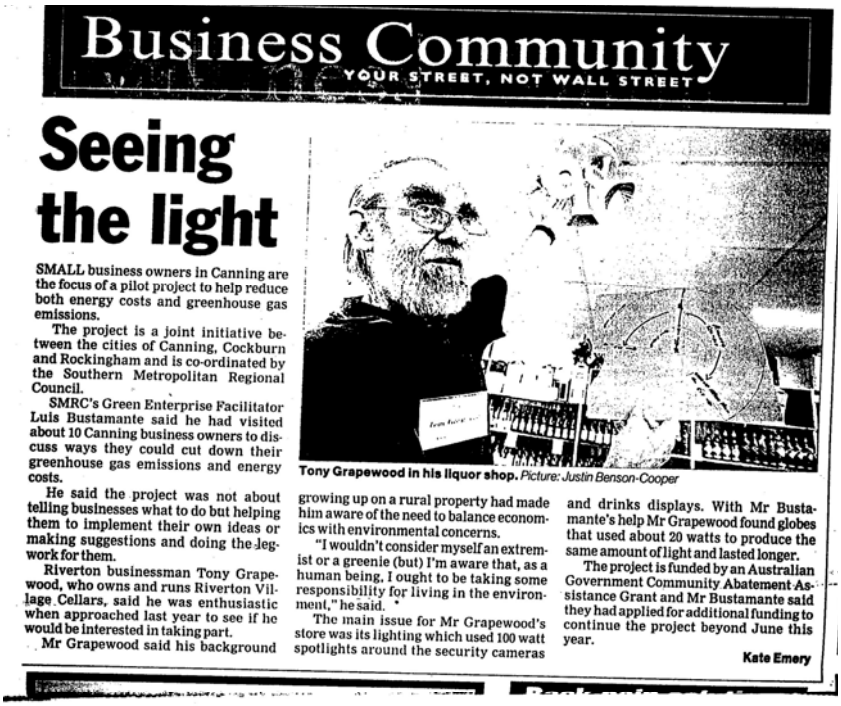
Canning Times February2006



Business Community

YOUR STREET, NOT WALL STREET

Seeing the light

SMALL business owners in Canning are the focus of a pilot project to help reduce both energy costs and greenhouse gas emissions.

The project is a joint initiative between the cities of Canning, Cockburn and Rockingham and is co-ordinated by the Southern Metropolitan Regional Council.

SMRC's Green Enterprise Facilitator Luis Bustamante said he had visited about 10 Canning business owners to discuss ways they could cut down their greenhouse gas emissions and energy costs.

He said the project was not about telling businesses what to do but helping them to implement their own ideas or making suggestions and doing the legwork for them.

Riverton businessman Tony Grapewood, who owns and runs Riverton Village Cellars, said he was enthusiastic when approached last year to see if he would be interested in taking part.

Mr Grapewood said his background growing up on a rural property had made him aware of the need to balance economics with environmental concerns.

"I wouldn't consider myself an extremist or a greenie (but) I'm aware that, as a human being, I ought to be taking some responsibility for living in the environment," he said.

The main issue for Mr Grapewood's store was its lighting which used 100 watt spotlights around the security cameras and drinks displays. With Mr Bustamante's help Mr Grapewood found globes that used about 20 watts to produce the same amount of light and lasted longer.

The project is funded by an Australian Government Community Abatement Assistance Grant and Mr Bustamante said they had applied for additional funding to continue the project beyond June this year.

Kate Emery

Tony Grapewood in his liquor shop. *Picture: Justin Benson-Cooper*

Sample Promotional Posters for Actively Participating Businesses (distributed in April 2006)

Atwell Pharmacy

is contributing to the reduction of
Greenhouse Gas emissions by participating in

LOCAL CENTRES

"Improving the climate for businesses"

a project supporting small businesses in the region with improving energy efficiency and reducing energy costs

The next time you want to help protect the environment, think about supporting

Atwell Pharmacy

To find out more about the Local Centres Project, inquire within or contact the SMRC's Greenhouse Team on **9316 3988**

Local Centres is a regional initiative coordinated by the Southern Metropolitan Regional Council (SMRC) with the Cities of Canning, Cockburn, Fremantle, Rockingham and Towns of East Fremantle and Kwinana.

The project is part-funded by an Australian Government Community Abatement Assistance Grant.

SOUTHERN METROPOLITAN REGIONAL COUNCIL

City of Cockburn

7.4 INFORMATION FLYERS FOR BUSINESSES

SAVING ENERGY ON HALOGEN DOWNLIGHTS

12-volt halogen downlights are commonly referred to as 'low voltage'. A common misconception is that this means that they have low energy consumption.

A 50-watt 12-volt lamp uses the same energy as a 50-watt 240-volt lamp. In fact, the energy drawn by the 12-volt lamp will be higher due to losses in the transformer, used for stepping the voltage down to 12 volts.

So you have 50W lamps already installed?
A very simple and inexpensive way of reducing energy consumption from halogen downlights is to **replace standard 50W lamps with energy saving 35W lamps**.

Recent technological advances allow the same light as a 50W lamp to be produced by a 35W lamp with a 30% energy saving!

This 35W lamp technology is achieved through a heat-reflective infrared coating (IRC) of the lamp, which reflects the heat back to the filament and reduces the energy lost in the form of heat to the surroundings.

Where can I purchase them?
Osram's IRC Decostar and Phillips' Masterline ES ranges are the main energy saving 35W halogens available on the market. They are not as widely available as standard 50W types, especially the Phillips brand. This also makes them more expensive, ranging between $11 and $14 each. However, Lamp Replacements in O'Connor have agreed to supply the Osram IRC 35W lamps at a special price of $6.50 in support of this program.

Lamp Replacements
293 Stock Rd
O'Connor WA 6163
(entrance via McNeece Pl)
Ph (08) 9314 4555
www.lampreplacements.com.au

The following table shows the annual savings yielded by replacing standard 50W halogen downlights with 35W energy saving halogen downlights. Calculations are shown for replacing 1, 10, 20, 50 and 100 lamps and are based on Western Power's S1 (flat rate) and R1 (time of use) business tariffs. The avoided greenhouse emissions are in the right-hand column.

Annual Savings from replacing 50W halogen downlights with 35W

Number of lamps	Electricity Consumption (kWh/year)	Savings (S1 Tariff)[1]	Savings (R1 Tariff - Peak)[2]	Avoided GHG Emissions (kg CO2-e)[3]
	8 hours/day			
1	37	**$7**	$8	37
10	374	**$75**	$81	371
20	749	**$150**	$162	743
50	1872	**$374**	$405	1857
100	3744	**$748**	$810	3714
	12 hours/day			
1	56	**$11**	$12	56
10	562	**$112**	$121	557
20	1123	**$224**	$243	1114
50	2808	**$561**	$607	2786
100	5616	**$1,122**	$1,215	5571

-Calculations are based on 6 days per week operations.
-Lifetimes of 50W and 35W lamps are taken as 2000h and 4000h respectively (Source: Osram).
-Individual retail prices for 50W and 35W lamps are $4 and $6.50 respectively.
1 Western Power S1 Tariff (flat rate) = 17.47c/kWh (Jan 2006)
2 Western Power R1 Tariff (time-of-use) - Peak (8am-10pm) = 19.13 c/kWh (Jan 2006)
3 Emission factor is 0.992 kg CO2-e / kWh (AGO, 2005)

The Local Centres project is funded by an Australian Government Community Abatement Assistance Grant and the Cities of Canning, Cockburn and Rockingham through a Regional Partnership with the Southern Metropolitan Regional Council. It is an initiative under the Cities for Climate Protection™ Australia Programme.
Disclaimer: The views expressed herein are not necessarily the views of the Commonwealth, and the Commonwealth does not accept responsibility for any information or advice contained herein.

Local Centres Project -Improving the Climate for Businesses

City of CANNING · City of Cockburn · City of Rockingham · Southern Metropolitan Regional Council

SAVING ENERGY ON OPEN DISPLAY CHILLERS

Commercial refrigeration is a huge consumer of energy. In Australia, the electrical energy used in this area is enough to power 1.3 million homes and the associated greenhouse gas emissions are roughly equivalent to those of 1.3 million cars (Source: SEDO).

Chillers are large consumers of energy. Most of this energy is actually wasted as cool air is swept out by ventilation and lost to the surrounds.

How to minimise energy waste:

- Installing **night blinds** that can be pulled down during non-opening hours to trap cool air in and reduce running of compressors.

- Installing **transparent plastic strips** that allow the customer to see the products and reach for them while preventing the cool air from escaping.

Research conducted by Murdoch University Energy Research Institute (MUERI) showed energy savings of 52 to 56% by using transparent plastic strips.

Additional benefits of using night blinds or plastic strips:
- Extended lifetime of compressor motors due to reduced running time.
- Products lasts longer as a result of lower temperatures
- Improved hygiene conditions in chillers (i.e. insects are kept out)

Where can I source them?
Chiller manufacturers often sell and install night blinds and plastic strips. Otherwise the following suppliers can be contacted:

Chillsaver Australia
Unit 2 / 3 Vanden Way
Joondalup WA 6027
Ph (08) 9300 9377
www.chillsaver.com.au

A & A Plastic Strip Curtains
Keegan Street
O'Connor WA 6163
Ph (08) 9331 5199
Mob 0419 913 067

Things to look out for:
- Time should be allowed for regular cleaning of plastic strips.
- Night blinds should be inspected regularly and repaired when necessary.
- Evaporative cooling air conditioning may cause condensation on plastic strips. Refer to your supplier before installing.
- Ensure that plastic strips are at least 2mm thick and that durable mounting brackets are used to ensure a 5-year lifetime.

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Local Centres Project -Improving the Climate for Businesses

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7.5 CALCULATING GREENHOUSE ABATEMENT – LISTING OF ASSUMPTIONS