MUNICIPALITY OF THE DISTRICT OF CLARE

Community Energy Plan
Milestone No. 1 Report

October 2006

Lewis Engineering Inc.

MUNICIPALITY OF THE DISTRICT OF CLARE
COMMUNITY ENERGY PLAN
MILESTONE NO. 1 REPORT

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Executive Summary

EXECUTIVE SUMMARY

This report presents the findings of the energy audits and other data gathering exercises conducted through August and September. This Emissions Inventory Report completes the objectives of project Milestone No. 1 as well as meeting the objectives of Milestone No. 1 of the Partners for Climate Protection.

For the purposes of this analysis energy use and resultant emissions were categorized as follows:

- Residential
- Commercial and Small Industrial
- Large Industrial
- Municipal
- Institutional
- Transportation

Energy records were generally available for the most recent year when our auditors conducted on site audits. Initial drive by categorization audits observed more than 1,800 residences and 175 businesses. On site audits were conducted at over ninety (90) residential and commercial properties, three (3) municipal properties, eight (8) institutional properties, and eight (8) large industrial properties. Additional energy records were obtained for several other properties in each sector.

Total current energy consumption was calculated to be as follows with all energy types used converted to equivalent kWh.

Figure 1. Annual Energy Consumption - Current (kWh)

Residential	135,107,744
Commercial	21,005,186
Large Industrial	91,237,355
Municipal	782,000
Institutional	15,994,000
Transportation	143,842,000
TOTAL	**407,968,285**

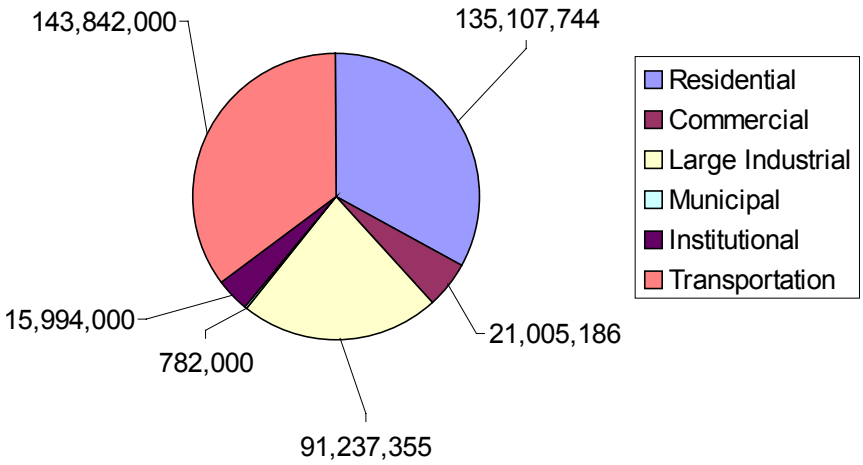
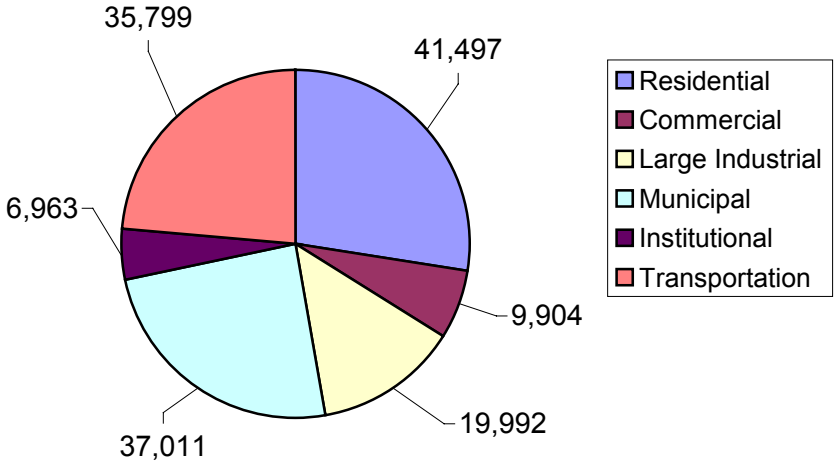


Figure 2. Annual CO_2 e Emissions - Current (tonnes)

Residential	41,497
Commercial	9,904
Large Industrial	19,992
Municipal	37,011
Institutional	6,963
Transportation	35,799
TOTAL	**151,166**



This total is approximately 5% higher than the estimated emissions total in 1990, the Kyoto baseline year. Forecasts to 2012, the end of Kyoto compliance period No. 1, show a reduction in net emissions under all scenarios, even business as usual. While this could be attributed partly to the declining and aging population in Clare, the main reason for the emissions decline is due to declining emissions from the landfill, which was closed in 2005. In 2006, emissions from the landfill

are estimated to account for approximately 23% of all greenhouse gas emissions in Clare. Since no new garbage is being placed there anymore, the emission levels will decline from this year forward.

Future forecasting suggests that even a modest 10% emissions reduction in the built infrastructure categories and 5% in transportation, coupled with the decline in landfill emissions, will result in a net reduction of 13% over current emissions and 2% over 1990. Achieving the Kyoto compliance target of 6% below 1990 levels by 2012 is therefore considered to be very achievable in Clare.

1.0 Introduction and Background

1.0 INTRODUCTION AND BACKGROUND

In June 2005 representatives of Clare's municipal government, institutional, and industrial sectors travelled to Gussing Austria to observe the progress made in that community over the past fifteen (15) to twenty (20) years to improve energy efficiency and reduce greenhouse gas emissions. They returned from the trip inspired and convinced that similar successes could be achieved in Clare.

In July 2006, Lewis Engineering Inc., in association with Horner ADI, was retained by the municipality to prepare a community energy plan. The purpose of the plan is to meet the requirements of the Partners for Climate Protection milestones 1, 2 and 3. A community emissions inventory, using available energy use data and analysis tools, forms the bulk of the initial work followed by setting a reduction target and developing a local action plan. Achievement of emission reductions will follow two key paths, demand side management and renewable energy generation. The feasibility of specific measures along both paths will be determined in order to determine a realistic achievable emissions reduction target. Community support and involvement will be critical to the success of the local action plan so all measures will be assessed based on their local community benefits among other criteria.

Completion of this current project is planned for late 2006.

2.0 Emissions Analysis

2.0 EMISSIONS ANALYSIS

2.1 PCP MILESTONES

The greenhouse gas (GHG) emissions inventory described in this report was completed in part to fulfill the Municipality of Clare's commitment to the Partners for Climate Protection (PCP). PCP is a natural program developed by the Federation of Canadian Municipalities to assist municipalities with reduction of local production of GHG emissions and improve quality of life. There are currently over 100 municipalities that belong to PCP.

PCP members follow a five milestone process:

.1 **Milestone 1: Create a GHG Emission Inventory and Forecast.** The best available data should be used to create the base year with looking back estimates to 1990 and forecasts to 2012 or beyond. Inventory should look at both municipal and community emissions.

.2 **Milestone 2: Set a Reduction Target.** Upon completion of the inventory, the municipality can set a reduction target. Typical reduction targets in municipalities with low growth rates are 20% reduction in emissions from municipal operations and 6 – 10 % in overall emissions from 1990 levels within 6 – 10 years of joining PCP.

.3 **Milestone 3: Develop a Local Action Plan.** Development of a realistic plan with broad community support to reduce energy use and emissions production in the next step once the target is established.

.4 **Milestone 4: Implement the Local Action Plan.** Creating a strong partnership between the municipality and the broader community will be key in carrying through on commitments from the local action plan.

.5 **Milestone 5: Measures Progress and Report Results.** Maintain support for the LAP in the community by monitoring, verifying, and reporting the emission reductions.

This current report deals only with Milestone 1, but the current program will see Milestone 2 and 3 also completed.

2.2 METHODOLOGY

The objective of the demand survey of residences and businesses was to establish the total energy demand of all residences and businesses in the Municipality of Clare. While it is obviously impossible to survey all the residences and businesses in the Municipality, the approach taken were to survey a representative sample and then extrapolate the results.

The two field workers (Pierre Comeau and Robert Theriault) met with the project leaders and it was decided that there would be a two-part approach to the task. The first part would consist of a "windshield survey" of Route number one from the Yarmouth County line to the Digby County line (Beaver River to New Edinburgh) The work consisted of the two workers driving slowly along the highway and entering certain data on pre-printed forms on all residences and businesses along the road. A total of 1339 residences and 156 businesses were counted. This part of the work was carried out between July 18 and 20.

Following discussions with the project leaders, concerns emerged about the total number of residences and businesses found along Route one and the total number reported to be in the Municipality, according to the census and the tax rolls. Subsequently, two additional days of similar surveys were carried out along the more populated secondary roads in the Municipality - Patrice, Second Division, P. F. Comeau and Saulnierville Roads. This survey was carried out on August 8 and 9 and a total of 525 residences and 19 businesses were identified.

The following information was collected for each building:

Size: large, small, and mini

Age: Pre 1970, 1970 – 1985, and 1985 – present

Heat Method: Visible oil tank, visible propane tank, visible woodpile, and oil/wood unknown

Tables were prepared showing the numbers of buildings in each of the categories. It is readily apparent that the "age size" mix changes between the main and the secondary roads. On the main road, the pre 1970 large homes predominate, while on the secondary roads, the small homes are the majority.

Following discussions with the project leader, it was decided that a sample of five percent of the total size per category would be selected for a detailed site audit

Over the next several weeks, close to one hundred residences and businesses were visited and information obtained on age, construction, energy use/demand, heating methods, insulation levels and energy costs. Detailed interviews were conducted with individuals, lasting up to one hour. The information gathered included number and age and condition of major appliances, type, age and condition of doors and windows, insulation type and level. A visual inspection of the attic and basement and the condition of weather stripping was also included. Unusual features and/or problems were also noted.

The information was recorded on pre-printed forms. It is worth noting that in all but a couple of cases; the owners/managers were extremely co-operative and very forthcoming with information. The residences/businesses selected for further interviews were selected at random, often based on the fact that the field workers knew the owners. This phase of the survey was substantially completed by the end of August.

In the first half of the month of August, the project leader visited the municipality and the team visited the "Ecole Secondaire de Clare" and conducted a detailed energy audit of the entire building. The audit included an inspection of the heating and ventilation systems, the lighting systems and a visual inspection of insulation type and level as well as the doors and windows. A narrative report was prepared.

The two field workers then carried out a similar audit of the remaining school buildings in the municipality. The visits were carried out with the director of maintenance for the Conseil Scholaire Acadien Provincial. As well, the Southwest School Board High School in St. Bernard was also audited. The Board offices provided information on the heating and energy costs. The team noted that there is much potential for energy savings in these buildings.

3.0 Community Inventory

3.0 COMMUNITY INVENTORY

3.1 OVERVIEW

The inventory breakdown was done generally based upon primary building use. Non-building related emission sources include the transportation sector, industrial process loads, streetlights, and landfills. This section will summarize the community emissions inventory collected. This inventory is based upon the most recent energy use data available and is generally for the period from 1004 up to the present. Since no previous inventory was made, we can only estimate the change in emissions since 1990 based upon population and building count data as well as information on levels of economic activity. Between 1991 and 2001 the population of Clare declined by approximately 6%, the workforce declined by approximately 8%, and the total number of occupied dwellings increased by approximately 5%. The increase in occupied homes reflects a changing demographic in the community due to an aging population with more retired couples and single persons and fewer young families. Enrolment statistics at all primary and secondary schools in Clare confirm this with declining enrolments in all but one of the five French language schools. The demographic pattern suggests that the per capita energy consumption in Clare is not falling in direct proportion to population or workforce due to the tendency toward smaller households. The decline in workforce has not resulted in a decline in the number of businesses in Clare, in fact there are more registered businesses now than in 1990. The vast majority of new businesses are small and in the services sector. Primary industries, once major employers, have seen their share of the employment market reduced primarily due to a downturn in the fishing and forestry sector, increased global competition, and increased workplace automation.

Table 1. Clare Demographic Shift

	1991	2001	% Change
Population	9,654	9,067	-6%
Workforce	5,169	4,572	-11.5%
Occupied Dwellings	3,584	3,764	+5%

3.2 RESIDENTIAL

As previously described in the Methodology, an extensive building counting exercise was conducted to categorize as much of the building stock as possible according to age, size, and energy forms in use. The results of the categorization were as follows:

Table 2. Residences By Age

Pre 1970	2,909
1970 – 1985	1,246
1985 – Present	396
TOTAL	**4,551**

Table 3. Residences By Size

	Mini	**Small**	**Large**
Pre 1970	214	1,114	1,581
1970 – 1985	126	835	285
1985 – Present	17	248	131

Table 4. Residences by Principal Heating Source

	Oil	**Wood**	**Electricity**	**Propane**	**None – Seasonal Use Only**
Pre 1970 Mini	86	29	0	0	100
Pre 1970 Small	389	389	0	1	336
Pre 1970 Large	711	783	0	0	87
1970 – 1985 Mini	15	15	15	0	80
1970 – 1985 Small	467	187	0	0	181
1970 – 1985 Large	107	178	0	0	0
1985 – Present Mini	10	0	0	0	7
1985 – Present Small	95	66	7	0	80
1985 – Present Large	95	36	0	0	0
TOTALS	**1,975**	**1,683**	**22**	**1**	**871**

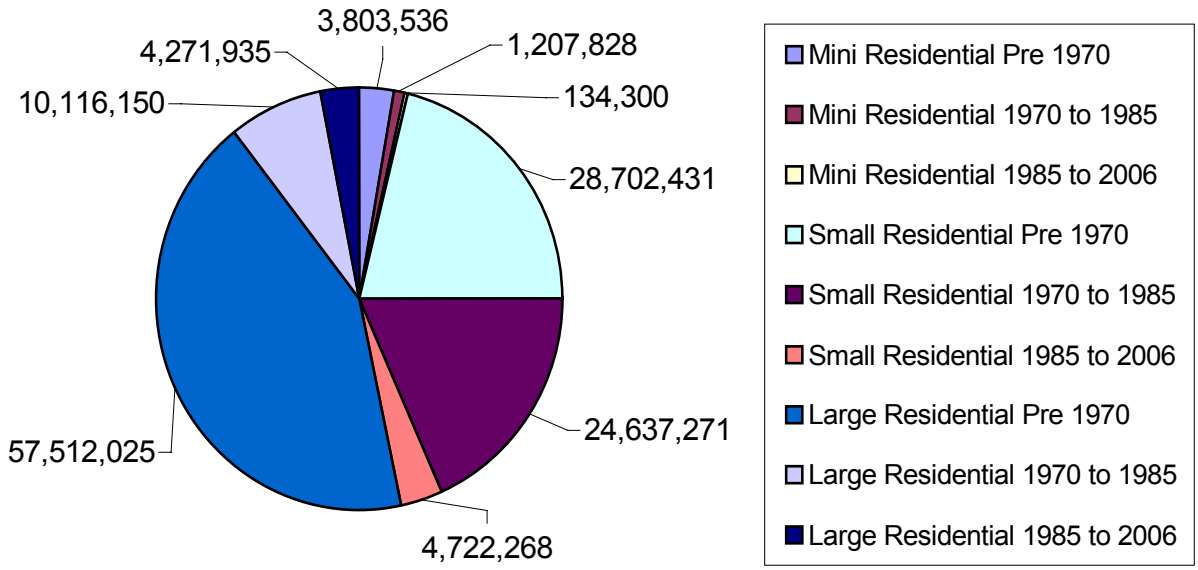
The vast majority of residences in Clare are detached, single family residences. Duplex and semi detached units totalled fifty-nine (59) based upon latest census data and apartment units totalled 112. The apartment units total included seniors apartments and nursing home rooms.

Representative sample sizes of each category were determined and residences selected for onsite audits. Actual energy consumption figures were collected for each residence visited. Demand side management and efficiency improvement opportunities were also noted during each site visit. Fuel

oil delivery companies and fuel wood suppliers were contacted to obtain estimates of residential sales within the municipality. The site visits also provided data on the age and estimated efficiency of fuel fired appliances which assisted in the determination of overall fuel consumption figures for each residential building category.

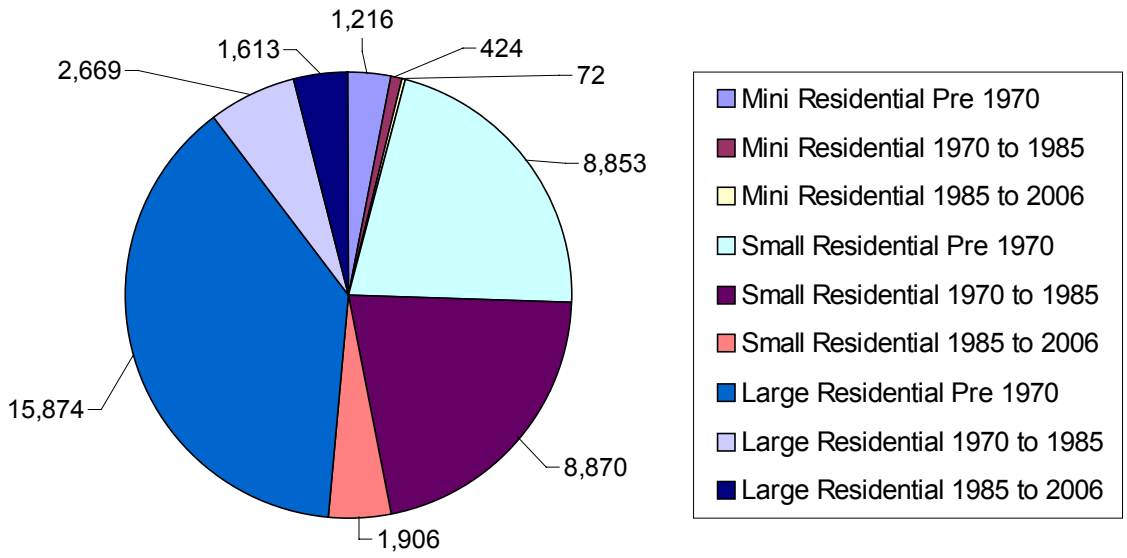
The consumption figures were then used to calculate the equivalent CO_2 emissions from each category based upon available emission factors and energy intensity factors. The breakdown of energy consumption for each category is illustrated in the following figure:

Figure 3. Annual Energy Consumption - Residential - Current (kWh)



The equivalent CO2 emissions resulting from the residential sector energy consumption is as follows:

Figure 4. Equivalent CO2 - Residential - Current (tonnes)



The slight difference in proportion between the categories in the energy and emissions graphs is due to the use of wood fuel for heating. Wood fuel is an energy source that when harvested sustainably from regenerating woodland is considered to have a zero net CO_2 emission level. This is due to the assumption that the CO_2 emitted when combusting wood fuel is reabsorbed by trees growing on the regenerating woodland from which it was harvested. This assumption is made more apparent in the following graphs illustrating energy consumption and equivalent CO_2 emissions per residence. The categories with the largest energy consumption per residence are not the same as the categories with the greatest CO_2 emissions per residence. This again is due to the increased use of wood heating in some categories.

Figure 5. Annual Energy Consumption per Dwelling Type - Residential – Current (kWh)

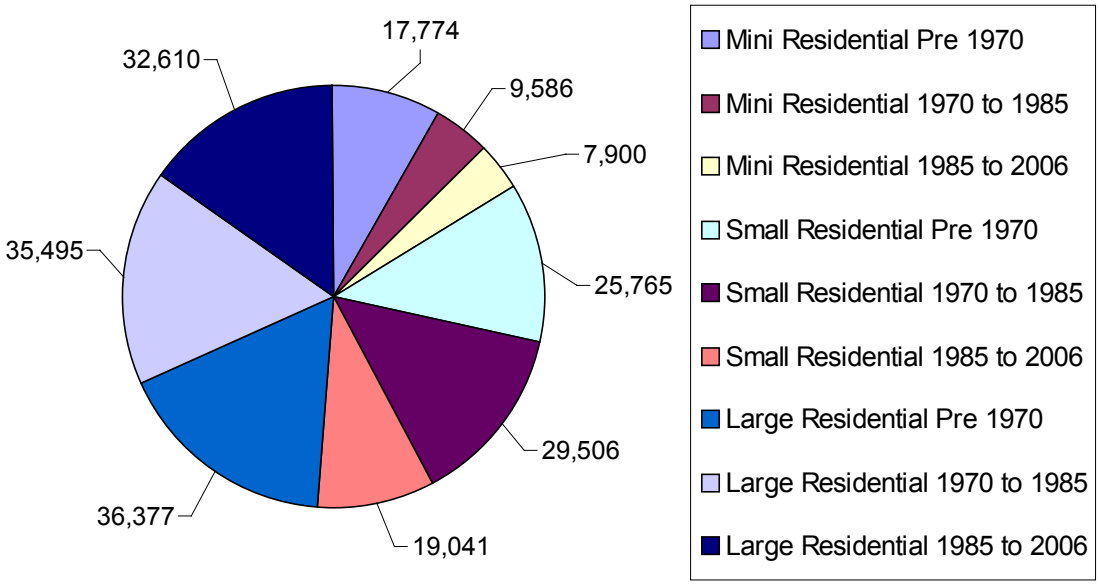
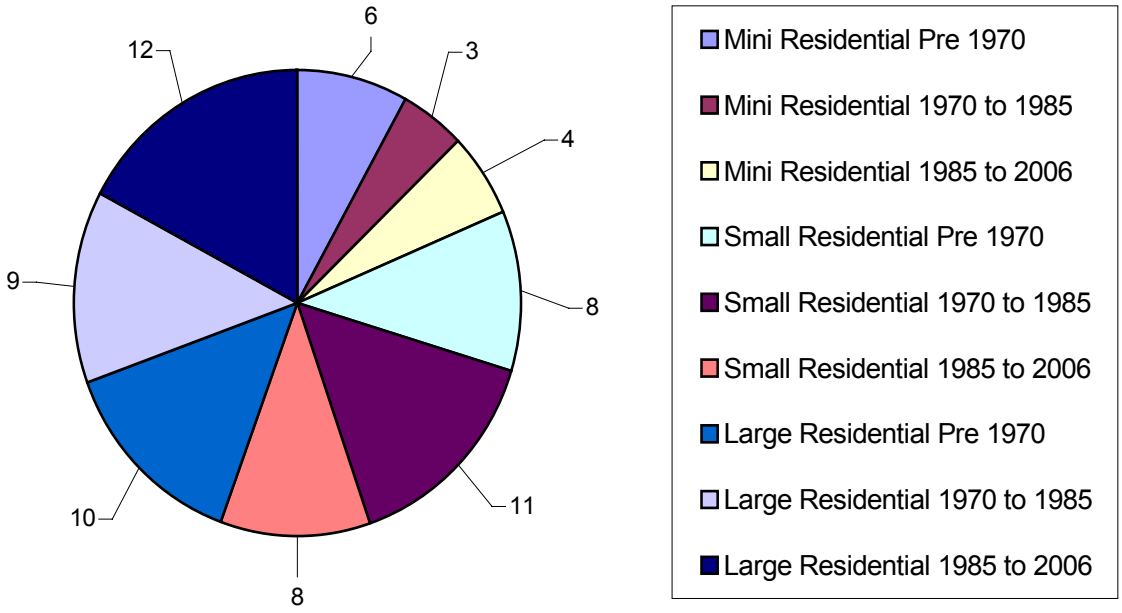


Figure 6. Equivalent CO_2 per Dwelling Type - Residential – Current (tonnes)



Natural Resources Canada reports that the average equivalent annual CO_2 emissions per individual dwelling unit in Canada is six tonnes. In Clare, six of the nine residential building categories exceed this national average. Some possible reasons for this are:

.1 Higher percentage of detached homes than national average.

.2 Higher percentage of older homes than national average.

.3 Greater reliance on fuel oil than national average.

.4 Electricity in Nova Scotia has a higher emission intensity factor than the national average.

3.3 COMMERCIAL AND SMALL INDUSTRIAL

This sector primarily comprises the retail, hospitality services, and small manufacturing and fabrication industries. Small amounts of growth have been experienced in this sector as the economy transitions from a traditional resource based industrial economy to one with greater balance between industrial and service sector jobs. Most businesses in this sector are not energy intensive and most businesses owners are not keenly aware of their energy costs or of measures to control these costs. Information on the number of businesses within the sector was obtained from the previously described categorization audits that also included the residential sector as well as Profil Communitaire 2005, a comprehensive listing of all public and private service providers, institutions, manufacturers, and agencies in the Municipality of Clare. The total business count, excluding the large industrial sector, was approximately 300. According to our research this number has remained relatively consistent over the past fifteen (15) to Twenty (20) years. There has been a shift from resource based business to more service sector businesses. The total count of business, categorized by building size and age is as follows.

Table 5. Total Business Count

	Mini	Small	Large
Pre 1970	5	16	193
1970 – 1985	1	10	33
1985 – Present	1	11	30
TOTAL	**7**	**37**	**256**

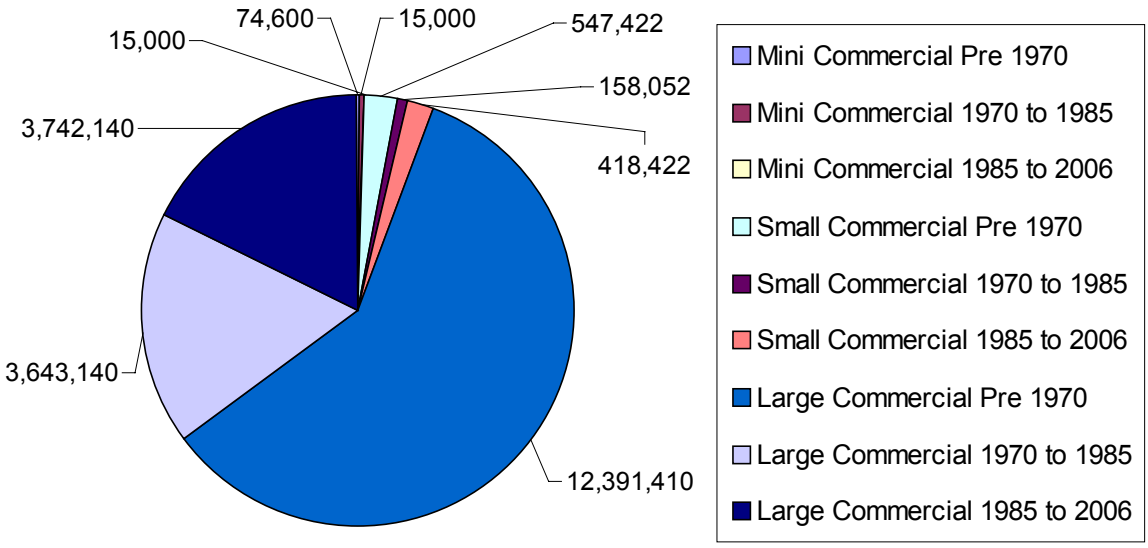
The principal building heating energy source for each business was as follows:

Table 6. Businesses by Principal Heating Source

	Oil	Wood	Electricity	Propane
Pre 1970 Mini	2		3	
Pre 1970 Small	8		8	
Pre 1970 Large	178		15	
1970 – 1985 Mini	0		1	
1970 – 1985 Small	3		7	
1970 – 1985 Large	33		0	
1985 – Present Mini	0		1	
1985 – Present Small	2		9	
1985 – Present Large	12		18	

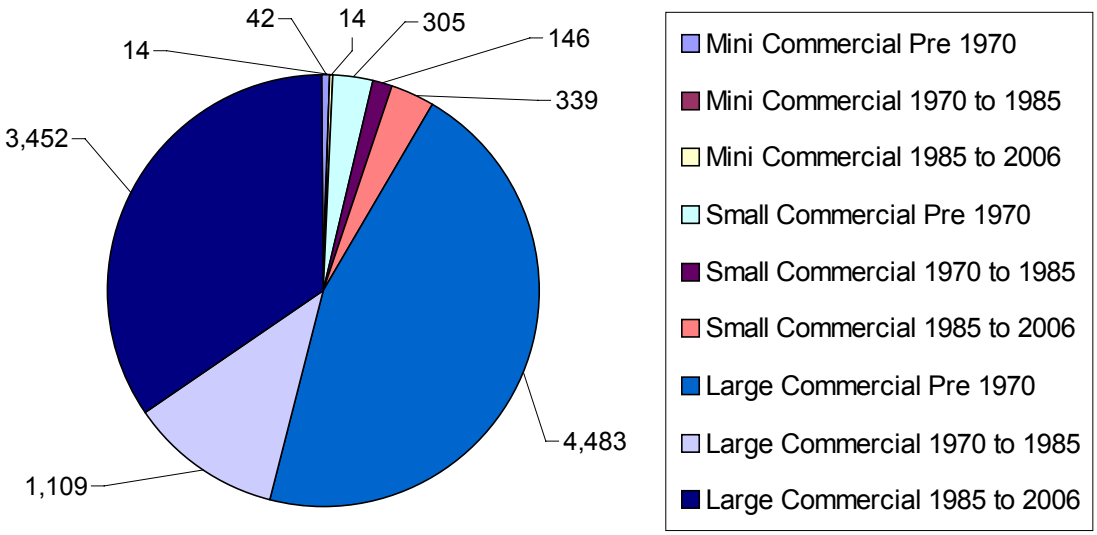
The total energy consumption for this sector breaks downs as follows:

Figure 7. Annual Energy Consumption – Commercial and Small Industrial – Current (kWh)



The equivalent CO_2 emissions for this sector are as follows:

Figure 8. Equivalent CO_2 - Commercial and Small Industrial - Current (tonnes)



Wood heating is not used in this sector so the comparison between energy consumption and emissions is directly proportional.

Due to the large discrepancies in energy consumption for individual businesses due to varying operating hours, equipment loads, and operating procedures, we did not attempt to break down the commercial and small industrial sector into a per business consumption or emission figure.

3.4 LARGE INDUSTRIAL

This sector is comprised primarily of natural resource processors, constructors, and large businesses with a significant process energy load in addition to the building load. Our research identified between twenty (20) and thirty (30) businesses that were considered to fall within this category. All businesses were contacted regarding the obtaining of energy records and/or allowing a site audit. Seventeen businesses responded and of those who responded, the following were selected for site audits.

.1	Comeau Seafoods	-	Saulnierville
.2	AF Theriault	-	Meteghan River
.3	Seacrest Fisheries	-	Comeauville
.4	Innovation Fisheries	-	St. Bernard
.5	Spectacle Lake	-	Concession
.6	Comeau Lumber	-	Meteghan
.7	340 Co-op	-	Weymouth
.8	Clarences Foodland	-	Saulnierville

The remainder provided energy records for use in compiling the sector total energy consumption.

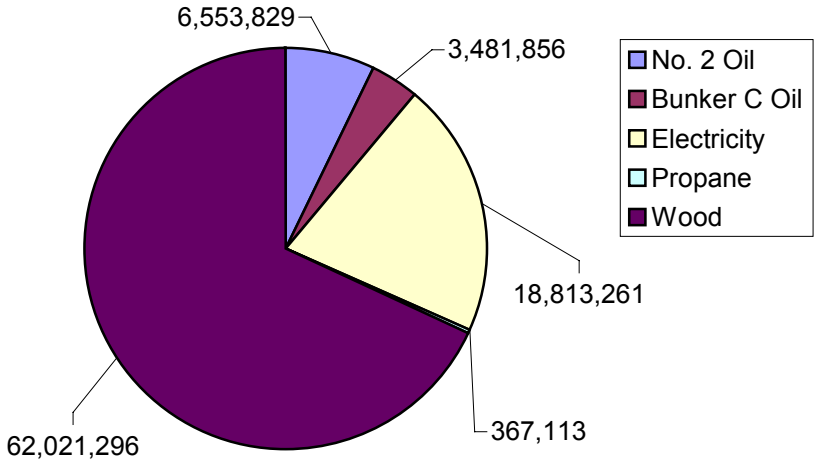
The major energy consumers were identified to be refrigeration systems, water pumping, electric motors for process loads, and space heating. With the exception of space heating, which primarily utilizes oil or wood, the other major loads are all electric.

For the purposes of this inventory, emissions from this sector have been limited to building and fixed industrial process equipment assets. Using this definition, forklifts are included while trucks and boats are not.

Total energy consumption within this sector, broken down by type, is as follows:

Figure 9. Large Industrial Annual Energy Consumption (kWh)

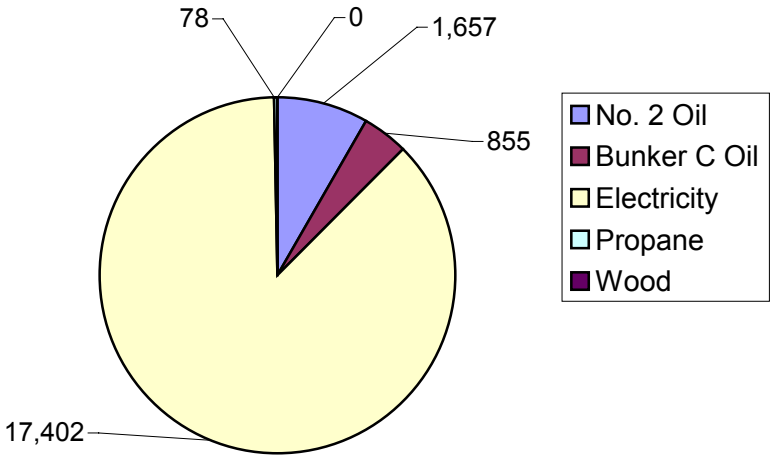
	kWh
No. 2 Oil	6,553,829
Bunker C Oil	3,481,856
Electricity	18,813,261
Propane	367,113
Wood	6,2021,296
TOTAL	**91,237,355**



Equivalent CO_2 emissions by energy type are as follows:

Figure 10. Large Industrial Annual Emission (tonnes CO_2)

	Tonnes CO_2 e
No. 2 Oil	1,657
Bunker C Oil	855
Electricity	17,402
Propane	78
Wood	0
TOTAL	**19,992**



It is obvious that the use of such a substantial amount of wood fuel in this sector plays a major role in controlling CO_2 emissions. It also clearly demonstrates the importance of exploring additional utilization of wood fuel to reduce emissions further.

3.5 MUNICIPAL

Clare is a large regional municipality with a relatively small population base and no large urban population centres. For the purposes of this inventory, we included the following fixed municipal assets in the determination of energy consumption and emissions.

.1 Administration Building
.2 Radio Station Building
.3 Medical Centre
.4 Villa Acadienne
.5 Transfer Station
.6 Clare Landfill (closed)
.7 Streetlights
.8 Sewage Treatment Plants

None of these assets are large consumers of energy or, with the exception of the landfill, are large emitters of CO_2. Estimates of energy consumption were made based on the size, use, and schedule of the buildings using energy use figures for other commercial buildings in the municipality. Site visits to sewage treatment plants, the transfer station, and closed landfill were used to observe energy using equipment and determine operating schedules. The closed landfill was modelled using a program called LandGEM to determine emissions released primarily from the anaerobic decomposition of organic material. The model takes into account the banning of organics from landfills as of 1998 in Nova Scotia.

The previous analysis resulted in the following estimates for energy consumption and emissions, in the municipal sector.

Figure 11. Municipal Energy Consumption (kWh)

	Oil	Electricity	Total
Buildings	356,000	390,000	746,000
Plants		30,000	30,000
Lights		6,000	6,000
Landfill	0	0	0

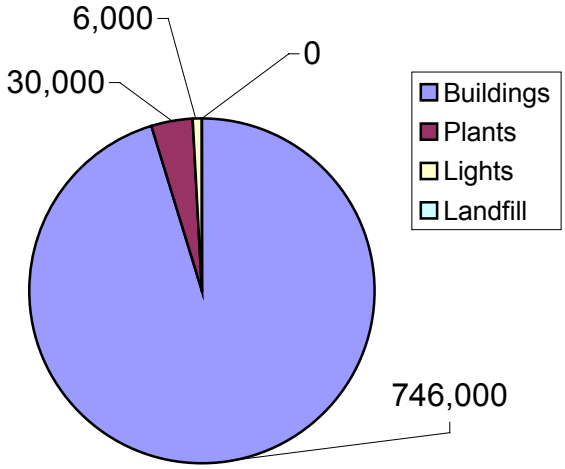
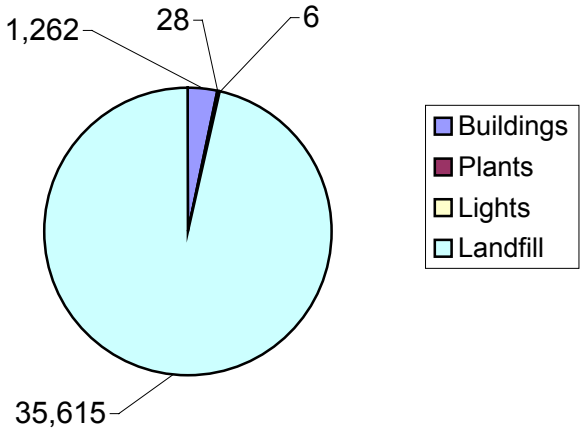


Figure 12. Municipal Emissions (tonnes CO_2 e)

	Tonnes CO_2 e
Buildings	1,262
Plants	28
Lights	6
Landfill	35,615



3.6 TRANSPORTATION

This sector comprises private and corporate transportation, both land and sea based. It includes private and corporately owned fishing vessels for both inshore and offshore fishing.

Statistics Canada data from the 2001 census indicates approximately 1.4 registered motor vehicles per private dwelling in Nova Scotia. Large commercial highway vehicles are registered at a rate of 0.05 vehicles per private dwelling. Applying those features to the latest census information for Clare yield the following vehicle totals.

Private Vehicles	6,371
Commercial Vehicles	228

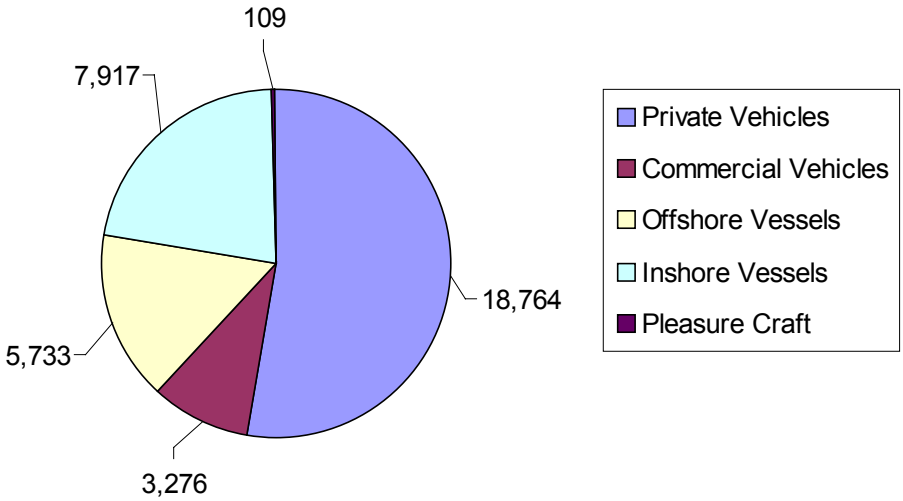
Information from the harbourmaster at each port in Clare yielded the following vessel results:

Offshore Vessels	8
Inshore Vessels	102
Pleasure Craft	20

Annual fuel consumption and emissions are as follows:

Figure 13. CO_2 e Emissions

	Gas (L)	Diesel (L)	CO_2 e (tonnes)
Private Vehicles	6,100,000	1,600,000	18,764
Commercial Vehicles		1,200,000	3,276
Offshore Vessels		2,100,000	5,733
Inshore Vessels		2,900,000	7,917
Pleasure Craft		40,000	109
TOTAL			**35,799**



3.7 INSTITUTIONAL

This sector includes public institutions and service facilities such as schools, the university, fire halls, the curling club, and other public facilities. The energy consumption is almost exclusively buildings related except for some external lighting and remote municipal services at the university. Energy consumption for most of the building follows a similar pattern to commercial buildings. Energy consumption and emissions for this sector is as follows:

Figure 14. Annual Energy Consumption (kWh)

	Electricity	Oil	Propane	Wood	Total
University	2,254,000	5,900,000	189,000	0	8,343,000
Schools	1,757,027	4,140,000			5,900,000
Fire Halls	92,000	260,000			352,000
Curling Club	161,560	67,200			229,000
Other Facilities	90,000	1,080,000			1,170,000
TOTAL					**15,994,000**

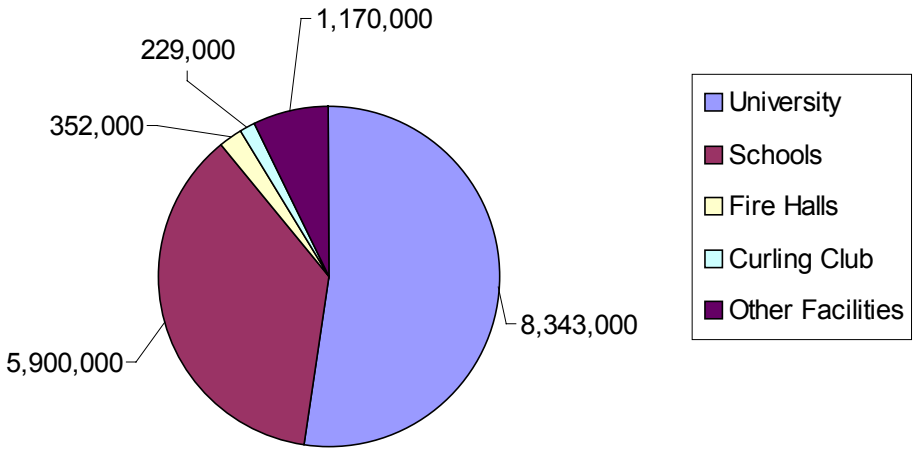
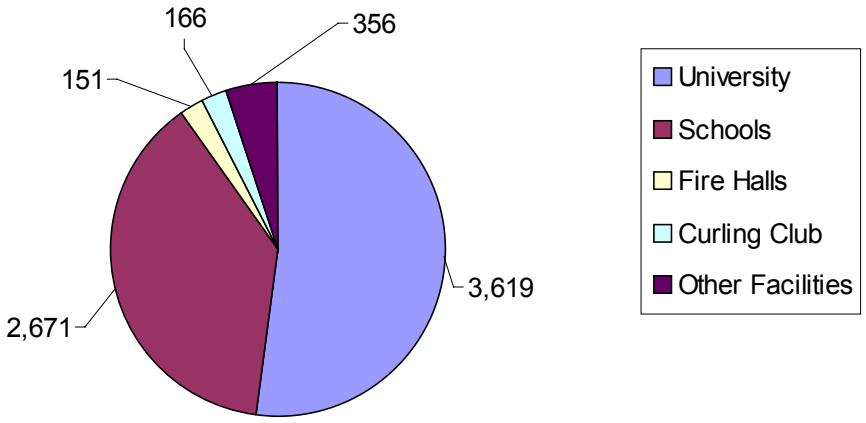


Figure 15. Annual Emissions (tonnes CO_2 e)

University	3,619
Schools	2,671
Fire Halls	151
Curling Club	166
Other Facilities	356
TOTAL	**6,963**



4.0 1990 Community Inventory Estimate

4.0 1990 COMMUNITY INVENTORY ESTIMATE

An estimate of the community residential housing inventory was based on several reasonable assumptions and extrapolations. It was estimated based on community demographic experience that the rate of new housing growth for the last sixteen years is approximately equal to a value of twenty (20) new houses per year for a total of 320 units. However, a review of the community inventory indicates that there is only a net gain of 180 houses over this period suggesting that 140 older or pre 1970 residential units have been taken out of service between 1990 and 2006. Therefore, in developing the energy consumption for 1990, these assumptions were used to modify the data developed for current energy consumption. These values were pro-rated into the various size categories of mini, small and large.

Thus, to reflect data for 1990, 320 residential housing units were proportionately removed from the data for the "1985 to 1990 Residences" classification and 140 units were added to those for "Pre 1970 Residences".

It was felt that the change in energy usage for the commercial and small industrial sector was essentially neutral and not as significant as on the residential side. Therefore, these energy consumption values were not altered from 1990 to 2006. Change in the large industrial sector was also determined to be insignificant. New plants have replaced older plants but the overall energy impact is about equal. Some growth has occurred in the institutional sector, mostly due to growth at the university. Growth in energy consumption at the municipal level has been due to construction of new buildings and sewage treatment plants. Emissions from the landfill were lower in 1990 due to the much smaller quantity of material buried on site.

Transportation sector emissions were higher based on a larger population, greater fishing activity, and lower overall sector efficiency compared to today.

Figure 16. CO_2 e Emissions - Residential 1990 (tonnes)

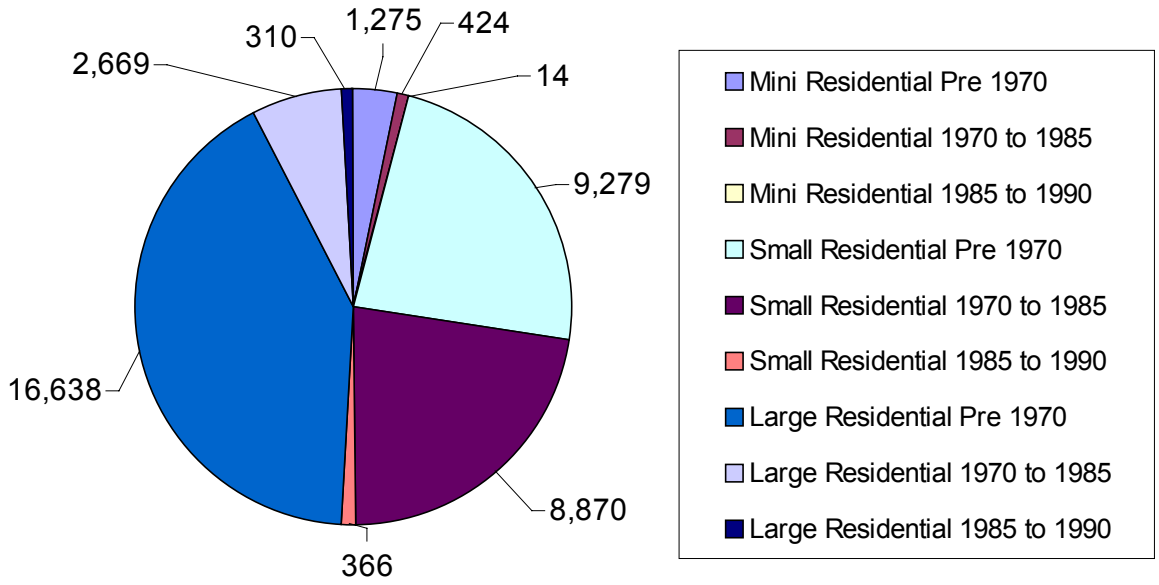


Figure 17. CO_2 e Emissions - Commercial 1990 (tonnes)

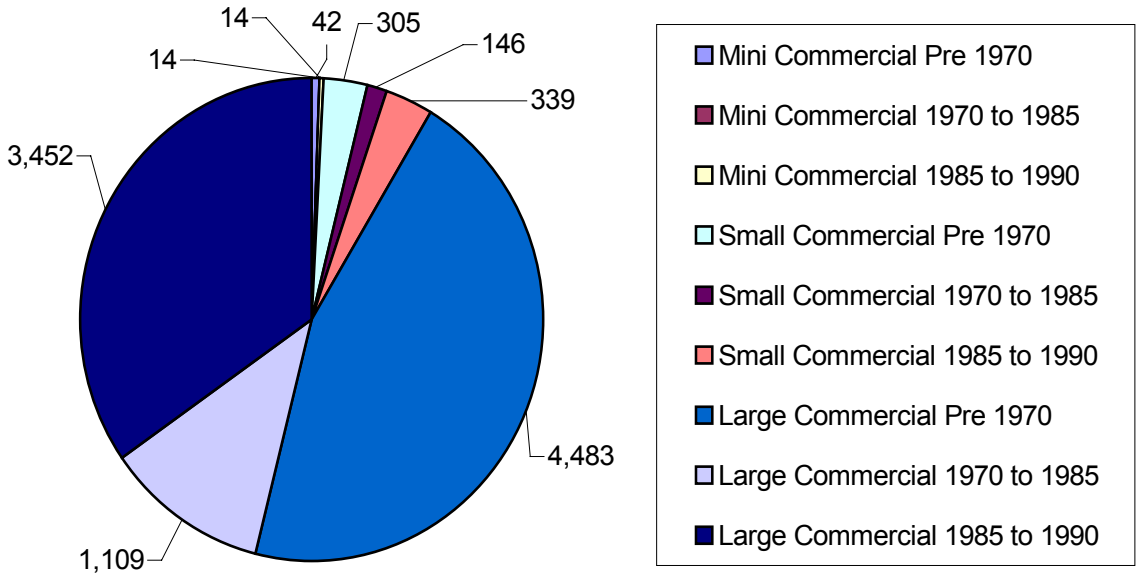


Figure 18. CO_2 e Emissions - Large Industrial 1990 (tonnes)

	Tonnes CO_2 e
No. 2 Oil	1,657
Bunker C Oil	855
Electricity	17,402
Propane	78
Wood	0
TOTAL	**19,992**

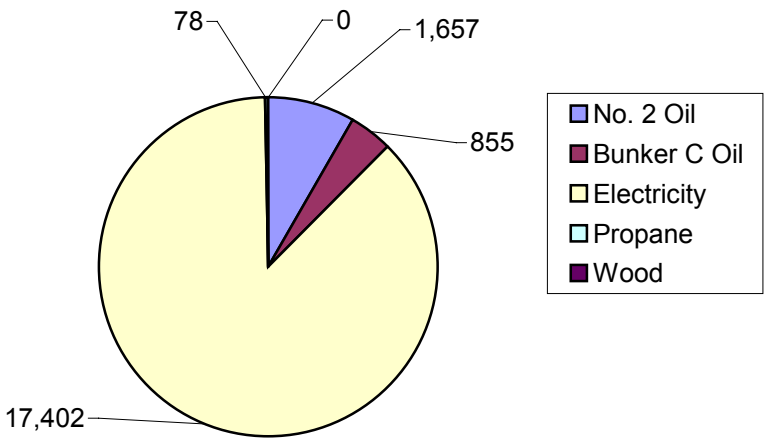


Figure 19. CO_2 e Emissions - Municipal 1990 (tonnes)

	Tonnes CO_2 e
Buildings	946
Plants	10
Lights	6
Landfill	15,800
TOTAL	**16,762**

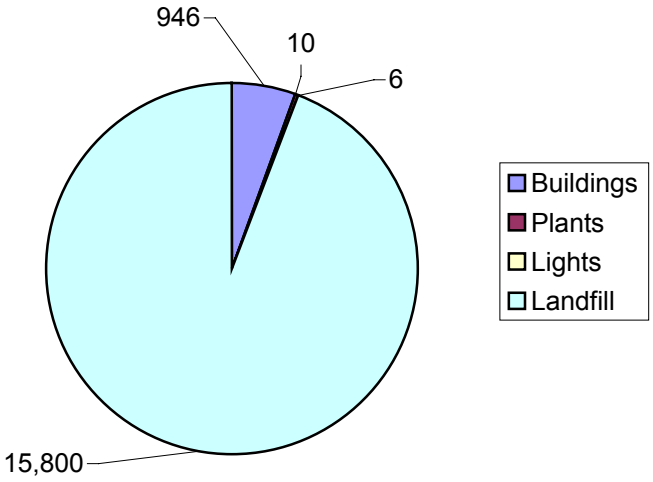


Figure 20. CO_2 e Emissions - Transportation 1990 (tonnes)

	Tonnes CO_2 e
Private Vehicles	22,517
Commercial Vehicles	3,604
Offshore Vessels	6,300
Inshore Vessels	8,709
Pleasure Craft	80
TOTAL	**41,210**

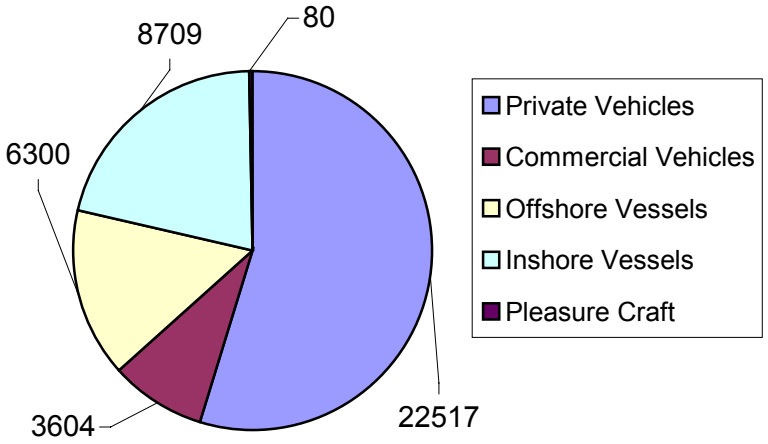


Figure 21. CO_2 e Emissions - Institutional 1990 (tonnes)

	Tonnes CO_2 e
University	2,900
Schools	2,671
Fire Halls	151
Other Facilities	325
TOTAL	**6,047**

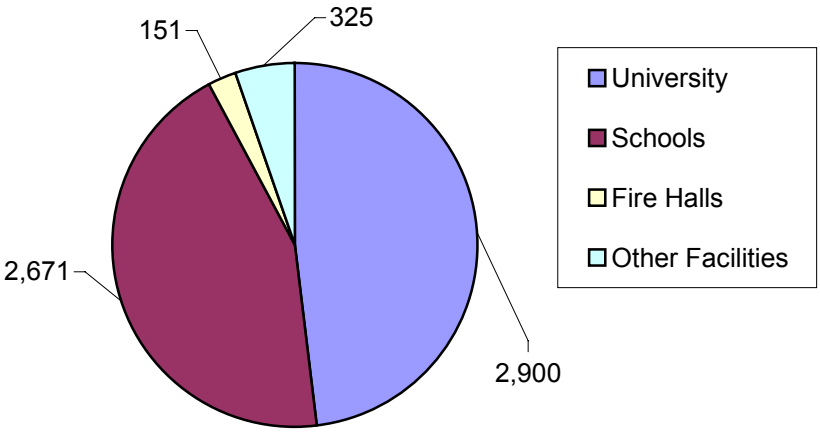
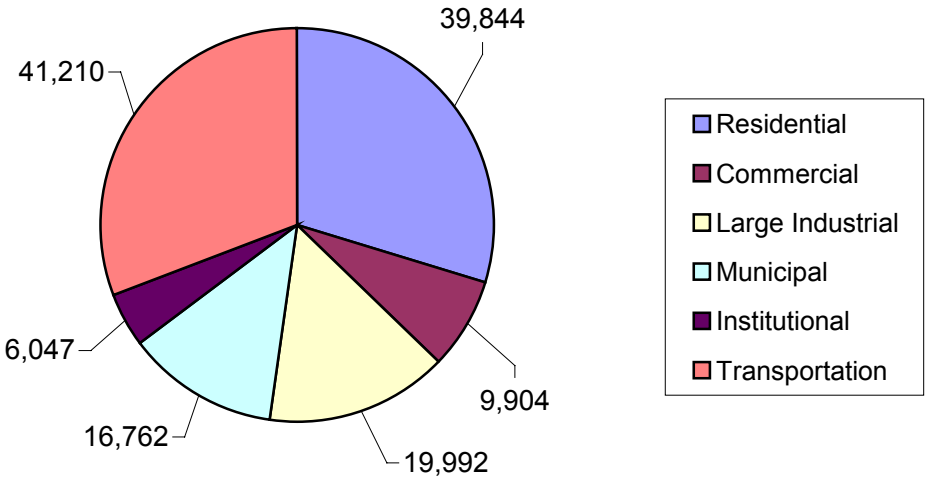


Figure 22. Overall Totals CO_2 e 1990 (tonnes)

	Tonnes CO_2 e
Residential	39,844
Commercial	9,904
Large Industrial	19,992
Municipal	16,762
Institutional	6,047
Transportation	41,210
TOTAL	**133,759**



5.0 Emissions Inventory Forecast

5.0 EMISSIONS INVENTORY FORECAST

5.1 BUSINESS AS USUAL

The annual energy consumption for the 2012 business-as-usual case illustrates where emissions in the community will be if development continues at the same level or standard of energy efficiency as presently utilized. It was determined that a reasonable projection of new housing growth over the next six years, equal to a total of 20% should be used. Correspondingly, there should be a decrease in the older or pre 1970 residential units that will be taken out of service during this period equal to a total of 9%. These respective growth and loss rates are reasonable extrapolations based on the demographic trends of the community. In a similar approach as noted above, these values were pro-rated into the various size categories of mini, small and large.

Again, it was felt that the change in energy usage during this period for the commercial and small industrial sector was essentially neutral and not as significant as on the residential side. Therefore, energy consumption values were not altered for the 2012 business-as-usual case.

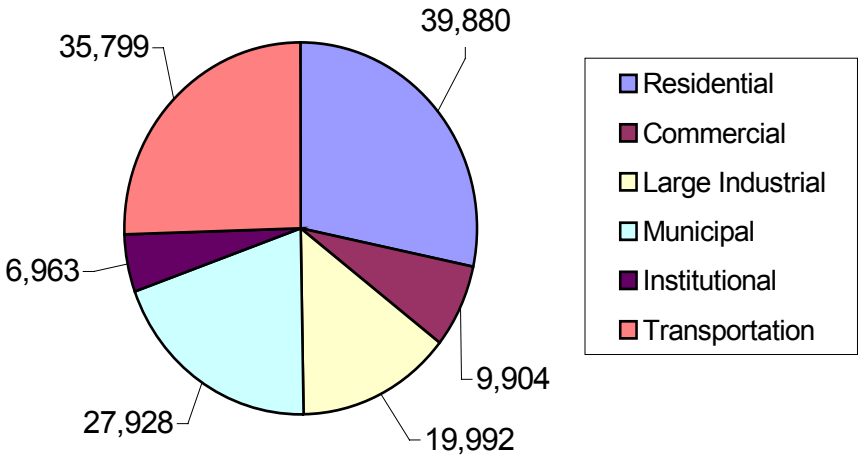
Similarly, little change is seen in the large industrial sector in this model over the next six (6) to ten (10) years. The primary industries and related service industries will be sustained although workforce reductions due to labour shortages could increase the need for more process automation.

Construction of a new medical centre with expanded facilities should cause a slight increase in municipal building energy consumption, offset by reductions in landfill emissions, resulting in lower overall emissions.

Institutional energy consumption is not expected to change under this model. Transportation numbers should also remain the same.

Figure 23. CO_2 e Emissions – Business as Usual 2012 (tonnes)

	Tonnes CO_2 e
Residential	39,880
Commercial	9,904
Large Industrial	19,992
Municipal	27,928
Institutional	6,963
Transportation	35,799
TOTAL	**140,466**



5.2 OTHER FORECASTS

For annual energy consumption in 2012, two additional variations for residential housing were developed for comparison purposes in contrast to the business-as-usual projection. These are the energy efficient models that are most optimistic and most realistic to be achieved.

The most optimistic energy efficient model for 2012 indicates what could be accomplished if recommended energy efficiency measures were vigorously implemented. It was felt that such action could result in an optimistic energy efficiency reduction of 30% applied equally to all sectors except transportation. The most optimistic model for transportation expects a 10% emission reduction. Landfill emissions are excluded from the efficiency gain calculation.

Similarly, the most realistic energy efficient model for 2012 shows what could be achieved if recommended energy efficiency measures were modestly implemented with a projected energy efficiency reduction of 10% for all sectors except transportation. A 5% reduction is expected here. Landfill emissions are excluded from the efficiency gain calculation.

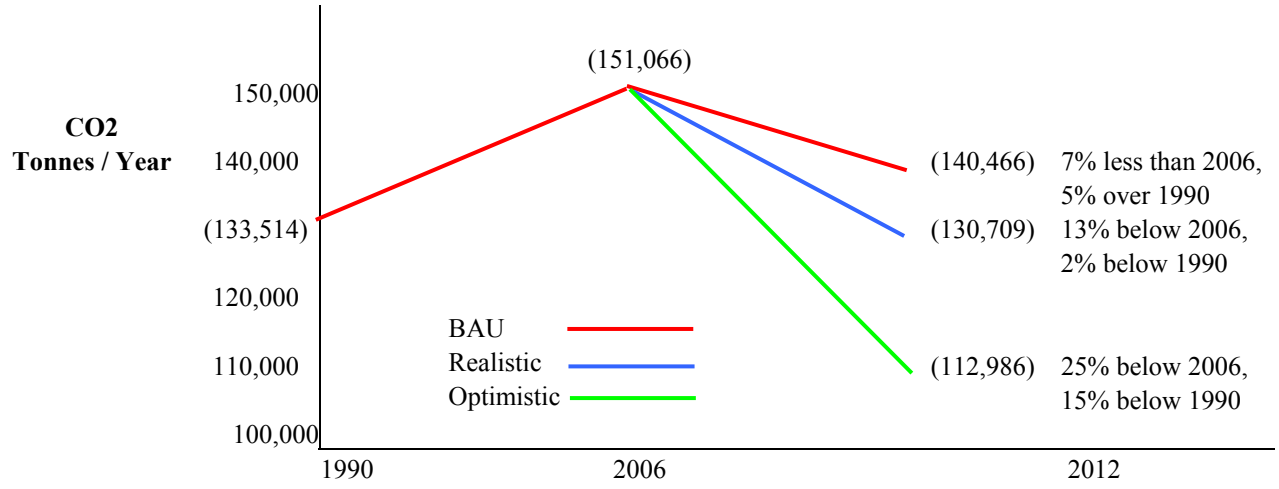
Table 7. Total CO_2 e Emissions 2012 (tonnes)

	CO_2 e Emissions
Optimistic	112,986
Realistic	130,709

6.0 Conclusion

6.0 CONCLUSION

The following graph illustrates the emissions for the Municipality of Clare from 1990 through the 2012 forecast under the three scenarios proposed.



Surprisingly, the graph shows that the peak emission year is this one and that emissions will decline even in a do nothing business as usual model. This is entirely due to the decline in methane and other landfill gas emissions form the landfill. The realistic model more than achieved the PCP objectives while the most optimistic model more than doubles the Kyoto compliance requirement of 6% below 1990.

APPENDIX A
Residential, Commercial and Small Industrial Sector Emissions Calculations

Municipality of the District of Clare

Revised: October 24, 2006

Building Representative Sampling Information Summary

Type	Construction Time Period	Quantity	Electric Heat	Oil Heat [1]	Wood Heat [2]	Heat Pump [3]	Propane Heat	Seasonal (No Heat)	Air Conditioning	Domestic Hot Water Type
Mini - Residential Single Family	Pre 1970	1		1					No	oil
		1		1					No	electric
		1		1					No	oil
		1			1				No	electric
Sub-Totals		**4**	**0**	**3**	**1**	**0**	**0**	**0**		
Mini - Residential Single Family	1970 to 1985	1			1				No	electric
		1		1					No	electric
		1	1						No	electric
Sub-Totals		**3**	**1**	**1**	**1**	**0**	**0**	**0**		
Mini - Residential Single Famil	1985 to 2006	1		1					No	electric
Sub-Totals		**1**	**0**	**1**	**0**	**0**	**0**	**0**		
Mini - Residential Totals		***8***	***1***	***5***	***2***	***0***	***0***	***0***		
Small - Residential Single Family	Pre 1970	1		1					No	oil
		1			1				No	electric
		1			1				No	wood/oil
		1			1				No	electric
		1		1					No	electric
		1			1				No	wood/oil
		1		1					No	oil
		1			1				No	wood/oil
		1		1					No	electric
		1		1					No	oil
		1			1				No	electric
		1		1					No	electric
Sub-Totals		**12**	**0**	**6**	**6**	**0**	**0**	**0**		
Small - Residential Single Family	1970 to 1985	1		1					No	electric
		1		1					No	oil
		1			1				No	electric
		1		1					No	oil
		1		1					No	oil
		1		1					No	oil/wood
		1			1				No	oil
Sub-Totals		**7**	**0**	**5**	**2**	**0**	**0**	**0**		
Small - Residential Single Family	1985 to 2006	1			1				No	electric
		1		1					No	oil
		1		1					No	oil
		1	1						No	electric
Sub-Totals		**4**	**1**	**2**	**1**	**0**	**0**	**0**		
Small - Residential Totals		***23***	***1***	***13***	***9***	***0***	***0***	***0***		
Large - Residential Single Family	Pre 1970	1		1					No	electric
		1			1				No	wood/oil
		1		1					No	oil
		1		1					No	electric
		1			1				No	wood/oil
		1		1					No	oil
		1			1				No	wood
		1			1				No	electric
		1		0.5	0.5				No	oil/wood
		1			1				No	wood/oil
		1		1					No	electric
		1		1					No	oil
		1			1				No	electric
		1			1				No	wood/oil
		1			1				No	electric
		1			1				No	electric
		1		1					No	oil
		1		1					No	oil
		1			1				No	oil
		1		0.5	0.5				No	electric
Sub-Totals		**21**	**0**	**10**	**11**	**0**	**0**	**0**		
Large - Residential Single Family	1970 to 1985	1			1				No	electric
		1		1					No	oil
		1		1					No	oil
		1			1				No	wood/oil
		1			1				No	wood/oil
		1		1					No	oil
		1			1				No	electric
		1			1				No	oil
Sub-Totals		**8**	**0**	**3**	**5**	**0**	**0**	**0**		
Large - Residential Single Family	1985 to 2006	0							No	geothermal/electric
		1		1					No	oil
		1		0.5	0.5				No	oil
Sub-Totals		***2***	***0***	***1.5***	***0.5***	***0***	***0***	***0***		
Large - Residential Totals		***31***	***0***	***14.5***	***16.5***	***0***	***0***	***0***		

Mini - Commercial										
Robert Long Real Estate	Pre 1970	1	1						No	electric
La Galerie Comeau	Pre 1970	1		1					No	electric
Wayne Gaudet Constituency Office	Pre 1970	1	1						No	electric
Sub-Totals		***3***	***2***	***1***	***0***	***0***	***0***	***0***		
Sewage Treatment Plant (Meteghan	1970 to 1985	1	1						No	electric
Sub-Totals		***1***	***1***	***0***	***0***	***0***	***0***	***0***		
Sewage Treatment Building (Belliveau Cove)	1985 to 2006	1	1						No	electric
Sub-Totals		***1***	***1***	***0***	***0***	***0***	***0***	***0***		
Small - Commercial										
Hillside Tack Shop	Pre 1970	1		1					No	electric
The Hair Spa	Pre 1970	1	1						No	electric
RBC Royal Bank (Meteghan)	Pre 1970	1		1					Yes	oil
J.H. Deveau Insurance (1964) Ltd.	Pre 1970	1	1						No	electric
Ed's Print Shop	Pre 1970	1	0.5	0.5					No	Not Applicable
Sub-Totals		***5***	***2.5***	***2.5***	***0***	***0***	***0***	***0***		
Bank of Nova Scotia	1970 to 1985	1	1						Yes	electric
SaulTech Computers	1970 to 1985	1	1						Yes	electric
Nova West Water Laboratory	1970 to 1985	1	1						No	electric
Meteghan Library	1970 to 1985	1		1					No	electric
Sub-Totals		***4***	***3***	***1***	***0***	***0***	***0***	***0***		
RBC Royal Bank (Church Point)	1985 to 2006	1	1						Yes	electric
Clare Sales Centre	1985 to 2006	1	1						No	Not Applicable
Physiotherapy Clinic (Credit Union Bldg.)	1985 to 2006	1				1			Yes	from Universite Sainte-Anne
Credit Union (Church Point)	1985 to 2006	1				1			Yes	from Universite Sainte-Anne
Caisse Populaire Saulnierville	1985 to 2006	1	1						Yes	electric
Around the Bend Restauran	1985 to 2006	1		1					Yes	electric
Sub-Totals		***6***	***3***	***1***	***0***	***2***	***0***	***0***		
Large - Commercial										
Meteghan Funeral Service Ltd.	Pre 1970	1	0.5			0.5			Yes	electric
Jubis Furnishings (Meteghan)	Pre 1970	1		1					No	electric
H. Comeau Service Station Ltd.	Pre 1970	1		1					No	electric
Medical Centre - Municipal	Pre 1970	1		1					No	electric
Saulnierville Roman Catholic Parish Hall	Pre 1970	1		1					No	oil
Sacred Heart Church (Saulnierville)	Pre 1970	1		1					No	electric
Meteghan River Fire Hal	Pre 1970	1		1					No	electric
Sub-Totals		***7***	***0.5***	***6***	***0***	***0.5***	***0***	***0***		
Caisse Populaire de Clare (Meteghan)	1970 to 1985	1		1					Yes	electric
Twin Diner Ltd. (Seashore)	1970 to 1985	1		1					Yes	propane
Meteghan Fire Hal	1970 to 1985	1		1					No	electric
Sub-Totals		***3***	***0***	***3***	***0***	***0***	***0***	***0***		
Clare Centre (Curling)	1985 to 2006	1		1					Yes	electric
Clare Golf and Country Club	1985 to 2006	1				1			Yes	electric
Municipal Office	1985 to 2006	1		1					Yes	electric
Clare Pharmasave	1985 to 2006	1				1			Yes	electric
Saulnierville Pharmacy	1985 to 2006	1	1						Yes	electric
Sub-Totals		***5***	***1***	***2***	***0***	***2***	***0***	***0***		

[1] Oil heat was composed typically of either hot water baseboard radiant (c/w domestic hot water coil) or forced warm air (c/w domestic electric hot water) systems.

[2] Wood is the primary heat source and is in combination with predominantly an oil fired system.

[3] The heat pumps were electrically operated geothermal or air source units.

Municipality of the District of Clare

Revised: October 24, 2006

Building Information Summary

Type	Construction Time Period	Quantity	Electric Heat	Oil Heat [1]	Wood Heat [2]	Heat Pump [3]	Propane Heat	Seasonal (No Heat)	Air Conditioning
Mini - Residential Single Family									
	Pre 1970	214	0	86	29	0	0	100	No
	1970 to 1985	126	15	15	15	0	0	80	No
	1985 to 2006	17	0	10	0	0	0	7	No
Sub-Totals		***357***	*15*	*111*	*44*	*0*	*0*	*187*	
Small - Residential Single Family									
	Pre 1970	1114	0	389	389	0	0	336	No
	1970 to 1985	835	0	467	187	0	0	181	No
	1985 to 2006	248	7	95	66	0	0	80	No
Sub-Totals		***2197***	*7*	*951*	*642*	*0*	*0*	*597*	
Large - Residential Single Family									
	Pre 1970	1581	0	711	783	0	0	87	No
	1970 to 1985	285	0	107	178	0	0	0	No
	1985 to 2006	131	0	98	33	0	0	0	No
Sub-Totals		***1997***	*0*	*917*	*993*	*0*	*0*	*87*	
Total Residential		**4551**	***23***	***1978***	***1679***	***0***	***0***	***871***	
Mini - Commercial									
	Pre 1970	5	3	2	0	0	0	0	Yes
	1970 to 1985	1	1	0	0	0	0	0	Yes
	1985 to2006	1	1	0	0	0	0	0	Yes
Sub-Totals		***7***	*5*	*2*	*0*	*0*	*0*	*0*	
Small - Commercial									
	Pre 1970	16	8	8	0	0	0	0	Yes
	1970 to 1985	13	10	3	0	0	0	0	Yes
	1985 to 2006	13	7	2	0	4	0	0	Yes
Sub-Totals		***42***	*24*	*13*	*0*	*4*	*0*	*0*	
Large - Commercial									
	Pre 1970	203	15	174	0	15	0	0	Yes
	1970 to 1985	38	0	38	0	0	0	0	Yes
	1985 to 2006	40	8	16	0	16	0	0	Yes
Sub-Totals		***281***	*23*	*228*	*0*	*31*	*0*	*0*	
Total Commercial		**330**	**52**	**243**	**0**	**35**	**0**	**0**	

[1] Oil heat was composed typically of either hot water baseboard radiant (c/w domestic hot water coil) or forced warm air (c/w domestic electric hot water) systems.

[2] Wood is the primary heat source and is in combination with predominantly an oil fired system.

[3] The heat pumps were electrically operated geothermal or air source units.

Municipality of the District of Clare Revised: October 24, 2006

Annual Energy Consumption - Current

Item	Electricity (kWh)	Oil (Litres)	Gasoline (Litres)	Propane (Litres)	Wood (cords)	Equivalent CO_2 (tonnes)	Equivalent kWh of Oil	Equivalent kWh of Gasoline	Equivalent kWh of Propane	Equivalent kWh of Wood	Total Equivalent kWh	Total Energy Costs
Mini - Residential												
Pre 1970	678,800	215,535		0	143	1,216	2,327,776	0	0	796,960	3,803,536	$297,665
1970 to 1985	434,022	8,127		0	123	424	87,768	0	0	686,038	1,207,828	$63,796
1985 to 2006	56,000	7,250		0	0	72	78,300	0	0	0	134,300	$12,850
Small - Residential												
Pre 1970	6,740,400	959,118		80	2,075	8,853	10,358,475	0	568	11,602,988	28,702,431	$1,840,697
1970 to 1985	5,463,200	1,398,003		0	729	8,870	15,098,431	0	0	4,075,640	24,637,271	$2,017,197
1985 to 2006	1,543,517	175,180		0	230	1,906	1,891,944	0	0	1,286,807	4,722,268	$352,540
Large - Residential												
Pre 1970	11,379,000	1,959,274		0	4,465	15,874	21,160,162	0	0	24,972,862	57,512,025	$3,543,700
1970 to 1985	2,137,500	253,347		0	937	2,669	2,736,150	0	0	5,242,501	10,116,150	$560,835
1985 to 2006	982,500	257,906		50	90	1,613	2,785,388	0	355	503,693	4,271,935	$365,208
Mini - Commercial												
Pre 1970	35,000	3,667		0	0	42	39,600	0	0	0	74,600	$7,167
1970 to 1985	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
1985 to 2006	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
						0	0	0	0	0	0	$0
Small - Commercial												
Pre 1970	248,363	27,691		0	0	305	299,059	0	0	0	547,422	$52,527
1970 to 1985	157,697	0		50	0	146	0	0	355	0	158,052	$15,815
1985 to 2006	350,972	0		9,500	0	339	0	0	67,450	0	418,422	$43,647
Large - Commercial												
Pre 1970	2,008,830	961,350		0	0	4,483	10,382,580	0	0	0	12,391,410	$1,162,233
1970 to 1985	285,000	303,050		12,000	0	1,109	3,272,940	0	85,200	0	3,643,140	$342,350
1985 to 2006	3,729,360	0		1,800	0	3,452	0	0	12,780	0	3,742,140	$374,556
Vehicles (Not Applicable)		0	0			0	0	0	0	0	0	$0
TOTAL ENERGY	36,260,161	6,529,497	0	23,480	8,791	51,401	70,518,573	0	166,708	49,167,489	156,112,931	
TOTAL COST	$3,626,016	$6,529,497	$0	$21,132	$879,137							$11,055,782

NOTE: Wood heat represents a zero net increase to Equivalent CO_2 and is in combination with predominantly an oil fired system.

ENERGY SUMMARY

Residential Buildings Sub-Totals	***29,414,939***	***5,233,740***	***0***	***130***	***8,791***	***41,497***	***56,524,394***	***0***	***923***	***49,167,489***	***135,107,744***	***9,054,488***
Commercial Buildings Sub-Totals	***6,845,222***	***1,295,757***	***0***	***23,350***	***0***	***9,904***	***13,994,179***	***0***	***165,785***	***0***	***21,005,186***	***2,001,295***
Vehicles Sub-Totals	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***
TOTAL ENERGY	***36,260,161***	***6,529,497***	***0***	***23,480***	***8,791***	***51,401***	***70,518,573***	***0***	***166,708***	***49,167,489***	***156,112,931***	
											TOTAL ENERGY COST	***$11,055,782***

DATA & ASSUMPTIONS **(Note: Shaded areas require numerical input.)**

1) ENERGY USAGE - RESIDENTIAL

Pre 1970 Residences	***Mini***		***Small***		***Large***	
Total no. of residences:	214		1114		1581	
No. of seasonal residences (non-heating electric load)	100		336		87	
Electricity:						
No. of electrically heated residences:	0		0		0	
No. of non-electrically heated residences with billing/energy usage data:	4		10		21	
No. of electrically heated residences with billing/energy usage data:		0		0		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	3,347		5,781		6,500	
2	6,227		4,833		7,612	
3	2,663		5,078		4,327	
4	4,403		10,110		7,122	
5			6,237		5,126	
6			12,129		5,052	
7			6,354		13,375	
8			10,986		2,921	
9			5,702		6,200	
10			10,365		7,700	
11					12,500	
12					7,488	
13					3,896	
14					11,854	
15					5,810	
16					8,847	
17					9,463	
18					4,028	
19					6,321	
20					8,018	
21					12,000	
Total billing/usage data (kWh):	16,640	0	77,575	0	156,160	0
Average usage (kWh per residence per year):	4,160	0	7,758	0	7,436	0
Assume electrically heated mini homes use (kWh)		15,000				
Assume electrically heated small homes use (kWh)				20,000		
Assume electrically heated large homes use (kWh)						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		10,800		12,200		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	***Small***	***Large***
No. of oil heated residences:	86	389	711
No. of oil heated residences with billing/energy usage data:	4	12	19
Annual Oil Consumption:			
1	3,640	1,500	1,820
2	1,820	910	910
3	2,660	1,347	1,298
4	910	910	1,820
5		3,125	910
6		900	3,750
7		3,077	3,125
8		1,800	900
9		1,700	3,600
10		4,000	900
11		428	4,500
12		3,600	3,600
13			500
14			1,800
15			1,200
16			1,800
17			3,800
18			3,557
19			1,250
Total billing/usage data (litres):	9,030	23,297	41,040
Average usage (litres per residence per year):	2,258	1,941	2,160

Propane:

	Mini	***Small***	***Large***
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking	0	1	0
No. of propane heated residences with billing/energy usage data	0	1	0
Annual Propane Consumption:			
1		80	
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	80	0
Average usage (litres per residence per year):	0	80	0

Wood:

	Mini	***Small***	***Large***
No. of wood heated residences:	29	389	783
No. of wood heated residences with billing/energy usage data:	1	6	17
Annual Wood Consumption:			
1	5.0	6.0	4.0
2		5.0	8.0
3		4.0	1.5
4		5.0	3.0
5		7.0	7.0
6		5.0	10.0
7			6.0
8			7.0
9			10.0
10			2.0
11			8.0
12			8.0
13			6.0
14			5.0
15			1.5
16			6.0
17			4.0
Total billing/usage data (cords):	5.0	32.0	97.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	5.0	5.3	5.7
Percentage of the heating load:	65.0%	73.0%	75.0%
Remaining percentage of heat load:	35.0%	27.0%	25.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	10.0	105.0	195.6

1970 to 1985 Residences	Mini		Small		Large	
Total no. of residences:	126		835		285	
No. of seasonal residences (non-heating electric load)	80		181		0	
Electricity:						
No. of electrically heated residences:	15		0		0	
No. of non-electrically heated residences with billing/energy usage data:	2		6		7	
No. of electrically heated residences with billing/energy usage data:		1		0		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	7,500		12,889		15,000	
2	11,702		6,772		8,554	
3		9,471	8,841		7,701	
4			4,055		13,800	
5			8,144		12,576	
6			6,141		14,667	
7					5,248	
8						
9						
10						
Total billing/usage data (kWh):	19,202	9,471	46,842	0	77,546	0
Average usage (kWh per residence per year):	9,601	9,471	7,807	0	11,078	0
Assume electrically heated small homes use (kWh)		15,000		20,000		
Assume electrically heated large homes use (kWh)						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		5,271		12,200		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	Small	Large
No. of oil heated residences:	15	467	107
No. of oil heated residences with billing/energy usage data:	2	6	7
Annual Oil Consumption:			
1	250	2,000	3,640
2	750	3,125	3,125
3		3,125	900
4		3,600	1,365
5		3,600	2,500
6		1,300	500
7			900
8			
9			
10			
Total billing/usage data (litres):	1,000	16,750	12,930
Average usage (litres per residence per year):	500	2,792	1,847

Propane:

	Mini	Small	Large
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking	0	0	0
No. of propane heated residences with billing/energy usage data:	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	0
Average usage (litres per residence per year):	0	0	0

Wood:

	Mini	Small	Large
No. of wood heated residences:	15	187	178
No. of wood heated residences with billing/energy usage data:	1	5	8
Annual Wood Consumption:			
1	8.0	2.0	8.0
2		2.0	3.0
3		8.0	0.1
4		3.0	9.0
5		4.5	8.0
6			3.0
7			7.0
8			4.0
9			
10			
Total billing/usage data (cords):	8.0	19.5	42.1
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	8.0	3.9	5.3
Percentage of the heating load:	94.0%	82.0%	83.0%
Remaining percentage of heat load:	6.0%	18.0%	17.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	0.9	33.6	30.3

1985 to 2006 Residences	Mini		Small		Large	
Total no. of residences:	17		248		131	
No. of seasonal residences (non-heating electric load)	7		80		0	
Electricity:						
No. of electrically heated residences:	0		7		0	
No. of non-electrically heated residences with billing/energy usage data:	1		3		3	
No. of electrically heated residences with billing/energy usage data:		0		1		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	8,966		10,610		19,430	
2			10,614		2,308	
3			10,332		7,509	
4				17,810		
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	8,966	0	31,556	17,810	29,247	0
Average usage (kWh per residence per year):	8,966	0	10,519	17,810	9,749	0
Assume electrically heated mini homes use (kWh)		15,000				
Assume electrically heated large homes use (kWh)				20,000		
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	25,000
Therefore, the net electric heating load (kWh/res./yr.):		10,800		10,010		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	Small	Large
No. of oil heated residences:	10	95	98
No. of oil heated residences with billing/energy usage data:	1	3	2
Annual Oil Consumption:			
1	725	228	1,800
2		1,875	2,700
3		2,700	
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	725	4,803	4,500
Average usage (litres per residence per year):	725	1,601	2,250

Propane:

	Mini	Small	Large
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking	0	0	1
No. of propane heated residences with billing/energy usage data:	0	0	1
Annual Propane Consumption:			
1			50
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	50
Average usage (litres per residence per year):	0	0	50

Wood:

	Mini	Small	Large
No. of wood heated residences:	0	66	33
No. of wood heated residences with billing/energy usage data:	0	2	2
Annual Wood Consumption:			
1		5.0	1.5
2		2.0	4.0
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	7.0	5.5
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	3.5	2.8
Percentage of the heating load:	0.0%	78.0%	50.0%

Remaining percentage of heat load:	100.0%	22.0%	50.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	0.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	0.0	14.5	16.4

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2) ENERGY USAGE - COMMERCIAL

Pre 1970 Commercial	***Mini***		***Small***		***Large***	
Total no. of commercial:	5		16		203	
Electricity:						
No. of electrically heated commercial:	3		8		15	
No. of non-electrically heated commercial with billing/energy usage data:	1		0		7	
No. of electrically heated commercial with billing/energy usage data:		1		5		1
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1		8,400		8,985		41,040
2	8,630			33,600	17,000	
3				41,507	26,500	
4				6,911	14,000	
5				25,224	21,469	
6					14,423	
7					14,400	
8						
9						
10						
Total billing/usage data (kWh):	8,630	8,400	0	116,227	107,792	41,040
Average usage (kWh per commercial per year):	8,630	8,400	0	23,245	15,399	41,040
		15,000		20,000		25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		4,200		15,445		33,540

Oil:	***Mini***	***Small***	***Large***
No. of oil heated commercial:	2	8	174
No. of oil heated commercial with billing/energy usage data:	1	3	6
Annual Oil Consumption:			
1	2,200	1,365	2,250
2		7,969	2,500
3		1,050	4,500
4			11,000
5			11,000
6			1,900
7			
8			
9			
10			
Total billing/usage data (litres):	2,200	10,384	33,150
Average usage (litres per commercial per year):	2,200	3,461	5,525

Propane:	***Mini***	***Small***	***Large***
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	0	0
No. of propane heated commercial with billing/energy usage data:	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	0
Average usage (litres per commercial per year):	0	0	0

Wood:	***Mini***	***Small***	***Large***
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

1970 to 1985 Commercial	***Mini***		***Small***		***Large***	
Total no. of commercial:	1		13		38	
Electricity:						
No. of electrically heated commercial:	1		10		0	
No. of non-electrically heated commercial with billing/energy usage data:	0		0		3	
No. of electrically heated commercial with billing/energy usage data:		0		1		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				13,574	35,400	
2					62,880	
3					22,000	
4						
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	0	0	0	13,574	120,280	0
Average usage (kWh per commercial per year):	0	0	0	13,574	40,093	0
Assume electrically heated mini commercial use (kWh)		15,000				
				20,000		
Assume electrically heated large commercial use (kWh)						25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		5,774		17,500

Oil:	***Mini***	***Small***	***Large***
No. of oil heated commercial:	0	3	38
No. of oil heated commercial with billing/energy usage data:	0	0	2
Annual Oil Consumption:			
1			2,200
2			13,750
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	15,950
Average usage (litres per commercial per year):	0	0	7,975
Assume oil heated mini commercial use (L/com./yr.)			
Assume oil heated small commercial use (L/com./yr.)			

Propane:	***Mini***	***Small***	***Large***
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	1	1
No. of propane heated commercial with billing/energy usage data:	0	1	1
Annual Propane Consumption:			
1		50	12,000
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	50	12,000
Average usage (litres per commercial per year):	0	50	12,000

Wood:	***Mini***	***Small***	***Large***
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

1985 to 2006 Commercial

	Mini		*Small*		*Large*	
Total no. of commercial:	1		13		40	
Electricity:						
No. of electrically heated commercial:	1		7		24	
No. of non-electrically heated commercial with billing/energy usage data:	0		1		2	
No. of electrically heated commercial with billing/energy usage data:		0		4		2
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				71,431	161,560	
2				27,600		129,000
3				32,760	110,400	
4				52,992		70,500
5			63,500			101,280
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	0	0	63,500	184,783	271,960	300,780
Average usage (kWh per residence per year):	0	0	63,500	46,196	135,980	150,390
Assume electrically heated mini commercial use (kWh)		15,000				
				20,000		
						25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		38,396		142,890

Oil:

	Mini	*Small*	*Large*
No. of oil heated commercial:	0	2	16
No. of oil heated commercial with billing/energy usage data:			
Annual Oil Consumption:			
1		1,500	6,223
2			7,500
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	1,500	13,723
Average usage (litres per commercial per year):	0	0	0
Assume oil heated mini commercial use (L/com./yr.)			
Assume oil heated small commercial use (L/com./yr.)			
Assume oil heated large commercial use (L/com./yr.)			

Propane:

	Mini	*Small*	*Large*
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	1	1
No. of propane heated commercial with billing/energy usage data:	0	1	1
Annual Propane Consumption:			
1		9,500	1,800
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	9,500	1,800
Average usage (litres per commercial per year):	0	9,500	1,800

Wood:

	Mini	*Small*	*Large*
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:			
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

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3) EQUIVALENCY ASSUMPTIONS

Electricity:

1 MWh =	0.925	tonnes of CO_2 based on NSPI data
1 kWh =	0.000925	tonnes of CO_2 based on NSPI data
1 kWh =	$0.10	

Oil (No. 2 Diesel):

1 litre =	2.73	kg of CO_2
1 litre =	0.00273	tonnes of CO_2
1 litre =	10.8	kWh
1 litre =	$1.00	

Gasoline:

1 litre =	2.36	kg of CO_2
1 litre =	0.00236	tonnes of CO_2
1 litre =	9.7	kWh
1 litre =	$1.00	

Propane:

1 litre =	1.5	kg of CO_2
1 litre =	0.0015	tonnes of CO_2
1 litre =	7.1	kWh
1 litre =	$0.90	

Firewood (seasoned maple):

1 cord =	5592.7	kWh
1 cord =	$100.00	
1 cord =	4 ft. X 4 ft. x 8 ft.	stacked
1 cord =	1.36	tonnes
1 tonne =	4112	kWh
1 cord =	518	litres of oil (No. 2 diesel)

Bunker 'C' Oil (No. 6 Diesel):

1 litre =	2.85	kg of CO_2
1 litre =	0.00285	tonnes of CO_2
1 litre =	11.6	kWh
1 litre =	$0.35	

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4) VEHICLES

Type	Quantity	Fuel Type	Estimated Mileage (km/year/vehicle)	Estimated Fuel Consumption Rate (L/100 km)	Estimated Fuel Consumption (L)	Diesel Summary (L)	Gasoline Summary (L)
					0		
					0		
					0		
					0		
					0		
					0		
					0		
					0		

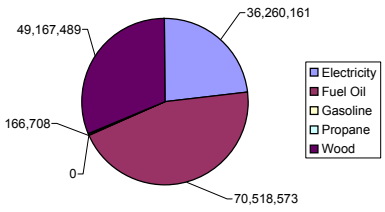
Note: Approximately _____ per year in fuel costs.
Asssume diesel represents _____ of these costs. → $0.00 → **S Diesel =** 0 → 0 L

Asssume gasoline represents 100.0% of these costs. → $0.00 → **S Gasoline =** 0 → 0 L

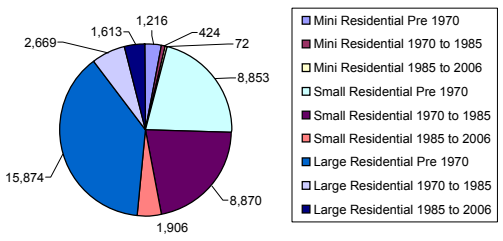
Note: Place diesel related values under those for heating oil in the above table as they are a similar fuel type.

5) CHARTS

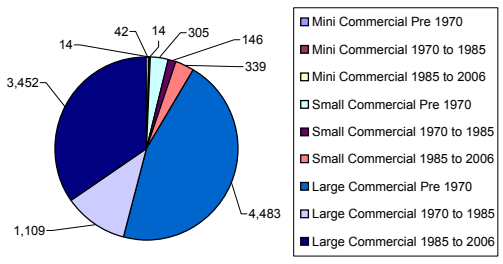
Annual Energy Consumption - Current	
	kWh
Electricity	36,260,161
Fuel Oil	70,518,573
Gasoline	0
Propane	166,708
Wood	49,167,489
TOTAL	**156,112,931**



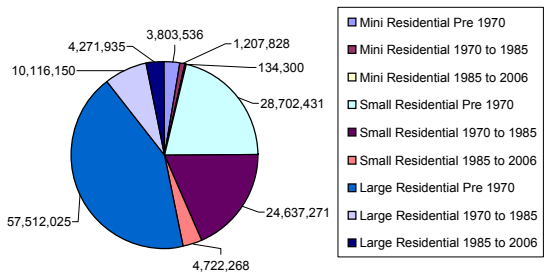
Equivalent CO_2 - Residential - Current	
	tonnes
Mini Residential Pre 1970	1,216
Mini Residential 1970 to 1985	424
Mini Residential 1985 to 2006	72
Small Residential Pre 1970	8,853
Small Residential 1970 to 1985	8,870
Small Residential 1985 to 2006	1,906
Large Residential Pre 1970	15,874
Large Residential 1970 to 1985	2,669
Large Residential 1985 to 2006	1,613
TOTAL	41,497



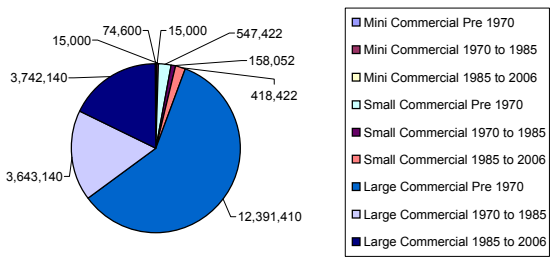
Equivalent CO_2 - Commercial - Current	
	tonnes
Mini Commercial Pre 1970	42
Mini Commercial 1970 to 1985	14
Mini Commercial 1985 to 2006	14
Small Commercial Pre 1970	305
Small Commercial 1970 to 1985	146
Small Commercial 1985 to 2006	339
Large Commercial Pre 1970	4,483
Large Commercial 1970 to 1985	1,109
Large Commercial 1985 to 2006	3,452
TOTAL	9,904



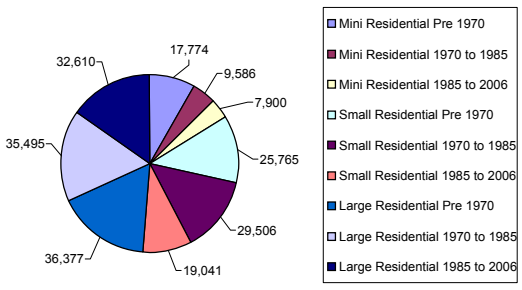
Annual Energy Consumption - Residential - Current	
	kWh
Mini Residential Pre 1970	3,803,536
Mini Residential 1970 to 1985	1,207,828
Mini Residential 1985 to 2006	134,300
Small Residential Pre 1970	28,702,431
Small Residential 1970 to 1985	24,637,271
Small Residential 1985 to 2006	4,722,268
Large Residential Pre 1970	57,512,025
Large Residential 1970 to 1985	10,116,150
Large Residential 1985 to 2006	4,271,935
TOTAL	135,107,744



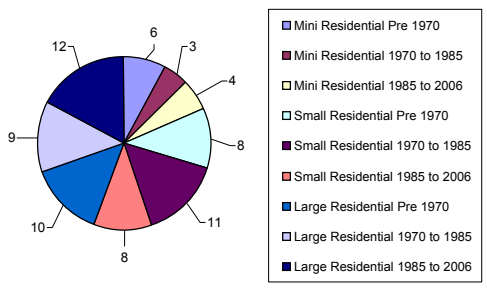
Annual Energy Consumption - Commercial - Current	
	kWh
Mini Commercial Pre 1970	74,600
Mini Commercial 1970 to 1985	15,000
Mini Commercial 1985 to 2006	15,000
Small Commercial Pre 1970	547,422
Small Commercial 1970 to 1985	158,052
Small Commercial 1985 to 2006	418,422
Large Commercial Pre 1970	12,391,410
Large Commercial 1970 to 1985	3,643,140
Large Commercial 1985 to 2006	3,742,140
TOTAL	21,005,186



Annual Energy Consumption Per Dwelling Type - Residential - Current			
	Total kWh	**Total No. of Units**	**kWh per Dwelling Type**
Mini Residential Pre 1970	3,803,536	214	17,774
Mini Residential 1970 to 1985	1,207,828	126	9,586
Mini Residential 1985 to 2006	134,300	17	7,900
Small Residential Pre 1970	28,702,431	1114	25,765
Small Residential 1970 to 1985	24,637,271	835	29,506
Small Residential 1985 to 2006	4,722,268	248	19,041
Large Residential Pre 1970	57,512,025	1581	36,377
Large Residential 1970 to 1985	10,116,150	285	35,495
Large Residential 1985 to 2006	4,271,935	131	32,610
TOTAL	135,107,744	4,551	214,054



Equivalent CO_2 Per Dwelling Type - Residential - Current			
	Total CO_2 (tonnes)	**Total No. of Units**	**CO_2 per Dwelling Type (tonnes)**
Mini Residential Pre 1970	1,216	214	6
Mini Residential 1970 to 1985	424	126	3
Mini Residential 1985 to 2006	72	17	4
Small Residential Pre 1970	8,853	1114	8
Small Residential 1970 to 1985	8,870	835	11
Small Residential 1985 to 2006	1,906	248	8
Large Residential Pre 1970	15,874	1581	10
Large Residential 1970 to 1985	2,669	285	9
Large Residential 1985 to 2006	1,613	131	12
TOTAL	41,497	4,551	



Municipality of the District of Clare Revised: October 24, 2006

Annual Energy Consumption - Current Energy Efficient Model

Item	Electricity (kWh)	Oil (Litres)	Gasoline (Litres)	Propane (Litres)	Wood (cords)	Equivalent CO_2 (tonnes)	Equivalent kWh of Oil	Equivalent kWh of Gasoline	Equivalent kWh of Propane	Equivalent kWh of Wood	Total Equivalent kWh	Total Energy Costs
Mini - Residential												
Pre 1970	543,040	172,428		0	143	973	1,862,221	0	0	796,960	3,202,221	$240,982
1970 to 1985	434,022	8,127		0	123	424	87,768	0	0	686,038	1,207,828	$63,796
1985 to 2006	56,000	7,250		0	0	72	78,300	0	0	0	134,300	$12,850
Small - Residential												
Pre 1970	6,740,400	959,118		80	2,075	8,853	10,358,475	0	568	11,602,988	28,702,431	$1,840,697
1970 to 1985	5,463,200	1,398,003		0	729	8,870	15,098,431	0	0	4,075,640	24,637,271	$2,017,197
1985 to 2006	1,543,517	175,180		0	230	1,906	1,891,944	0	0	1,286,807	4,722,268	$352,540
Large - Residential												
Pre 1970	11,379,000	1,959,274		0	4,465	15,874	21,160,162	0	0	24,972,862	57,512,025	$3,543,700
1970 to 1985	2,137,500	253,347		0	937	2,669	2,736,150	0	0	5,242,501	10,116,150	$560,835
1985 to 2006	982,500	257,906		50	90	1,613	2,785,388	0	355	503,693	4,271,935	$365,208
Mini - Commercial												
Pre 1970	35,000	3,667		0	0	42	39,600	0	0	0	74,600	$7,167
1970 to 1985	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
1985 to 2006	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
						0	0	0	0	0	0	$0
Small - Commercial												
Pre 1970	248,363	27,691		0	0	305	299,059	0	0	0	547,422	$52,527
1970 to 1985	157,697	0		50	0	146	0	0	355	0	158,052	$15,815
1985 to 2006	350,972	0		9,500	0	339	0	0	67,450	0	418,422	$43,647
Large - Commercial												
Pre 1970	2,008,830	961,350		0	0	4,483	10,382,580	0	0	0	12,391,410	$1,162,233
1970 to 1985	285,000	303,050		12,000	0	1,109	3,272,940	0	85,200	0	3,643,140	$342,350
1985 to 2006	3,729,360	0		1,800	0	3,452	0	0	12,780	0	3,742,140	$374,556
Vehicles (Not Applicable)		0	0			0	0	0	0	0	0	$0
TOTAL ENERGY	36,124,401	6,486,391	0	23,480	8,791	51,158	70,053,018	0	166,708	49,167,489	155,511,616	
TOTAL COST	$3,612,440	$6,486,391	$0	$21,132	$879,137							$10,999,099

NOTE: Wood heat represents a zero net increase to Equivalent CO_2 and is in combination with predominantly an oil fired system.

ENERGY SUMMARY

Residential Buildings Sub-Totals	***29,279,179***	***5,190,633***	***0***	***130***	***8,791***	***41,254***	***56,058,839***	***0***	***923***	***49,167,489***	***134,506,429***	***8,997,805***
Commercial Buildings Sub-Totals	***6,845,222***	***1,295,757***	***0***	***23,350***	***0***	***9,904***	***13,994,179***	***0***	***165,785***	***0***	***21,005,186***	***2,001,295***
Vehicles Sub-Totals	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***
TOTAL ENERGY	***36,124,401***	***6,486,391***	***0***	***23,480***	***8,791***	***51,158***	***70,053,018***	***0***	***166,708***	***49,167,489***	***155,511,616***	
											TOTAL ENERGY COST	***$10,999,099***

DATA & ASSUMPTIONS **(Note: Shaded areas require numerical input.)**

1) ENERGY USAGE - RESIDENTIAL

Pre 1970 Residences	***Mini***		***Small***		***Large***	
Total no. of residences:	214		1114		1581	
No. of seasonal residences (non-heating electric load)	100		336		87	
Energy Efficiency Reduction Value =	20.0%					
Electricity:						
No. of electrically heated residences:	0		0		0	
No. of non-electrically heated residences with billing/energy usage data:	4		10		21	
No. of electrically heated residences with billing/energy usage data:		0		0		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	3,347		5,781		6,500	
2	6,227		4,833		7,612	
3	2,663		5,078		4,327	
4	4,403		10,110		7,122	
5			6,237		5,126	
6			12,129		5,052	
7			6,354		13,375	
8			10,986		2,921	
9			5,702		6,200	
10			10,365		7,700	
11					12,500	
12					7,488	
13					3,896	
14					11,854	
15					5,810	
16					8,847	
17					9,463	
18					4,028	
19					6,321	
20					8,018	
21					12,000	
Total billing/usage data (kWh):	16,640	0	77,575	0	156,160	0
Average usage (kWh per residence per year):	4,160	0	7,758	0	7,436	0
Assume electrically heated mini homes use (kWh)		15,000				
Assume electrically heated small homes use (kWh)				20,000		
Assume electrically heated large homes use (kWh)						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		10,800		12,200		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	***Small***	***Large***
No. of oil heated residences:	86	389	711
No. of oil heated residences with billing/energy usage data:	4	12	19
Annual Oil Consumption:			
1	3,640	1,500	1,820
2	1,820	910	910
3	2,660	1,347	1,298
4	910	910	1,820
5		3,125	910
6		900	3,750
7		3,077	3,125
8		1,800	900
9		1,700	3,600
10		4,000	900
11		428	4,500
12		3,600	3,600
13			500
14			1,800
15			1,200
16			1,800
17			3,800
18			3,557
19			1,250
Total billing/usage data (litres):	9,030	23,297	41,040
Average usage (litres per residence per year):	2,258	1,941	2,160

Propane:

	Mini	***Small***	***Large***
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking	0	1	0
No. of propane heated residences with billing/energy usage data:	0	1	0
Annual Propane Consumption:			
1		80	
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	80	0
Average usage (litres per residence per year):	0	80	0

Wood:

	Mini	***Small***	***Large***
No. of wood heated residences:	29	389	783
No. of wood heated residences with billing/energy usage data:	1	6	17
Annual Wood Consumption:			
1	5.0	6.0	4.0
2		5.0	8.0
3		4.0	1.5
4		5.0	3.0
5		7.0	7.0
6		5.0	10.0
7			6.0
8			7.0
9			10.0
10			2.0
11			8.0
12			8.0
13			6.0
14			5.0
15			1.5
16			6.0
17			4.0
Total billing/usage data (cords):	5.0	32.0	97.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	5.0	5.3	5.7
Percentage of the heating load:	65.0%	73.0%	75.0%
Remaining percentage of heat load:	35.0%	27.0%	25.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	10.0	105.0	195.6

1970 to 1985 Residences

	Mini		Small		Large	
Total no. of residences:	126		835		285	
No. of seasonal residences (non-heating electric load)	80		181		0	
Energy Efficiency Reduction Value =						
Electricity:						
No. of electrically heated residences:	15		0		0	
No. of non-electrically heated residences with billing/energy usage data:	2		6		7	
No. of electrically heated residences with billing/energy usage data:		1		0		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	7,500		12,889		15,000	
2	11,702		6,772		8,554	
3		9,471	8,841		7,701	
4			4,055		13,800	
5			8,144		12,576	
6			6,141		14,667	
7					5,248	
8						
9						
10						
Total billing/usage data (kWh):	19,202	9,471	46,842	0	77,546	0
Average usage (kWh per residence per year):	9,601	9,471	7,807	0	11,078	0
Assume electrically heated mini homes use (kWh)		15,000				
Assume electrically heated small homes use (kWh)				20,000		
Assume electrically heated large homes use (kWh)						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		5,271		12,200		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	Small	Large
No. of oil heated residences:	15	467	107
No. of oil heated residences with billing/energy usage data:	2	6	7
Annual Oil Consumption:			
1	250	2,000	3,640
2	750	3,125	3,125
3		3,125	900
4		3,600	1,365
5		3,600	2,500
6		1,300	500
7			900
8			
9			
10			
Total billing/usage data (litres):	1,000	16,750	12,930
Average usage (litres per residence per year):	500	2,792	1,847

Propane:

	Mini	Small	Large
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking	0	0	0
No. of propane heated residences with billing/energy usage data:	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	0
Average usage (litres per residence per year):	0	0	0

Wood:

	Mini	Small	Large
No. of wood heated residences:	15	187	178
No. of wood heated residences with billing/energy usage data:	1	5	8
Annual Wood Consumption:			
1	8.0	2.0	8.0
2		2.0	3.0
3		8.0	0.1
4		3.0	9.0
5		4.5	8.0
6			3.0
7			7.0
8			4.0
9			
10			
Total billing/usage data (cords):	8.0	19.5	42.1
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted)	8.0	3.9	5.3
Percentage of the heating load:	94.0%	82.0%	83.0%
Remaining percentage of heat load:	6.0%	18.0%	17.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	0.9	33.6	30.3

1985 to 2006 Residences

	Mini		Small		Large	
Total no. of residences:	17		248		131	
No. of seasonal residences (non-heating electric load)	7		80		0	
Energy Efficiency Reduction Value =						
Electricity:						
No. of electrically heated residences:	0		7		0	
No. of non-electrically heated residences with billing/energy usage data:	1		3		3	
No. of electrically heated residences with billing/energy usage data:		0		1		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	8,966		10,610		19,430	
2			10,614		2,308	
3			10,332		7,509	
4				17,810		
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	8,966	0	31,556	17,810	29,247	0
Average usage (kWh per residence per year):	8,966	0	10,519	17,810	9,749	0
Assume electrically heated mini homes use (kWh)		15,000				
Assume electrically heated small homes use (kWh)				20,000		
Assume electrically heated large homes use (kWh)						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		10,800		10,010		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	Small	Large
No. of oil heated residences:	10	95	98
No. of oil heated residences with billing/energy usage data:	1	3	2
Annual Oil Consumption:			
1	725	228	1,800
2		1,875	2,700
3		2,700	
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	725	4,803	4,500
Average usage (litres per residence per year):	725	1,601	2,250

Propane:

	Mini	Small	Large
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking	0	0	1
No. of propane heated residences with billing/energy usage data:	0	0	1
Annual Propane Consumption:			
1			50
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	50
Average usage (litres per residence per year):	0	0	50

Wood:

	Mini	Small	Large
No. of wood heated residences:	0	66	33
No. of wood heated residences with billing/energy usage data:	0	2	2
Annual Wood Consumption:			
1		5.0	1.5
2		2.0	4.0
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	7.0	5.5

Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	3.5	2.8
Percentage of the heating load:	0.0%	78.0%	50.0%
Remaining percentage of heat load:	100.0%	22.0%	50.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalen electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	0.0%	100.0%	100.0%
Remaining heat load distributed as equivalent o heated residences:	0.0	14.5	16.4

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2) ENERGY USAGE - COMMERCIAL

Pre 1970 Commercial	***Mini***		***Small***		***Large***	
Total no. of commercial:	5		16		203	
Energy Efficiency Reduction Value =						
Electricity:						
No. of electrically heated commercial:	3		8		15	
No. of non-electrically heated commercial with billing/energy usage data:	1		0		7	
No. of electrically heated commercial with billing/energy usage data:		1		5		1
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1		8,400		8,985		41,040
2	8,630			33,600	17,000	
3				41,507	26,500	
4				6,911	14,000	
5				25,224	21,469	
6					14,423	
7					14,400	
8						
9						
10						
Total billing/usage data (kWh):	8,630	8,400	0	116,227	107,792	41,040
Average usage (kWh per commercial per year):	8,630	8,400	0	23,245	15,399	41,040
		15,000				
				20,000		
						25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		4,200		15,445		33,540

Oil:

	Mini	***Small***	***Large***
No. of oil heated commercial:	2	8	174
No. of oil heated commercial with billing/energy usage data:	1	3	6
Annual Oil Consumption:			
1	2,200	1,365	2,250
2		7,969	2,500
3		1,050	4,500
4			11,000
5			11,000
6			1,900
7			
8			
9			
10			
Total billing/usage data (litres):	2,200	10,384	33,150
Average usage (litres per commercial per year):	2,200	3,461	5,525

Propane:

	Mini	***Small***	***Large***
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	0	0
No. of propane heated commercial with billing/energy usage data:	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	0
Average usage (litres per commercial per year):	0	0	0

Wood:

	Mini	***Small***	***Large***
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalen electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent o heated commercial:	0.0	0.0	0.0

1970 to 1985 Commercial	***Mini***		***Small***		***Large***	
Total no. of commercial:	1		13		38	
Energy Efficiency Reduction Value =						
Electricity:						
No. of electrically heated commercial:	1		10		0	
No. of non-electrically heated commercial with billing/energy usage data:	0		0		3	
No. of electrically heated commercial with billing/energy usage data:		0		1		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				13,574	35,400	
2					62,880	
3					22,000	
4						
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	0	0	0	13,574	120,280	0
Average usage (kWh per commercial per year):	0	0	0	13,574	40,093	0
Assume electrically heated mini commercial use (kWh)		15,000				
				20,000		
Assume electrically heated large commercial use (kWh)						25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		5,774		17,500

Oil:

	Mini	***Small***	***Large***
No. of oil heated commercial:	0	3	38
No. of oil heated commercial with billing/energy usage data:	0	0	2
Annual Oil Consumption:			
1			2,200
2			13,750
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	15,950
Average usage (litres per commercial per year):	0	0	7,975
Assume oil heated mini commercial use (L/com./yr.)			
Assume oil heated small commercial use (L/com./yr.)			

Propane:

	Mini	***Small***	***Large***
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	1	1
No. of propane heated commercial with billing/energy usage data:	0	1	1
Annual Propane Consumption:			
1		50	12,000
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	50	12,000
Average usage (litres per commercial per year):	0	50	12,000

Wood:

	Mini	***Small***	***Large***
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			

6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

1985 to 2006 Commercial	***Mini***		***Small***		***Large***	
Total no. of commercial:	1		13		40	
Energy Efficiency Reduction Value =						
Electricity:						
No. of electrically heated commercial:	1		7		24	
No. of non-electrically heated commercial with billing/energy usage data:	0		1		2	
No. of electrically heated commercial with billing/energy usage data:		0		4		2
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				71,431	161,560	
2				27,600		129,000
3				32,760	110,400	
4				52,992		70,500
5			63,500			101,280
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	0	0	63,500	184,783	271,960	300,780
Average usage (kWh per residence per year):	0	0	63,500	46,196	135,980	150,390
Assume electrically heated mini commercial use (kWh)		15,000				
				20,000		
						25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		38,396		142,890

Oil:

	Mini	***Small***	***Large***
No. of oil heated commercial:	0	2	16
No. of oil heated commercial with billing/energy usage data:			
Annual Oil Consumption:			
1		1,500	6,223
2			7,500
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	1,500	13,723
Average usage (litres per commercial per year):	0	0	0
Assume oil heated mini commercial use (L/com./yr.)			
Assume oil heated small commercial use (L/com./yr.)			
Assume oil heated large commercial use (L/com./yr.)			

Propane:

	Mini	***Small***	***Large***
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	1	1
No. of propane heated commercial with billing/energy usage data:	0	1	1
Annual Propane Consumption:			
1		9,500	1,800
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	9,500	1,800
Average usage (litres per commercial per year):	0	9,500	1,800

Wood:

	Mini	***Small***	***Large***
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:			
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

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3) EQUIVALENCY ASSUMPTIONS

Electricity:

1 MWh =	0.925	tonnes of CO_2 based on NSPI data
1 kWh =	0.000925	tonnes of CO_2 based on NSPI data
1 kWh =	$0.10	

Oil (No. 2 Diesel):

1 litre =	2.73	kg of CO_2
1 litre =	0.00273	tonnes of CO_2
1 litre =	10.8	kWh
1 litre =	$1.00	

Gasoline:

1 litre =	2.36	kg of CO_2
1 litre =	0.00236	tonnes of CO_2
1 litre =	9.7	kWh
1 litre =	$1.00	

Propane:

1 litre =	1.5	kg of CO_2
1 litre =	0.0015	tonnes of CO_2
1 litre =	7.1	kWh
1 litre =	$0.90	

Firewood (seasoned maple):

1 cord =	5592.7	kWh
1 cord =	$100.00	
1 cord =	4 ft. X 4 ft. x 8 ft. stacked	
1 cord =	1.36	tonnes
1 tonne =	4112	kWh
1 cord =	518	litres of oil (No. 2 diesel)

Bunker 'C' Oil (No. 6 Diesel):

1 litre =	2.85	kg of CO_2
1 litre =	0.00285	tonnes of CO_2
1 litre =	11.6	kWh
1 litre =	$0.35	

---

4) VEHICLES → **Energy Efficiency Reduction Value =**

Type	Quantity	Fuel Type	Estimated Mileage (km/year/vehicle)	Estimated Fuel Consumption Rate (L/100 km)	Estimated Fuel Consumption (L)	Diesel Summary (L)	Gasoline Summary (L)
					0		
					0		
					0		
					0		
					0		
					0		
					0		
					0		
					0		

Note: Approximately _____ per year in fuel costs.
Asssume diesel represents _____ of these costs. → $0.00

S Diesel = 0
→ 0 L

					S Gasoline =		0
Asssume gasoline represents	100.0%	of these costs.	→	$0.00	→	0	L

Note: Place diesel related values under those for heating oil in the above table as they are a similar fuel type.

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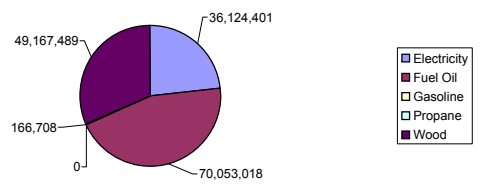
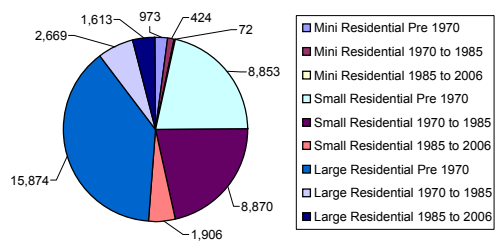
5) CHARTS

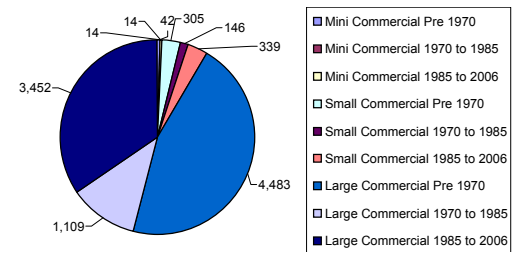
Annual Energy Consumption - Current EEM	
	kWh
Electricity	36,124,401
Fuel Oil	70,053,018
Gasoline	0
Propane	166,708
Wood	49,167,489
TOTAL	**155,511,616**



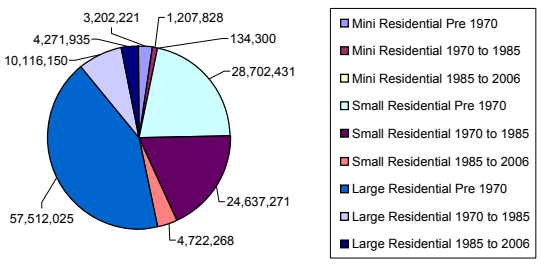
Equivalent CO_2 - Residential - Current EEM	
	tonnes
Mini Residential Pre 1970	973
Mini Residential 1970 to 1985	424
Mini Residential 1985 to 2006	72
Small Residential Pre 1970	8,853
Small Residential 1970 to 1985	8,870
Small Residential 1985 to 2006	1,906
Large Residential Pre 1970	15,874
Large Residential 1970 to 1985	2,669
Large Residential 1985 to 2006	1,613
TOTAL	41,254



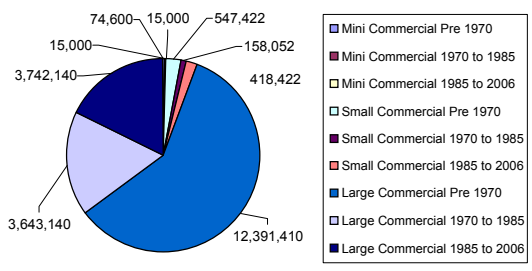
Equivalent CO_2 - Commercial - Current EEM	
	tonnes
Mini Commercial Pre 1970	42
Mini Commercial 1970 to 1985	14
Mini Commercial 1985 to 2006	14
Small Commercial Pre 1970	305
Small Commercial 1970 to 1985	146
Small Commercial 1985 to 2006	339
Large Commercial Pre 1970	4,483
Large Commercial 1970 to 1985	1,109
Large Commercial 1985 to 2006	3,452
TOTAL	9,904



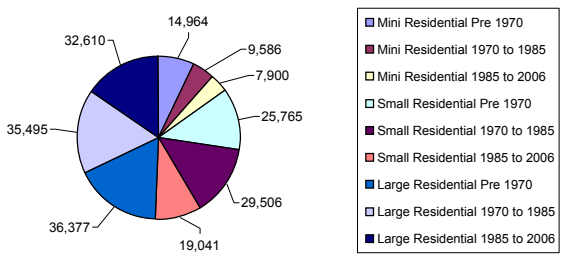
Annual Energy Consumption - Residential - Current EEM	
	kWh
Mini Residential Pre 1970	3,202,221
Mini Residential 1970 to 1985	1,207,828
Mini Residential 1985 to 2006	134,300
Small Residential Pre 1970	28,702,431
Small Residential 1970 to 1985	24,637,271
Small Residential 1985 to 2006	4,722,268
Large Residential Pre 1970	57,512,025
Large Residential 1970 to 1985	10,116,150
Large Residential 1985 to 2006	4,271,935
TOTAL	134,506,429



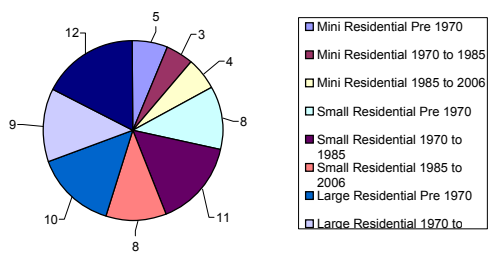
Annual Energy Consumption - Commercial - Current EEM	
	kWh
Mini Commercial Pre 1970	74,600
Mini Commercial 1970 to 1985	15,000
Mini Commercial 1985 to 2006	15,000
Small Commercial Pre 1970	547,422
Small Commercial 1970 to 1985	158,052
Small Commercial 1985 to 2006	418,422
Large Commercial Pre 1970	12,391,410
Large Commercial 1970 to 1985	3,643,140
Large Commercial 1985 to 2006	3,742,140
TOTAL	21,005,186



Annual Energy Consumption Per Dwelling Type - Residential - Current EEM			
	Total kWh	**Total No. of Units**	**kWh per Dwelling Type**
Mini Residential Pre 1970	3,202,221	214	14,964
Mini Residential 1970 to 1985	1,207,828	126	9,586
Mini Residential 1985 to 2006	134,300	17	7,900
Small Residential Pre 1970	28,702,431	1114	25,765
Small Residential 1970 to 1985	24,637,271	835	29,506
Small Residential 1985 to 2006	4,722,268	248	19,041
Large Residential Pre 1970	57,512,025	1581	36,377
Large Residential 1970 to 1985	10,116,150	285	35,495
Large Residential 1985 to 2006	4,271,935	131	32,610
TOTAL	134,506,429	4,551	211,244



Equivalent CO_2 Per Dwelling Type - Residential - Current EEM			
	Total CO_2 (tonnes)	**Total No. of Units**	**CO_2 per Dwelling Type (tonnes)**
Mini Residential Pre 1970	973	214	5
Mini Residential 1970 to 1985	424	126	3
Mini Residential 1985 to 2006	72	17	4
Small Residential Pre 1970	8,853	1114	8
Small Residential 1970 to 1985	8,870	835	11
Small Residential 1985 to 2006	1,906	248	8
Large Residential Pre 1970	15,874	1581	10
Large Residential 1970 to 1985	2,669	285	9
Large Residential 1985 to 2006	1,613	131	12
TOTAL	41,254	4,551	



Municipality of the District of Clare Revised: October 24, 2006

Annual Energy Consumption - 1990

Item	Electricity (kWh)	Oil (Litres)	Gasoline (Litres)	Propane (Litres)	Wood (cords)	Equivalent CO_2 (tonnes)	Equivalent kWh of Oil	Equivalent kWh of Gasoline	Equivalent kWh of Propane	Equivalent kWh of Wood	Total Equivalent kWh	Total Energy Costs
Mini - Residential												
Pre 1970	711,468	225,908		0	149	1,275	2,439,804	0	0	835,315	3,986,587	$311,990
1970 to 1985	434,022	8,127		0	123	424	87,768	0	0	686,038	1,207,828	$63,796
1985 to 1990	10,747	1,391		0	0	14	15,027	0	0	0	25,775	$2,466
Small - Residential												
Pre 1970	7,064,792	1,005,277		80	2,175	9,279	10,856,992	0	568	12,161,400	30,083,752	$1,929,280
1970 to 1985	5,463,200	1,398,003		0	729	8,870	15,098,431	0	0	4,075,640	24,637,271	$2,017,197
1985 to 1990	296,230	33,620		0	44	366	363,100	0	0	246,963	906,294	$67,659
Large - Residential												
Pre 1970	11,926,631	2,053,567		0	4,680	16,638	22,178,527	0	0	26,174,719	60,279,877	$3,714,246
1970 to 1985	2,137,500	253,347		0	937	2,669	2,736,150	0	0	5,242,501	10,116,150	$560,835
1985 to 1990	188,561	49,497		50	17	310	534,569	0	355	96,668	820,153	$70,127
Mini - Commercial												
Pre 1970	35,000	3,667		0	0	42	39,600	0	0	0	74,600	$7,167
1970 to 1985	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
1985 to 1990	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
						0	0	0	0	0	0	$0
Small - Commercial												
Pre 1970	248,363	27,691		0	0	305	299,059	0	0	0	547,422	$52,527
1970 to 1985	157,697	0		50	0	146	0	0	355	0	158,052	$15,815
1985 to 1990	350,972	0		9,500	0	339	0	0	67,450	0	418,422	$43,647
Large - Commercial												
Pre 1970	2,008,830	961,350		0	0	4,483	10,382,580	0	0	0	12,391,410	$1,162,233
1970 to 1985	285,000	303,050		12,000	0	1,109	3,272,940	0	85,200	0	3,643,140	$342,350
1985 to 1990	3,729,360	0		1,800	0	3,452	0	0	12,780	0	3,742,140	$374,556
Vehicles (Not Applicable)		0	0			0	0	0	0	0	0	$0
TOTAL ENERGY	35,078,374	6,324,495	0	23,480	8,854	49,749	68,304,548	0	166,708	49,519,243	153,068,873	
TOTAL COST	$3,507,837	$6,324,495	$0	$21,132	$885,426							$10,738,891

$10,738,891

NOTE: Wood heat represents a zero net increase to Equivalent CO_2 and is in combination with predominantly an oil fired system.

ENERGY SUMMARY

Residential Buildings Sub-Totals	***28,233,152***	***5,028,738***	***0***	***130***	***8,854***	***39,844***	***54,310,369***	***0***	***923***	***49,519,243***	***132,063,687***	***8,737,596***
Commercial Buildings Sub-Totals	***6,845,222***	***1,295,757***	***0***	***23,350***	***0***	***9,904***	***13,994,179***	***0***	***165,785***	***0***	***21,005,186***	***2,001,295***
Vehicles Sub-Totals	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***
TOTAL ENERGY	***35,078,374***	***6,324,495***	***0***	***23,480***	***8,854***	***49,749***	***68,304,548***	***0***	***166,708***	***49,519,243***	***153,068,873***	
											TOTAL ENERGY COST	***$10,738,891***

DATA & ASSUMPTIONS **(Note: Shaded areas require numerical input.)**

1) ENERGY USAGE - RESIDENTIAL

Rate of new residences added per year: 20
No. of years: 16
No. of new residences from 1990 to 2006: 320
The actual housing count is 180 more units in service as of 2006 compared to 1990.
Thus, assume there were 140 pre 1970 residential homes in service in 1990 but not now in 2006.

Therefore, for 1990 values add 140 residential units pro-rated over the three size categories to the Current Pre 1970 Residences.
Therefore, for 1990 values subtract 320 residential units pro-rated over the three size categories from the Current Post 1985 Residences.

Pre 1970 Residences	***Mini***		***Small***		***Large***	
Total no. of residences:	224		1168		1657	
No. of seasonal residences (non-heating electric load):	105		352		91	
Electricity:						
No. of electrically heated residences:	0		0		0	
No. of non-electrically heated residences with billing/energy usage data:	4		10		21	
No. of electrically heated residences with billing/energy usage data:		0		0		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	3,347		5,781		6,500	
2	6,227		4,833		7,612	
3	2,663		5,078		4,327	
4	4,403		10,110		7,122	
5			6,237		5,126	
6			12,129		5,052	
7			6,354		13,375	
8			10,986		2,921	
9			5,702		6,200	
10			10,365		7,700	
11					12,500	
12					7,488	
13					3,896	
14					11,854	
15					5,810	
16					8,847	
17					9,463	
18					4,028	
19					6,321	
20					8,018	
21					12,000	
Total billing/usage data (kWh):	16,640	0	77,575	0	156,160	0
Average usage (kWh per residence per year):	4,160	0	7,758	0	7,436	0
Assume electrically heated mini homes use (kWh):		15,000				
Assume electrically heated small homes use (kWh):				20,000		
Assume electrically heated large homes use (kWh):						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		10,800		12,200		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	***Small***	***Large***
No. of oil heated residences:	90	408	746
No. of oil heated residences with billing/energy usage data:	4	12	19
Annual Oil Consumption:			
1	3,640	1,500	1,820
2	1,820	910	910
3	2,660	1,347	1,298
4	910	910	1,820
5		3,125	910
6		900	3,750
7		3,077	3,125
8		1,800	900
9		1,700	3,600
10		4,000	900
11		428	4,500
12		3,600	3,600
13			500
14			1,800
15			1,200
16			1,800
17			3,800
18			3,557
19			1,250
Total billing/usage data (litres):	9,030	23,297	41,040
Average usage (litres per residence per year):	2,258	1,941	2,160

Propane:

	Mini	***Small***	***Large***
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking:	0	1	0
No. of propane heated residences with billing/energy usage data:	0	1	0
Annual Propane Consumption:			
1		80	
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	80	0
Average usage (litres per residence per year):	0	80	0

Wood:

	Mini	***Small***	***Large***
No. of wood heated residences:	30	408	820
No. of wood heated residences with billing/energy usage data:	1	6	17
Annual Wood Consumption:			
1	5.0	6.0	4.0
2		5.0	8.0
3		4.0	1.5
4		5.0	3.0
5		7.0	7.0
6		5.0	10.0
7			6.0
8			7.0
9			10.0
10			2.0
11			8.0
12			8.0
13			6.0
14			5.0
15			1.5
16			6.0
17			4.0
Total billing/usage data (cords):	5.0	32.0	97.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	5.0	5.3	5.7
Percentage of the heating load:	65.0%	73.0%	75.0%
Remaining percentage of heat load:	35.0%	27.0%	25.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	10.5	110.1	205.1

1970 to 1985 Residences	***Mini***		***Small***		***Large***	
Total no. of residences:	126		835		285	
No. of seasonal residences (non-heating electric load):	80		181		0	
Electricity:						
No. of electrically heated residences:	15		0		0	
No. of non-electrically heated residences with billing/energy usage data:	2		6		7	
No. of electrically heated residences with billing/energy usage data:		1		0		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	7,500		12,889		15,000	
2	11,702		6,772		8,554	
3		9,471	8,841		7,701	
4			4,055		13,800	
5			8,144		12,576	
6			6,141		14,667	
7					5,248	
8						

9						
10						
Total billing/usage data (kWh):	19,202	9,471	46,842	0	77,546	0
Average usage (kWh per residence per year):	9,601	9,471	7,807	0	11,078	0
		15,000				
Assume electrically heated small homes use (kWh):				20,000		
Assume electrically heated large homes use (kWh):						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		5,271		12,200		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	***Small***	***Large***
No. of oil heated residences:	15	467	107
No. of oil heated residences with billing/energy usage data:	2	6	7
Annual Oil Consumption:			
1	250	2,000	3,640
2	750	3,125	3,125
3		3,125	900
4		3,600	1,365
5		3,600	2,500
6		1,300	500
7			900
8			
9			
10			
Total billing/usage data (litres):	1,000	16,750	12,930
Average usage (litres per residence per year):	500	2,792	1,847

Propane:

	Mini	***Small***	***Large***
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking:	0	0	0
No. of propane heated residences with billing/energy usage data:	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	0
Average usage (litres per residence per year):	0	0	0

Wood:

	Mini	***Small***	***Large***
No. of wood heated residences:	15	187	178
No. of wood heated residences with billing/energy usage data:	1	5	8
Annual Wood Consumption:			
1	8.0	2.0	8.0
2		2.0	3.0
3		8.0	0.1
4		3.0	9.0
5		4.5	8.0
6			3.0
7			7.0
8			4.0
9			
10			
Total billing/usage data (cords):	8.0	19.5	42.1
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	8.0	3.9	5.3
Percentage of the heating load:	94.0%	82.0%	83.0%
Remaining percentage of heat load:	6.0%	18.0%	17.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	0.9	33.6	30.3

1985 to 1990 Residences	***Mini***		***Small***		***Large***	
Total no. of residences:	3		48		25	
No. of seasonal residences (non-heating electric load):	1		15		0	
Electricity:						
No. of electrically heated residences:	0		1		0	
No. of non-electrically heated residences with billing/energy usage data:	1		3		3	
No. of electrically heated residences with billing/energy usage data:		0		1		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	8,966		10,610		19,430	
2			10,614		2,308	
3			10,332		7,509	
4				17,810		
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	8,966	0	31,556	17,810	29,247	0
Average usage (kWh per residence per year):	8,966	0	10,519	17,810	9,749	0
Assume electrically heated mini homes use (kWh):		15,000				
				20,000		
Assume electrically heated large homes use (kWh):						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		10,800		10,010		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	***Small***	***Large***
No. of oil heated residences:	2	18	19
No. of oil heated residences with billing/energy usage data:	1	3	2
Annual Oil Consumption:			
1	725	228	1,800
2		1,875	2,700
3		2,700	
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	725	4,803	4,500
Average usage (litres per residence per year):	725	1,601	2,250

Propane:

	Mini	***Small***	***Large***
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking:	0	0	1
No. of propane heated residences with billing/energy usage data:	0	0	1
Annual Propane Consumption:			
1			50
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	50
Average usage (litres per residence per year):	0	0	50

Wood:

	Mini	***Small***	***Large***
No. of wood heated residences:	0	13	6
No. of wood heated residences with billing/energy usage data:	0	2	2
Annual Wood Consumption:			
1		5.0	1.5
2		2.0	4.0
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	7.0	5.5
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	3.5	2.8
Percentage of the heating load:	0.0%	78.0%	50.0%
Remaining percentage of heat load:	100.0%	22.0%	50.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	0.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	0.0	2.8	3.1

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2) ENERGY USAGE - COMMERCIAL

Pre 1970 Commercial	***Mini***		***Small***		***Large***	
Total no. of commercial:	5		16		203	
Electricity:						
No. of electrically heated commercial:	3		8		15	
No. of non-electrically heated commercial with billing/energy usage data:	1		0		7	
No. of electrically heated commercial with billing/energy usage data:		1		5		1
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1		8,400		8,985		41,040
2	8,630			33,600	17,000	
3				41,507	26,500	
4				6,911	14,000	
5				25,224	21,469	
6					14,423	
7					14,400	
8						
9						
10						
Total billing/usage data (kWh):	8,630	8,400	0	116,227	107,792	41,040
Average usage (kWh per commercial per year):	8,630	8,400	0	23,245	15,399	41,040
		15,000				
				20,000		
						25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		4,200		15,445		33,540

Oil:

	Mini	***Small***	***Large***

Propane:

	Mini	***Small***	***Large***

No. of oil heated commercial:	2	8	174
No. of oil heated commercial with billing/energy usage data:	1	3	6
Annual Oil Consumption:			
1	2,200	1,365	2,250
2		7,969	2,500
3		1,050	4,500
4			11,000
5			11,000
6			1,900
7			
8			
9			
10			
Total billing/usage data (litres):	2,200	10,384	33,150
Average usage (litres per commercial per year):	2,200	3,461	5,525

No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	0	0
No. of propane heated commercial with billing/energy usage data:	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	0
Average usage (litres per commercial per year):	0	0	0

Wood:

	Mini	***Small***	***Large***
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

1970 to 1985 Commercial

	Mini		***Small***		***Large***	
Total no. of commercial:	1		13		38	
Electricity:						
No. of electrically heated commercial:	1		10		0	
No. of non-electrically heated commercial with billing/energy usage data:	0		0		3	
No. of electrically heated commercial with billing/energy usage data:		0		1		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				13,574	35,400	
2					62,880	
3					22,000	
4						
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	0	0	0	13,574	120,280	0
Average usage (kWh per commercial per year):	0	0	0	13,574	40,093	0
Assume electrically heated mini commercial use (kWh)		15,000				
				20,000		
Assume electrically heated large commercial use (kWh)						25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		5,774		17,500

Oil:

	Mini	***Small***	***Large***
No. of oil heated commercial:	0	3	38
No. of oil heated commercial with billing/energy usage data:	0	0	2
Annual Oil Consumption:			
1			2,200
2			13,750
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	15,950
Average usage (litres per commercial per year):	0	0	7,975
Assume oil heated mini commercial use (L/com./yr.)			
Assume oil heated small commercial use (L/com./yr.)			

Propane:

	Mini	***Small***	***Large***
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	1	1
No. of propane heated commercial with billing/energy usage data:	0	1	1
Annual Propane Consumption:			
1		50	12,000
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	50	12,000
Average usage (litres per commercial per year):	0	50	12,000

Wood:

	Mini	***Small***	***Large***
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

1985 to 1990 Commercial

	Mini		***Small***		***Large***	
Total no. of commercial:	1		13		40	
Electricity:						
No. of electrically heated commercial:	1		7		24	
No. of non-electrically heated commercial with billing/energy usage data:	0		1		2	
No. of electrically heated commercial with billing/energy usage data:		0		4		2
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				71,431	161,560	
2				27,600		129,000
3				32,760	110,400	
4				52,992		70,500
5			63,500			101,280
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	0	0	63,500	184,783	271,960	300,780
Average usage (kWh per residence per year):	0	0	63,500	46,196	135,980	150,390
Assume electrically heated mini commercial use (kWh)		15,000				
				20,000		
						25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		38,396		142,890

Oil:

	Mini	***Small***	***Large***
No. of oil heated commercial:	0	2	16
No. of oil heated commercial with billing/energy usage data:			
Annual Oil Consumption:			
1		1,500	6,223
2			7,500
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	1,500	13,723
Average usage (litres per commercial per year):	0	0	0
Assume oil heated mini commercial use (L/com./yr.)			
Assume oil heated small commercial use (L/com./yr.)			

Propane:

	Mini	***Small***	***Large***
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	1	1
No. of propane heated commercial with billing/energy usage data:	0	1	1
Annual Propane Consumption:			
1		9,500	1,800
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	9,500	1,800
Average usage (litres per commercial per year):	0	9,500	1,800

Assume oil heated large commercial use (L/com./yr.)

Wood:

	Mini	***Small***	***Large***
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:			
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

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3) EQUIVALENCY ASSUMPTIONS

Electricity:

1 MWh =	0.925	tonnes of CO_2 based on NSPI data
1 kWh =	0.000925	tonnes of CO_2 based on NSPI data
1 kWh =	$0.10	

Oil (No. 2 Diesel):

1 litre =	2.73	kg of CO_2
1 litre =	0.00273	tonnes of CO_2
1 litre =	10.8	kWh
1 litre =	$1.00	

Gasoline:

1 litre =	2.36	kg of CO_2
1 litre =	0.00236	tonnes of CO_2
1 litre =	9.7	kWh
1 litre =	$1.00	

Propane:

1 litre =	1.5	kg of CO_2
1 litre =	0.0015	tonnes of CO_2
1 litre =	7.1	kWh
1 litre =	$0.90	

Firewood (seasoned maple):

1 cord =	5592.7	kWh
1 cord =	$100.00	
1 cord =	4 ft. X 4 ft. x 8 ft. stacked	
1 cord =	1.36	tonnes
1 tonne =	4112	kWh
1 cord =	518	litres of oil (No. 2 diesel)

Bunker 'C' Oil (No. 6 Diesel):

1 litre =	2.85	kg of CO_2
1 litre =	0.00285	tonnes of CO_2
1 litre =	11.6	kWh
1 litre =	$0.35	

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4) VEHICLES

Type	**Quantity**	**Fuel Type**	**Estimated Mileage (km/year/vehicle)**	**Estimated Fuel Consumption Rate (L/100 km)**	**Estimated Fuel Consumption (L)**	**Diesel Summary (L)**	**Gasoline Summary (L)**
					0		
					0		
					0		
					0		
					0		
					0		
					0		
					0		
					0		

Note: Approximately [ ] per year in fuel costs.
Asssume diesel represents [ ] of these costs. → $0.00

S Diesel = 0 → 0 L

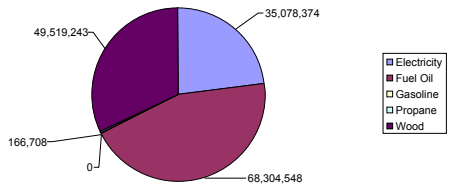
Asssume gasoline represents 100.0% of these costs. → $0.00

S Gasoline = 0 → 0 L

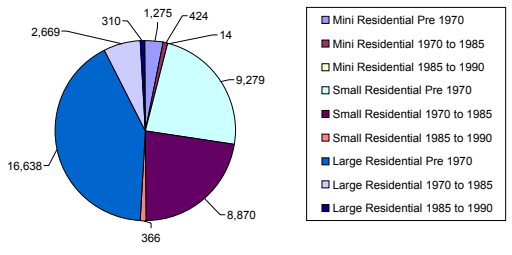
Note: Place diesel related values under those for heating oil in the above table as they are a similar fuel type.

5) CHARTS

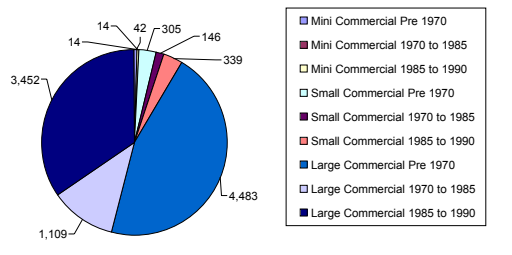
Annual Energy Consumption - 1990	
	kWh
Electricity	35,078,374
Fuel Oil	68,304,548
Gasoline	0
Propane	166,708
Wood	49,519,243
TOTAL	**153,068,873**



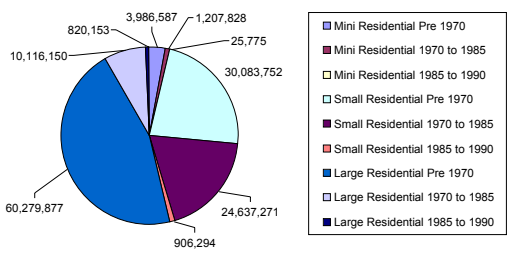
Equivalent CO_2 - Residential - 1990	
	tonnes
Mini Residential Pre 1970	1,275
Mini Residential 1970 to 1985	424
Mini Residential 1985 to 1990	14
Small Residential Pre 1970	9,279
Small Residential 1970 to 1985	8,870
Small Residential 1985 to 1990	366
Large Residential Pre 1970	16,638
Large Residential 1970 to 1985	2,669
Large Residential 1985 to 1990	310
TOTAL	39,844



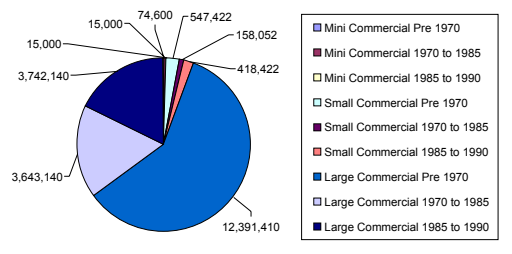
Equivalent CO_2 - Commercial - 1990	
	tonnes
Mini Commercial Pre 1970	42
Mini Commercial 1970 to 1985	14
Mini Commercial 1985 to 1990	14
Small Commercial Pre 1970	305
Small Commercial 1970 to 1985	146
Small Commercial 1985 to 1990	339
Large Commercial Pre 1970	4,483
Large Commercial 1970 to 1985	1,109
Large Commercial 1985 to 1990	3,452
TOTAL	9,904



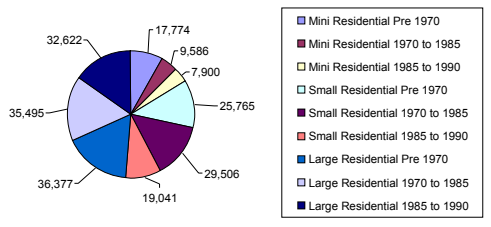
Annual Energy Consumption - Residential - 1990	
	kWh
Mini Residential Pre 1970	3,986,587
Mini Residential 1970 to 1985	1,207,828
Mini Residential 1985 to 1990	25,775
Small Residential Pre 1970	30,083,752
Small Residential 1970 to 1985	24,637,271
Small Residential 1985 to 1990	906,294
Large Residential Pre 1970	60,279,877
Large Residential 1970 to 1985	10,116,150
Large Residential 1985 to 1990	820,153
TOTAL	132,063,687



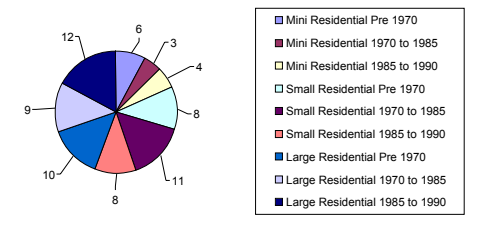
Annual Energy Consumption - Commercial - 1990	
	kWh
Mini Commercial Pre 1970	74,600
Mini Commercial 1970 to 1985	15,000
Mini Commercial 1985 to 1990	15,000
Small Commercial Pre 1970	547,422
Small Commercial 1970 to 1985	158,052
Small Commercial 1985 to 1990	418,422
Large Commercial Pre 1970	12,391,410
Large Commercial 1970 to 1985	3,643,140
Large Commercial 1985 to 1990	3,742,140
TOTAL	21,005,186



Annual Energy Consumption Per Dwelling Type - Residential - 1990			
	Total kWh	Total No. of Units	kWh per Dwelling Type
Mini Residential Pre 1970	3,986,587	224	17,774
Mini Residential 1970 to 1985	1,207,828	126	9,586
Mini Residential 1985 to 1990	25,775	3	7,900
Small Residential Pre 1970	30,083,752	1168	25,765
Small Residential 1970 to 1985	24,637,271	835	29,506
Small Residential 1985 to 1990	906,294	48	19,041
Large Residential Pre 1970	60,279,877	1657	36,377
Large Residential 1970 to 1985	10,116,150	285	35,495
Large Residential 1985 to 1990	820,153	25	32,622
TOTAL	132,063,687	4,371	214,066



Equivalent CO_2 Per Dwelling Type - Residential - 1990			
	Total CO_2 (tonnes)	Total No. of Units	CO_2 per Dwelling Type (tonnes)
Mini Residential Pre 1970	1,275	224	6
Mini Residential 1970 to 1985	424	126	3
Mini Residential 1985 to 1990	14	3	4
Small Residential Pre 1970	9,279	1168	8
Small Residential 1970 to 1985	8,870	835	11
Small Residential 1985 to 1990	366	48	8
Large Residential Pre 1970	16,638	1657	10
Large Residential 1970 to 1985	2,669	285	9
Large Residential 1985 to 1990	310	25	12
TOTAL	39,844	4,371	



Municipality of the District of Clare Revised: October 24, 2006

Annual Energy Consumption - 2012 Business-As-Usual Model

Item	Electricity (kWh)	Oil (Litres)	Gasoline (Litres)	Propane (Litres)	Wood (cords)	Equivalent CO_2 (tonnes)	Equivalent kWh of Oil	Equivalent kWh of Gasoline	Equivalent kWh of Propane	Equivalent kWh of Wood	Total Equivalent kWh	Total Energy Costs
Mini - Residential												
Pre 1970	617,708	196,137		0	130	1,107	2,118,276	0	0	725,233	3,461,218	$270,875
1970 to 1985	434,022	8,127		0	123	424	87,768	0	0	686,038	1,207,828	$63,796
1985 to 2012	67,200	8,700		0	0	86	93,960	0	0	0	161,160	$15,420
Small - Residential												
Pre 1970	6,133,764	872,797		80	1,888	8,057	9,426,212	0	568	10,558,719	26,119,264	$1,675,041
1970 to 1985	5,463,200	1,398,003		0	729	8,870	15,098,431	0	0	4,075,640	24,637,271	$2,017,197
1985 to 2012	1,852,220	210,216		0	276	2,287	2,270,333	0	0	1,544,169	5,666,722	$423,048
Large - Residential												
Pre 1970	10,354,890	1,782,940		0	4,063	14,446	19,255,748	0	0	22,725,305	52,335,942	$3,224,767
1970 to 1985	2,137,500	253,347		0	937	2,669	2,736,150	0	0	5,242,501	10,116,150	$560,835
1985 to 2012	1,179,000	309,488		50	108	1,936	3,342,465	0	355	604,431	5,126,251	$438,240
Mini - Commercial												
Pre 1970	35,000	3,667		0	0	42	39,600	0	0	0	74,600	$7,167
1970 to 1985	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
1985 to 2012	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
						0	0	0	0	0	0	$0
Small - Commercial												
Pre 1970	248,363	27,691		0	0	305	299,059	0	0	0	547,422	$52,527
1970 to 1985	157,697	0		50	0	146	0	0	355	0	158,052	$15,815
1985 to 2012	350,972	0		9,500	0	339	0	0	67,450	0	418,422	$43,647
Large - Commercial												
Pre 1970	2,008,830	961,350		0	0	4,483	10,382,580	0	0	0	12,391,410	$1,162,233
1970 to 1985	285,000	303,050		12,000	0	1,109	3,272,940	0	85,200	0	3,643,140	$342,350
1985 to 2012	3,729,360	0		1,800	0	3,452	0	0	12,780	0	3,742,140	$374,556
Vehicles (Not Applicable)		0	0			0	0	0	0	0	0	$0
TOTAL ENERGY	35,084,726	6,335,511	0	23,480	8,254	49,785	68,423,522	0	166,708	46,162,036	149,836,992	
TOTAL COST	$3,508,473	$6,335,511	$0	$21,132	$825,398							$10,690,514

NOTE: Wood heat represents a zero net increase to Equivalent CO_2 and is in combination with predominantly an oil fired system.

ENERGY SUMMARY

Residential Buildings Sub-Totals	***28,239,504***	***5,039,754***	***0***	***130***	***8,254***	***39,880***	***54,429,343***	***0***	***923***	***46,162,036***	***128,831,806***	***8,689,219***
Commercial Buildings Sub-Totals	***6,845,222***	***1,295,757***	***0***	***23,350***	***0***	***9,904***	***13,994,179***	***0***	***165,785***	***0***	***21,005,186***	***2,001,295***
Vehicles Sub-Totals	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***
TOTAL ENERGY	***35,084,726***	***6,335,511***	***0***	***23,480***	***8,254***	***49,785***	***68,423,522***	***0***	***166,708***	***46,162,036***	***149,836,992***	
											TOTAL ENERGY COST	***$10,690,514***

DATA & ASSUMPTIONS **(Note: Shaded areas require numerical input.)**

1) ENERGY USAGE - RESIDENTIAL

Pre 1970 Residences

Percentage Change from Current to 2012	-9.0%	(Decrease)	-9.0%	(Decrease)	-9.0%	(Decrease)
	Mini		***Small***		***Large***	
Total no. of residences:	195		1014		1439	
No. of seasonal residences (non-heating electric load):	91		306		79	
Electricity:						
No. of electrically heated residences:	0		0		0	
No. of non-electrically heated residences with billing/energy usage data:	4		10		21	
No. of electrically heated residences with billing/energy usage data:		0		0		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	3,347		5,781		6,500	
2	6,227		4,833		7,612	
3	2,663		5,078		4,327	
4	4,403		10,110		7,122	
5			6,237		5,126	
6			12,129		5,052	
7			6,354		13,375	
8			10,986		2,921	
9			5,702		6,200	
10			10,365		7,700	
11					12,500	
12					7,488	
13					3,896	
14					11,854	
15					5,810	
16					8,847	
17					9,463	
18					4,028	
19					6,321	
20					8,018	
21					12,000	
Total billing/usage data (kWh):	16,640	0	77,575	0	156,160	0
Average usage (kWh per residence per year):	4,160	0	7,758	0	7,436	0
Assume electrically heated mini homes use (kWh):		15,000				
Assume electrically heated small homes use (kWh):				20,000		
Assume electrically heated large homes use (kWh):						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		10,800		12,200		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:	***Mini***	***Small***	***Large***
No. of oil heated residences:	78	354	647
No. of oil heated residences with billing/energy usage data:	4	12	19
Annual Oil Consumption:			
1	3,640	1,500	1,820
2	1,820	910	910
3	2,660	1,347	1,298
4	910	910	1,820
5		3,125	910
6		900	3,750
7		3,077	3,125
8		1,800	900
9		1,700	3,600
10		4,000	900
11		428	4,500
12		3,600	3,600
13			500
14			1,800
15			1,200
16			1,800
17			3,800
18			3,557
19			1,250
Total billing/usage data (litres):	9,030	23,297	41,040
Average usage (litres per residence per year):	2,258	1,941	2,160

Propane:	***Mini***	***Small***	***Large***
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking:	0	1	0
No. of propane heated residences with billing/energy usage data:	0	1	0
Annual Propane Consumption:			
1		80	
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	80	0
Average usage (litres per residence per year):	0	80	0

Wood:

	Mini	***Small***	***Large***
No. of wood heated residences:	26	354	712
No. of wood heated residences with billing/energy usage data:	1	6	17
Annual Wood Consumption:			
1	5.0	6.0	4.0
2		5.0	8.0
3		4.0	1.5
4		5.0	3.0
5		7.0	7.0
6		5.0	10.0
7			6.0
8			7.0
9			10.0
10			2.0
11			8.0
12			8.0
13			6.0
14			5.0
15			1.5
16			6.0
17			4.0
Total billing/usage data (cords):	5.0	32.0	97.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	5.0	5.3	5.7
Percentage of the heating load:	65.0%	73.0%	75.0%
Remaining percentage of heat load	35.0%	27.0%	25.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	9.1	95.6	178.0

1970 to 1985 Residences

Percentage Change from Current to 2012	0.0% (No Change)		0.0% (No Change)		0.0% (No Change)	
	Mini		***Small***		***Large***	
Total no. of residences:	126		835		285	
No. of seasonal residences (non-heating electric load):	80		181		0	
Electricity:						
No. of electrically heated residences:	15		0		0	
No. of non-electrically heated residences with billing/energy usage data:	2		6		7	
No. of electrically heated residences with billing/energy usage data:		1		0		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	7,500		12,889		15,000	
2	11,702		6,772		8,554	
3		9,471	8,841		7,701	
4			4,055		13,800	
5			8,144		12,576	
6			6,141		14,667	
7					5,248	
8						
9						
10						
Total billing/usage data (kWh):	19,202	9,471	46,842	0	77,546	0
Average usage (kWh per residence per year):	9,601	9,471	7,807	0	11,078	0
Assume electrically heated small homes use (kWh):		15,000				
Assume electrically heated large homes use (kWh):				20,000		
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		5,271		12,200		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	***Small***	***Large***
No. of oil heated residences:	15	467	107
No. of oil heated residences with billing/energy usage data:	2	6	7
Annual Oil Consumption:			
1	250	2,000	3,640
2	750	3,125	3,125
3		3,125	900
4		3,600	1,365
5		3,600	2,500
6		1,300	500
7			900
8			
9			
10			
Total billing/usage data (litres):	1,000	16,750	12,930
Average usage (litres per residence per year):	500	2,792	1,847

Propane:

	Mini	***Small***	***Large***
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking:	0	0	0
No. of propane heated residences with billing/energy usage data:	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	0
Average usage (litres per residence per year):	0	0	0

Wood:

	Mini	***Small***	***Large***
No. of wood heated residences:	15	187	178
No. of wood heated residences with billing/energy usage data:	1	5	8
Annual Wood Consumption:			
1	8.0	2.0	8.0
2		2.0	3.0
3		8.0	0.1
4		3.0	9.0
5		4.5	8.0
6			3.0
7			7.0
8			4.0
9			
10			
Total billing/usage data (cords):	8.0	19.5	42.1
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	8.0	3.9	5.3
Percentage of the heating load:	94.0%	82.0%	83.0%
Remaining percentage of heat load	6.0%	18.0%	17.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	0.9	33.6	30.3

1985 to 2012 Residences

Percentage Change from Current to 2012	20.0%	(Increase)	20.0%	(Increase)	20.0%	(Increase)
	Mini		*Small*		*Large*	
Total no. of residences:	20		298		157	
No. of seasonal residences (non-heating electric load):	8		96		0	
Electricity:						
No. of electrically heated residences:	0		9		0	
No. of non-electrically heated residences with billing/energy usage data:	1		3		3	
No. of electrically heated residences with billing/energy usage data:		0		1		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	8,966		10,610		19,430	
2			10,614		2,308	
3			10,332		7,509	
4				17,810		
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	8,966	0	31,556	17,810	29,247	0
Average usage (kWh per residence per year):	8,966	0	10,519	17,810	9,749	0
Assume electrically heated mini homes use (kWh):		15,000				
				20,000		
Assume electrically heated large homes use (kWh)						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		10,800		10,010		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	*Small*	*Large*
No. of oil heated residences:	12	114	118
No. of oil heated residences with billing/energy usage data:	1	3	2
Annual Oil Consumption:			
1	725	228	1,800
2		1,875	2,700
3		2,700	
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	725	4,803	4,500
Average usage (litres per residence per year):	725	1,601	2,250

Propane:

	Mini	*Small*	*Large*
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking:	0	0	1
No. of propane heated residences with billing/energy usage data:	0	0	1
Annual Propane Consumption:			
1			50
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	50
Average usage (litres per residence per year):	0	0	50

Wood:

	Mini	*Small*	*Large*
No. of wood heated residences:	0	79	39
No. of wood heated residences with billing/energy usage data:	0	2	2
Annual Wood Consumption:			
1		5.0	1.5
2		2.0	4.0
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	7.0	5.5
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	3.5	2.8
Percentage of the heating load:	0.0%	78.0%	50.0%
Remaining percentage of heat load	100.0%	22.0%	50.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	0.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	0.0	17.4	19.7

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2) ENERGY USAGE - COMMERCIAL

Pre 1970 Commercial

Percentage Change from Current to 2012	0.0%	(No Change)	0.0%	(No Change)	0.0%	(No Change)
	Mini		*Small*		*Large*	
Total no. of commercial:	5		16		203	
Electricity:						
No. of electrically heated commercial:	3		8		15	
No. of non-electrically heated commercial with billing/energy usage data:	1		0		7	
No. of electrically heated commercial with billing/energy usage data:		1		5		1
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1		8,400		8,985		41,040
2	8,630			33,600	17,000	
3				41,507	26,500	
4				6,911	14,000	
5				25,224	21,469	
6					14,423	
7					14,400	
8						
9						
10						
Total billing/usage data (kWh):	8,630	8,400	0	116,227	107,792	41,040
Average usage (kWh per commercial per year):	8,630	8,400	0	23,245	15,399	41,040
		15,000				
				20,000		
						25,000
Assume a non-heating electric load (kWh/com./yr.)	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.)		4,200		15,445		33,540

Oil:

	Mini	*Small*	*Large*
No. of oil heated commercial:	2	8	174
No. of oil heated commercial with billing/energy usage data:	1	3	6
Annual Oil Consumption:			
1	2,200	1,365	2,250
2		7,969	2,500
3		1,050	4,500
4			11,000
5			11,000
6			1,900
7			
8			
9			
10			
Total billing/usage data (litres):	2,200	10,384	33,150
Average usage (litres per commercial per year):	2,200	3,461	5,525

Propane:

	Mini	*Small*	*Large*
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	0	0
No. of propane heated commercial with billing/energy usage data:	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	0
Average usage (litres per commercial per year):	0	0	0

Wood:

	Mini	*Small*	*Large*
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

1970 to 1985 Commercial

Percentage Change from Current to 2012	0.0%	(No Change)	0.0%	(No Change)	0.0%	(No Change)
	Mini		*Small*		*Large*	
Total no. of commercial:	1		13		38	
Electricity:						
No. of electrically heated commercial:	1		10		0	
No. of non-electrically heated commercial with billing/energy usage data:	0		0		3	
No. of electrically heated commercial with billing/energy usage data:		0		1		0
Annual Electricity Consumption:						
	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				13,574	35,400	
2					62,880	
3					22,000	
4						
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	0	0	0	13,574	120,280	0
Average usage (kWh per commercial per year):	0	0	0	13,574	40,093	0
Assume electrically heated mini commercial use (kWh):		15,000				
Assume electrically heated small commercial use (kWh)				20,000		
Assume electrically heated large commercial use (kWh)						25,000
Assume a non-heating electric load (kWh/com./yr.)	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		5,774		17,500

Oil:

	Mini	*Small*	*Large*
No. of oil heated commercial:	0	3	38
No. of oil heated commercial with billing/energy usage data:	0	0	2
Annual Oil Consumption:			
1			2,200
2			13,750
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	15,950
Average usage (litres per commercial per year):	0	0	7,975
Assume oil heated mini commercial use (L/com./yr.)			
Assume oil heated small commercial use (L/com./yr.)			

Propane:

	Mini	*Small*	*Large*
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	1	1
No. of propane heated commercial with billing/energy usage data:	0	1	1
Annual Propane Consumption:			
1		50	12,000
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	50	12,000
Average usage (litres per commercial per year):	0	50	12,000

Wood:

	Mini	*Small*	*Large*
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

1985 to 2012 Commercial

Percentage Change from Current to 2012	0.0%	(No Change)	0.0%	(No Change)	0.0%	(No Change)
	Mini		*Small*		*Large*	
Total no. of commercial:	1		13		40	
Electricity:						
No. of electrically heated commercial:	1		7		24	
No. of non-electrically heated commercial with billing/energy usage data:	0		1		2	
No. of electrically heated commercial with billing/energy usage data:		0		4		2
Annual Electricity Consumption:						
	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				71,431	161,560	
2				27,600		129,000
3				32,760	110,400	
4				52,992		70,500
5			63,500			101,280
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	0	0	63,500	184,783	271,960	300,780
Average usage (kWh per residence per year):	0	0	63,500	46,196	135,980	150,390
Assume electrically heated mini commercial use (kWh):		15,000				
				20,000		
						25,000
Assume a non-heating electric load (kWh/com./yr.)	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		38,396		142,890

Oil:

	Mini	***Small***	***Large***
No. of oil heated commercial:	0	2	16
No. of oil heated commercial with billing/energy usage data:			
Annual Oil Consumption:			
1		1,500	6,223
2			7,500
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	1,500	13,723
Average usage (litres per commercial per year):	0	0	0

Assume oil heated mini commercial use (L/com./yr.)	
Assume oil heated small commercial use (L/com./yr.)	
Assume oil heated large commercial use (L/com./yr.)	

Propane:

	Mini	***Small***	***Large***
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	1	1
No. of propane heated commercial with billing/energy usage data:	0	1	1
Annual Propane Consumption:			
1		9,500	1,800
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	9,500	1,800
Average usage (litres per commercial per year):	0	9,500	1,800

Wood:

	Mini	***Small***	***Large***
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:			
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

3) EQUIVALENCY ASSUMPTIONS

Electricity:

1 MWh =	0.925	tonnes of CO_2 based on NSPI data
1 kWh =	0.000925	tonnes of CO_2 based on NSPI data
1 kWh =	$0.10	

Oil (No. 2 Diesel):

1 litre =	2.73	kg of CO_2
1 litre =	0.00273	tonnes of CO_2
1 litre =	10.8	kWh
1 litre =	$1.00	

Gasoline:

1 litre =	2.36	kg of CO_2
1 litre =	0.00236	tonnes of CO_2
1 litre =	9.7	kWh
1 litre =	$1.00	

Propane:

1 litre =	1.5	kg of CO_2
1 litre =	0.0015	tonnes of CO_2
1 litre =	7.1	kWh
1 litre =	$0.90	

Firewood (seasoned maple):

1 cord =	5592.7	kWh
1 cord =	$100.00	
1 cord =	4 ft. X 4 ft. x 8 ft. stacked	
1 cord =	1.36	tonnes
1 tonne =	4112	kWh
1 cord =	518	litres of oil (No. 2 diesel)

Bunker 'C' Oil (No. 6 Diesel):

1 litre =	2.85	kg of CO_2
1 litre =	0.00285	tonnes of CO_2
1 litre =	11.6	kWh
1 litre =	$0.35	

4) VEHICLES

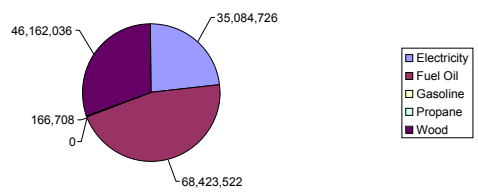
Type	Quantity	Fuel Type	Estimated Mileage (km/year/vehicle)	Estimated Fuel Consumption Rate (L/100 km)	Estimated Fuel Consumption (L)	Diesel Summary (L)	Gasoline Summary (L)
					0		
					0		
					0		
					0		
					0		
					0		
					0		
					0		

Note: Approximately		per year in fuel costs.			**S Diesel =**	0
Asssume diesel represents		of these costs.	→	$0.00	→ 0	L
					S Gasoline =	0
Asssume gasoline represents	100.0%	of these costs.	→	$0.00	→ 0	L

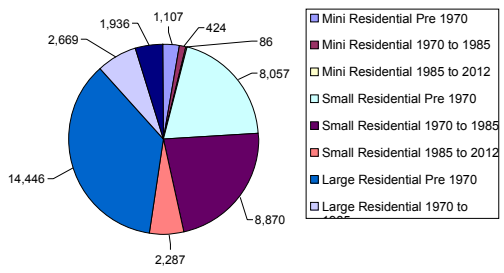
Note: Place diesel related values under those for heating oil in the above table as they are a similar fuel type.

5) CHARTS

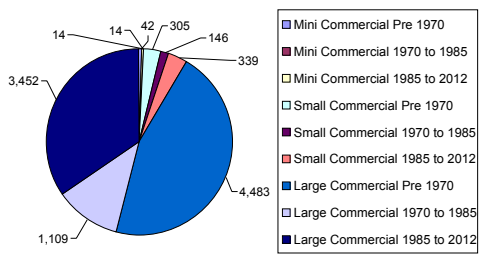
Annual Energy Consumption - 2012 Business-As-Usual Model	
	kWh
Electricity	35,084,726
Fuel Oil	68,423,522
Gasoline	0
Propane	166,708
Wood	46,162,036
TOTAL	**149,836,992**



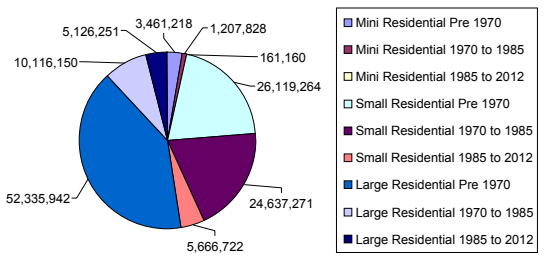
Equivalent CO_2 - Residential - 2012 Business-As-Usual Model	
	tonnes
Mini Residential Pre 1970	1,107
Mini Residential 1970 to 1985	424
Mini Residential 1985 to 2012	86
Small Residential Pre 1970	8,057
Small Residential 1970 to 1985	8,870
Small Residential 1985 to 2012	2,287
Large Residential Pre 1970	14,446
Large Residential 1970 to 1985	2,669
Large Residential 1985 to 2012	1,936
TOTAL	39,880



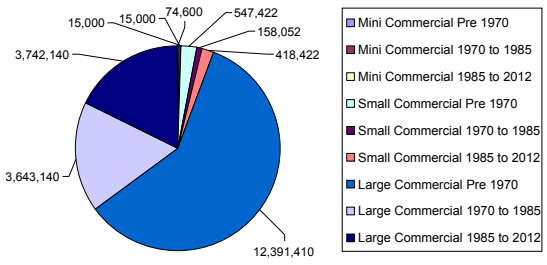
Equivalent CO_2 - Commercial - 2012 Business-As-Usual Model	
	tonnes
Mini Commercial Pre 1970	42
Mini Commercial 1970 to 1985	14
Mini Commercial 1985 to 2012	14
Small Commercial Pre 1970	305
Small Commercial 1970 to 1985	146
Small Commercial 1985 to 2012	339
Large Commercial Pre 1970	4,483
Large Commercial 1970 to 1985	1,109
Large Commercial 1985 to 2012	3,452
TOTAL	9,904



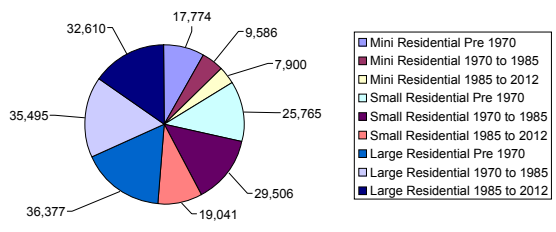
Annual Energy Consumption - Residential - 2012 BAUM	
	kWh
Mini Residential Pre 1970	3,461,218
Mini Residential 1970 to 1985	1,207,828
Mini Residential 1985 to 2012	161,160
Small Residential Pre 1970	26,119,264
Small Residential 1970 to 1985	24,637,271
Small Residential 1985 to 2012	5,666,722
Large Residential Pre 1970	52,335,942
Large Residential 1970 to 1985	10,116,150
Large Residential 1985 to 2012	5,126,251
TOTAL	128,831,806



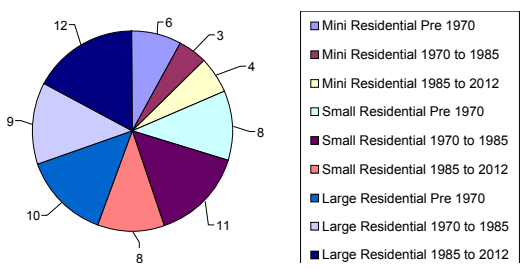
Annual Energy Consumption - Commercial - 2012 BAUM	
	kWh
Mini Commercial Pre 1970	74,600
Mini Commercial 1970 to 1985	15,000
Mini Commercial 1985 to 2012	15,000
Small Commercial Pre 1970	547,422
Small Commercial 1970 to 1985	158,052
Small Commercial 1985 to 2012	418,422
Large Commercial Pre 1970	12,391,410
Large Commercial 1970 to 1985	3,643,140
Large Commercial 1985 to 2012	3,742,140
TOTAL	21,005,186



Annual Energy Consumption Per Dwelling Type - Residential - 2012 Business-As-Usual Model			
	Total kWh	**Total No. of Units**	**kWh per Dwelling Type**
Mini Residential Pre 1970	3,461,218	195	17,774
Mini Residential 1970 to 1985	1,207,828	126	9,586
Mini Residential 1985 to 2012	161,160	20	7,900
Small Residential Pre 1970	26,119,264	1014	25,765
Small Residential 1970 to 1985	24,637,271	835	29,506
Small Residential 1985 to 2012	5,666,722	298	19,041
Large Residential Pre 1970	52,335,942	1439	36,377
Large Residential 1970 to 1985	10,116,150	285	35,495
Large Residential 1985 to 2012	5,126,251	157	32,610
TOTAL	128,831,806	4,368	214,054



Equivalent CO_2 Per Dwelling Type - Residential - 2012 Business-As-Usual Model			
	Total CO_2 (tonnes)	**Total No. of Units**	**CO_2 per Dwelling Type (tonnes)**
Mini Residential Pre 1970	1,107	195	6
Mini Residential 1970 to 1985	424	126	3
Mini Residential 1985 to 2012	86	20	4
Small Residential Pre 1970	8,057	1014	8
Small Residential 1970 to 1985	8,870	835	11
Small Residential 1985 to 2012	2,287	298	8
Large Residential Pre 1970	14,446	1439	10
Large Residential 1970 to 1985	2,669	285	9
Large Residential 1985 to 2012	1,936	157	12
TOTAL	39,880	4,368	



Municipality of the District of Clare Revised: October 24, 2006

Annual Energy Consumption - 2012 Energy Efficient Model - Optimistic

Item	Electricity (kWh)	Oil (Litres)	Gasoline (Litres)	Propane (Litres)	Wood (cords)	Equivalent CO_2 (tonnes)	Equivalent kWh of Oil	Equivalent kWh of Gasoline	Equivalent kWh of Propane	Equivalent kWh of Wood	Total Equivalent kWh	Total Energy Costs
Mini - Residential												
Pre 1970	432,396	137,296		0	130	775	1,482,793	0	0	725,233	2,640,422	$193,503
1970 to 1985	303,815	5,689		0	123	297	61,438	0	0	686,038	1,051,291	$48,337
1985 to 2012	47,040	6,090		0	0	60	65,772	0	0	0	112,812	$10,794
Small - Residential												
Pre 1970	4,293,635	610,958		80	1,888	5,640	6,598,349	0	568	10,558,719	21,451,271	$1,229,188
1970 to 1985	3,824,240	978,602		0	729	6,209	10,568,902	0	0	4,075,640	18,468,782	$1,433,900
1985 to 2012	1,296,554	147,151		0	276	1,601	1,589,233	0	0	1,544,169	4,429,956	$304,417
Large - Residential												
Pre 1970	7,248,423	1,248,058		0	4,063	10,112	13,479,023	0	0	22,725,305	43,452,751	$2,379,239
1970 to 1985	1,496,250	177,343		0	937	1,868	1,915,305	0	0	5,242,501	8,654,056	$420,706
1985 to 2012	825,300	216,641		50	108	1,355	2,339,726	0	355	604,431	3,769,812	$310,024
Mini - Commercial												
Pre 1970	35,000	3,667		0	0	42	39,600	0	0	0	74,600	$7,167
1970 to 1985	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
1985 to 2012	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
						0	0	0	0	0	0	$0
Small - Commercial												
Pre 1970	248,363	27,691		0	0	305	299,059	0	0	0	547,422	$52,527
1970 to 1985	157,697	0		50	0	146	0	0	355	0	158,052	$15,815
1985 to 2012	350,972	0		9,500	0	339	0	0	67,450	0	418,422	$43,647
Large - Commercial												
Pre 1970	2,008,830	961,350		0	0	4,483	10,382,580	0	0	0	12,391,410	$1,162,233
1970 to 1985	285,000	303,050		12,000	0	1,109	3,272,940	0	85,200	0	3,643,140	$342,350
1985 to 2012	3,729,360	0		1,800	0	3,452	0	0	12,780	0	3,742,140	$374,556
Vehicles (Not Applicable)		0	0			0	0	0	0	0	0	$0
TOTAL ENERGY	26,612,875	4,823,585	0	23,480	8,254	37,821	52,094,719	0	166,708	46,162,036	125,036,338	
TOTAL COST	$2,661,287	$4,823,585	$0	$21,132	$825,398							$8,331,403

NOTE: Wood heat represents a zero net increase to Equivalent CO_2 and is in combination with predominantly an oil fired system.

ENERGY SUMMARY

Residential Buildings Sub-Totals	***19,767,653***	***3,527,828***	***0***	***130***	***8,254***	***27,916***	***38,100,540***	***0***	***923***	***46,162,036***	***104,031,152***	***6,330,108***
Commercial Buildings Sub-Totals	***6,845,222***	***1,295,757***	***0***	***23,350***	***0***	***9,904***	***13,994,179***	***0***	***165,785***	***0***	***21,005,186***	***2,001,295***
Vehicles Sub-Totals	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***
TOTAL ENERGY	***26,612,875***	***4,823,585***	***0***	***23,480***	***8,254***	***37,821***	***52,094,719***	***0***	***166,708***	***46,162,036***	***125,036,338***	
											TOTAL ENERGY COST	***$8,331,403***

DATA & ASSUMPTIONS **(Note: Shaded areas require numerical input**

1) ENERGY USAGE - RESIDENTIAL

Pre 1970 Residences

	Mini		Small		Large	
Percentage Change from Current to 201	-9.0% (Decrease)		-9.0% (Decrease)		-9.0% (Decrease)	
Total no. of residences:	195		1014		1439	
No. of seasonal residences (non-heating electric load)	91		306		79	
Energy Efficiency Reduction Value	30.0%		30.0%		30.0%	
Electricity:						
No. of electrically heated residences	0		0		0	
No. of non-electrically heated residences with billing/energy usage data	4		10		21	
No. of electrically heated residences with billing/energy usage data:		0		0		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	3,347		5,781		6,500	
2	6,227		4,833		7,612	
3	2,663		5,078		4,327	
4	4,403		10,110		7,122	
5			6,237		5,126	
6			12,129		5,052	
7			6,354		13,375	
8			10,986		2,921	
9			5,702		6,200	
10			10,365		7,700	
11					12,500	
12					7,488	
13					3,896	
14					11,854	
15					5,810	
16					8,847	
17					9,463	
18					4,028	
19					6,321	
20					8,018	
21					12,000	
Total billing/usage data (kWh)	16,640	0	77,575	0	156,160	0
Average usage (kWh per residence per year)	4,160	0	7,758	0	7,436	0
Assume electrically heated mini homes use (kWh		15,000				
Assume electrically heated small homes use (kWh				20,000		
Assume electrically heated large homes use (kWh						25,000
Assume a non-heating electric load (kWh/res./yr.	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.		10,800		12,200		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year)	2,000		2,000		2,000	

Oil:	Mini	Small	Large
No. of oil heated residences:	78	354	647
No. of oil heated residences with billing/energy usag data:	4	12	19
Annual Oil Consumption:			
1	3,640	1,500	1,820
2	1,820	910	910
3	2,660	1,347	1,298
4	910	910	1,820
5		3,125	910
6		900	3,750
7		3,077	3,125
8		1,800	900
9		1,700	3,600
10		4,000	900
11		428	4,500
12		3,600	3,600
13			500
14			1,800
15			1,200
16			1,800
17			3,800
18			3,557
19			1,250
Total billing/usage data (litres)	9,030	23,297	41,040
Average usage (litres per residence per year)	2,258	1,941	2,160

Propane:	Mini	Small	Large
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking	0	1	0
No. of propane heated residences with billing/energy usage data	0	1	0
Annual Propane Consumption:			
1		80	
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres)	0	80	0
Average usage (litres per residence per year)	0	80	0

Wood:

	Mini	*Small*	*Large*
No. of wood heated residences:	26	354	712
No. of wood heated residences with billing/energy usage data:	1	6	17
Annual Wood Consumption:			
1	5.0	6.0	4.0
2		5.0	8.0
3		4.0	1.5
4		5.0	3.0
5		7.0	7.0
6		5.0	10.0
7			6.0
8			7.0
9			10.0
10			2.0
11			8.0
12			8.0
13			6.0
14			5.0
15			1.5
16			6.0
17			4.0
Total billing/usage data (cords)	5.0	32.0	97.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	5.0	5.3	5.7
Percentage of the heating load	65.0%	73.0%	75.0%
Remaining percentage of heat load	35.0%	27.0%	25.0%
Percentage of remaining load as electric heat	0.0%	0.0%	0.0%
Remaining heat load distributed as equivaler electrically heated residences	0.0	0.0	0.0
Percentage of remaining load as oil heat	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent o heated residences	9.1	95.6	178.0

1970 to 1985 Residences

Percentage Change from Current to 2012	0.0% (No Change)	0.0% (No Change)	0.0% (No Change)
	Mini	*Small*	*Large*
Total no. of residences:	126	835	285
No. of seasonal residences (non-heating electric load):	80	181	0
Energy Efficiency Reduction Value	30.0%	30.0%	30.0%

Electricity:

No. of electrically heated residences:	15		0		0	
No. of non-electrically heated residences with billing/energy usage data:	2		6		7	
No. of electrically heated residences with billing/energy usage data:		1		0		0
Annual Electricity Consumption:						
	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	7,500		12,889		15,000	
2	11,702		6,772		8,554	
3		9,471	8,841		7,701	
4			4,055		13,800	
5			8,144		12,576	
6			6,141		14,667	
7					5,248	
8						
9						
10						
Total billing/usage data (kWh)	19,202	9,471	46,842	0	77,546	0
Average usage (kWh per residence per year):	9,601	9,471	7,807	0	11,078	0
		15,000				
Assume electrically heated small homes use (kWh):				20,000		
Assume electrically heated large homes use (kWh):						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		5,271		12,200		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	*Small*	*Large*
No. of oil heated residences:	15	467	107
No. of oil heated residences with billing/energy usag data:	2	6	7
Annual Oil Consumption:			
1	250	2,000	3,640
2	750	3,125	3,125
3		3,125	900
4		3,600	1,365
5		3,600	2,500
6		1,300	500
7			900
8			
9			
10			
Total billing/usage data (litres)	1,000	16,750	12,930
Average usage (litres per residence per year)	500	2,792	1,847

Propane:

	Mini	*Small*	*Large*
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking	0	0	0
No. of propane heated residences with billing/energy usage data	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres)	0	0	0
Average usage (litres per residence per year)	0	0	0

Wood:

	Mini	*Small*	*Large*
No. of wood heated residences:	15	187	178
No. of wood heated residences with billing/energy usage data:	1	5	8
Annual Wood Consumption:			
1	8.0	2.0	8.0
2		2.0	3.0
3		8.0	0.1
4		3.0	9.0
5		4.5	8.0
6			3.0
7			7.0
8			4.0
9			
10			
Total billing/usage data (cords)	8.0	19.5	42.1
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	8.0	3.9	5.3
Percentage of the heating load	94.0%	82.0%	83.0%
Remaining percentage of heat load	6.0%	18.0%	17.0%
Percentage of remaining load as electric heat	0.0%	0.0%	0.0%
Remaining heat load distributed as equivaler electrically heated residences	0.0	0.0	0.0
Percentage of remaining load as oil heat	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent o heated residences	0.9	33.6	30.3

1985 to 2012 Residences

	Mini		Small		Large	
Percentage Change from Current to 201	20.0%	(Increase)	20.0%	(Increase)	20.0%	(Increase)
Total no. of residences:	20		298		157	
No. of seasonal residences (non-heating electric load)	8		96		0	
Energy Efficiency Reduction Value	30.0%		30.0%		30.0%	

Electricity:

	Mini		Small		Large	
No. of electrically heated residences	0		9		0	
No. of non-electrically heated residences wit billing/energy usage data	1		3		3	
No. of electrically heated residences with billing/energ usage data:		0		1		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	8,966		10,610		19,430	
2			10,614		2,308	
3			10,332		7,509	
4				17,810		
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh)	8,966	0	31,556	17,810	29,247	0
Average usage (kWh per residence per year)	8,966	0	10,519	17,810	9,749	0
Assume electrically heated mini homes use (kWh		15,000				
				20,000		
Assume electrically heated large homes use (kWh						25,000
Assume a non-heating electric load (kWh/res./yr.	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.		10,800		10,010		17,500
Assume a non-heating electric load for seasona residences (kWh/seasonal residence/year)	2,000		2,000		2,000	

Oil:

	Mini	Small	Large
No. of oil heated residences:	12	114	118
No. of oil heated residences with billing/energy usag data:	1	3	2
Annual Oil Consumption:			
1	725	228	1,800
2		1,875	2,700
3		2,700	
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres)	725	4,803	4,500
Average usage (litres per residence per year)	725	1,601	2,250

Propane:

	Mini	Small	Large
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking	0	0	1
No. of propane heated residences with billing/energy usage data	0	0	1
Annual Propane Consumption:			
1			50
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres)	0	0	50
Average usage (litres per residence per year)	0	0	50

Wood:

	Mini	Small	Large
No. of wood heated residences:	0	79	39
No. of wood heated residences with billing/energy usage data:	0	2	2
Annual Wood Consumption:			
1		5.0	1.5
2		2.0	4.0
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords)	0.0	7.0	5.5
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	3.5	2.8
Percentage of the heating load	0.0%	78.0%	50.0%
Remaining percentage of heat load	100.0%	22.0%	50.0%
Percentage of remaining load as electric heat	0.0%	0.0%	0.0%
Remaining heat load distributed as equivaler electrically heated residences	0.0	0.0	0.0
Percentage of remaining load as oil heat	0.0%	100.0%	100.0%
Remaining heat load distributed as equivalent o heated residences	0.0	17.4	19.7

2) ENERGY USAGE - COMMERCIAL

Pre 1970 Commercia

	Mini		Small		Large	
Percentage Change from Current to 201	0.0%	(No Change)	0.0%	(No Change)	0.0%	(No Change)
Total no. of commercial:	5		16		203	
Energy Efficiency Reduction Value	0.0%		0.0%		0.0%	

Electricity:

	Mini		Small		Large	
No. of electrically heated commercial	3		8		15	
No. of non-electrically heated commercial wit billing/energy usage data	1		0		7	
No. of electrically heated commercial with billing/energ usage data:		1		5		1
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1		8,400		8,985		41,040
2	8,630			33,600	17,000	
3				41,507	26,500	
4				6,911	14,000	
5				25,224	21,469	
6					14,423	
7					14,400	
8						
9						
10						
Total billing/usage data (kWh)	8,630	8,400	0	116,227	107,792	41,040
Average usage (kWh per commercial per year)	8,630	8,400	0	23,245	15,399	41,040
		15,000				
				20,000		
						25,000
Assume a non-heating electric load (kWh/com./yr.)	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.)		4,200		15,445		33,540

Oil:

	Mini	Small	Large
No. of oil heated commercial:	2	8	174
No. of oil heated commercial with billing/energy usag data:	1	3	6
Annual Oil Consumption:			
1	2,200	1,365	2,250
2		7,969	2,500
3		1,050	4,500
4			11,000
5			11,000
6			1,900
7			
8			
9			
10			
Total billing/usage data (litres)	2,200	10,384	33,150
Average usage (litres per commercial per year)	2,200	3,461	5,525

Propane:

	Mini	Small	Large
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking	0	0	0
No. of propane heated commercial with billing/energy usage data	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres)	0	0	0
Average usage (litres per commercial per year)	0	0	0

Wood:

	Mini	*Small*	*Large*
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords)	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load			
Remaining percentage of heat load	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat			
Remaining heat load distributed as equivaler electrically heated commercial	0.0	0.0	0.0
Percentage of remaining load as oil heat			
Remaining heat load distributed as equivalent o heated commercial:	0.0	0.0	0.0

1970 to 1985 Commercia

Percentage Change from Current to 201	0.0% (No Change)	0.0% (No Change)	0.0% (No Change)
	Mini	*Small*	*Large*
Total no. of commercial:	1	13	38
Energy Efficiency Reduction Value	0.0%	0.0%	0.0%

Electricity:						
No. of electrically heated commercial:	1		10		0	
No. of non-electrically heated commercial with billing/energy usage data:	0		0		3	
No. of electrically heated commercial with billing/energy usage data:		0		1		0
Annual Electricity Consumption:						
	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				13,574	35,400	
2					62,880	
3					22,000	
4						
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh)	0	0	0	13,574	120,280	0
Average usage (kWh per commercial per year)	0	0	0	13,574	40,093	0
Assume electrically heated mini commercial use (kWh:		15,000				
Assume electrically heated small commercial use (kWh				20,000		
Assume electrically heated large commercial use (kWh						25,000
Assume a non-heating electric load (kWh/com./yr.:	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		5,774		17,500

Oil:

	Mini	*Small*	*Large*
No. of oil heated commercial:	0	3	38
No. of oil heated commercial with billing/energy usage data:	0	0	2
Annual Oil Consumption:			
1			2,200
2			13,750
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres)	0	0	15,950
Average usage (litres per commercial per year)	0	0	7,975
Assume oil heated mini commercial use (L/com./yr.)			
Assume oil heated small commercial use (L/com./yr.)			

Propane:

	Mini	*Small*	*Large*
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking	0	1	1
No. of propane heated commercial with billing/energy usage data	0	1	1
Annual Propane Consumption:			
1		50	12,000
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres)	0	50	12,000
Average usage (litres per commercial per year)	0	50	12,000

Wood:

	Mini	*Small*	*Large*
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords)	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load			
Remaining percentage of heat load	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat			
Remaining heat load distributed as equivaler electrically heated commercial	0.0	0.0	0.0
Percentage of remaining load as oil heat			
Remaining heat load distributed as equivalent o heated commercial:	0.0	0.0	0.0

1985 to 2012 Commercia

Percentage Change from Current to 201	0.0% (No Change)	0.0% (No Change)	0.0% (No Change)
	Mini	*Small*	*Large*
Total no. of commercial:	1	13	40
Energy Efficiency Reduction Value	0.0%	0.0%	0.0%

Electricity:						
No. of electrically heated commercial:	1		7		24	
No. of non-electrically heated commercial with billing/energy usage data:	0		1		2	
No. of electrically heated commercial with billing/energy usage data:		0		4		2
Annual Electricity Consumption:						
	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				71,431	161,560	
2				27,600		129,000
3				32,760	110,400	
4				52,992		70,500
5			63,500			101,280
6						
7						
8						
9						
10						
Total billing/usage data (kWh)	0	0	63,500	184,783	271,960	300,780
Average usage (kWh per residence per year)	0	0	63,500	46,196	135,980	150,390
Assume electrically heated mini commercial use (kWh:		15,000				
Assume electrically heated small commercial use (kWh				20,000		
Assume electrically heated large commercial use (kWh						25,000
Assume a non-heating electric load (kWh/com./yr.:	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		38,396		142,890

Oil:

	Mini	*Small*	*Large*
No. of oil heated commercial:	0	2	16
No. of oil heated commercial with billing/energy usag data:			
Annual Oil Consumption:			
1		1,500	6,223
2			7,500
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres)	0	1,500	13,723
Average usage (litres per commercial per year)	0	0	0
Assume oil heated mini commercial use (L/com./yr.)			
Assume oil heated small commercial use (L/com./yr.)			
Assume oil heated large commercial use (L/com./yr.)			

Propane:

	Mini	*Small*	*Large*
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking	0	1	1
No. of propane heated commercial with billing/energy usage data	0	1	1
Annual Propane Consumption:			
1		9,500	1,800
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres)	0	9,500	1,800
Average usage (litres per commercial per year)	0	9,500	1,800

Wood:

	Mini	*Small*	*Large*
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:			
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords)	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted):	0.0	0.0	0.0
Percentage of the heating load			
Remaining percentage of heat load	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat			
Remaining heat load distributed as equivaler electrically heated commercial	0.0	0.0	0.0
Percentage of remaining load as oil heat			
Remaining heat load distributed as equivalent o heated commercial	0.0	0.0	0.0

3) EQUIVALENCY ASSUMPTIONS

Electricity:

1 MWh =	0.925	tonnes of CO_2 based on NSPI data
1 kWh =	0.000925	tonnes of CO_2 based on NSPI data
1 kWh =	$0.10	

Oil (No. 2 Diesel):

1 litre =	2.73	kg of CO_2
1 litre =	0.00273	tonnes of CO_2
1 litre =	10.8	kWh
1 litre =	$1.00	

Gasoline:

1 litre =	2.36	kg of CO_2
1 litre =	0.00236	tonnes of CO_2
1 litre =	9.7	kWh
1 litre =	$1.00	

Propane:

1 litre =	1.5	kg of CO_2
1 litre =	0.0015	tonnes of CO_2
1 litre =	7.1	kWh
1 litre =	$0.90	

Firewood (seasoned maple):

1 cord =	5592.7	kWh
1 cord =	$100.00	
1 cord =	4 ft. X 4 ft. x 8 ft. stacked	
1 cord =	1.36	tonnes
1 tonne =	4112	kWh
1 cord =	518	litres of oil (No. 2 diesel)

Bunker 'C' Oil (No. 6 Diesel):

1 litre =	2.85	kg of CO_2
1 litre =	0.00285	tonnes of CO_2
1 litre =	11.6	kWh
1 litre =	$0.35	

4) VEHICLES

Type	Quantity	Fuel Type	Estimated Mileage (km/year/vehicle)	Estimated Fuel Consumption Rate (L/100 km)	Estimated Fuel Consumption (L)
					0
					0
					0
					0
					0
					0
					0
					0

Diesel Summary (L)

Gasoline Summary (L)

Note: Approximately [ ] per year in fuel costs.
Asssume diesel represents [ ] of these costs. → $0.00

S Diesel = 0 → 0 L

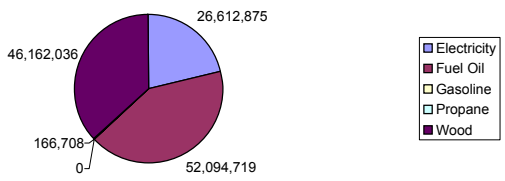
Asssume gasoline represents 100.0% of these costs. → $0.00

S Gasoline = 0 → 0 L

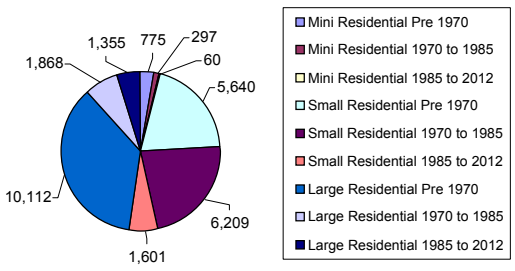
Note: Place diesel related values under those for heating oil in the above table as they are a similar fuel ty

5) CHARTS

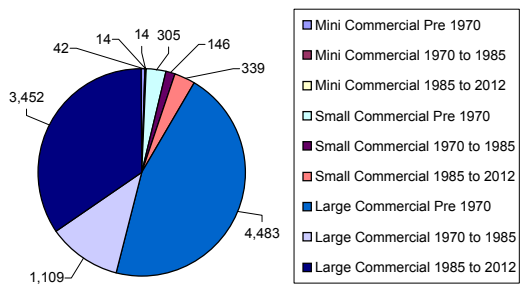
Annual Energy Consumption - 2012 EEM - Optimist	
	kWh
Electricity	26,612,875
Fuel Oil	52,094,719
Gasoline	0
Propane	166,708
Wood	46,162,036
TOTAL	**125,036,338**



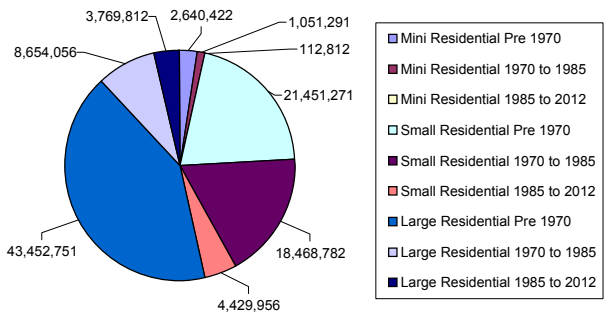
Equivalent CO_2 - Residential - 2012 EEM - Optimistic	
	tonnes
Mini Residential Pre 1970	775
Mini Residential 1970 to 1985	297
Mini Residential 1985 to 2012	60
Small Residential Pre 1970	5,640
Small Residential 1970 to 1985	6,209
Small Residential 1985 to 2012	1,601
Large Residential Pre 1970	10,112
Large Residential 1970 to 1985	1,868
Large Residential 1985 to 2012	1,355
TOTAL	27,916



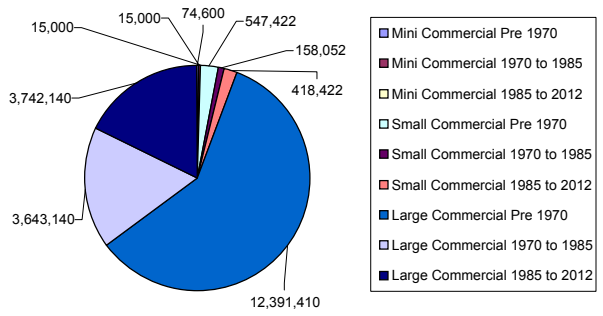
Equivalent CO_2 - Commercial - 2012 EEM - Optimistic	
	tonnes
Mini Commercial Pre 1970	42
Mini Commercial 1970 to 1985	14
Mini Commercial 1985 to 2012	14
Small Commercial Pre 1970	305
Small Commercial 1970 to 1985	146
Small Commercial 1985 to 2012	339
Large Commercial Pre 1970	4,483
Large Commercial 1970 to 1985	1,109
Large Commercial 1985 to 2012	3,452
TOTAL	9,904



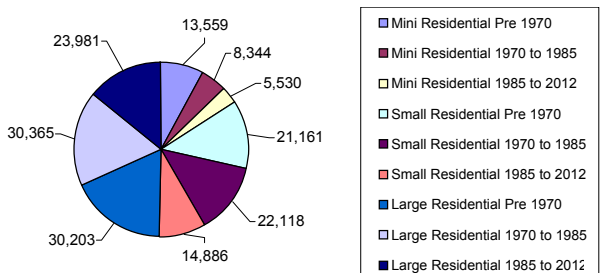
Annual Energy Consumption - Residential - 2012 EEM - Optimis	
	kWh
Mini Residential Pre 1970	2,640,422
Mini Residential 1970 to 1985	1,051,291
Mini Residential 1985 to 2012	112,812
Small Residential Pre 1970	21,451,271
Small Residential 1970 to 1985	18,468,782
Small Residential 1985 to 2012	4,429,956
Large Residential Pre 1970	43,452,751
Large Residential 1970 to 1985	8,654,056
Large Residential 1985 to 2012	3,769,812
TOTAL	104,031,152



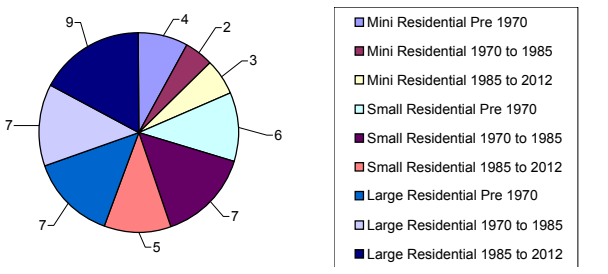
Annual Energy Consumption - Commercial - 2012 EEM - Optimis	
	kWh
Mini Commercial Pre 1970	74,600
Mini Commercial 1970 to 1985	15,000
Mini Commercial 1985 to 2012	15,000
Small Commercial Pre 1970	547,422
Small Commercial 1970 to 1985	158,052
Small Commercial 1985 to 2012	418,422
Large Commercial Pre 1970	12,391,410
Large Commercial 1970 to 1985	3,643,140
Large Commercial 1985 to 2012	3,742,140
TOTAL	21,005,186



Annual Energy Consumption Per Dwelling Type - Residential - 2012 EEM - Optimis			
	Total kWh	**Total No. of Units**	**kWh per Dwelling Type**
Mini Residential Pre 1970	2,640,422	195	13,559
Mini Residential 1970 to 1985	1,051,291	126	8,344
Mini Residential 1985 to 2012	112,812	20	5,530
Small Residential Pre 1970	21,451,271	1014	21,161
Small Residential 1970 to 1985	18,468,782	835	22,118
Small Residential 1985 to 2012	4,429,956	298	14,886
Large Residential Pre 1970	43,452,751	1439	30,203
Large Residential 1970 to 1985	8,654,056	285	30,365
Large Residential 1985 to 2012	3,769,812	157	23,981
TOTAL	104,031,152	4,368	170,145



Equivalent CO_2 Per Dwelling Type - Residential - 2012 EEM - Optimistic			
	Total CO_2 (tonnes)	**Total No. of Units**	**CO_2 per Dwelling Type (tonnes)**
Mini Residential Pre 1970	775	195	4
Mini Residential 1970 to 1985	297	126	2
Mini Residential 1985 to 2012	60	20	3
Small Residential Pre 1970	5,640	1014	6
Small Residential 1970 to 1985	6,209	835	7
Small Residential 1985 to 2012	1,601	298	5
Large Residential Pre 1970	10,112	1439	7
Large Residential 1970 to 1985	1,868	285	7
Large Residential 1985 to 2012	1,355	157	9
TOTAL	27,916	4,368	



Municipality of the District of Clare Revised: October 24, 2006

Annual Energy Consumption - 2012 Energy Efficient Model - Realistic

Item	Electricity (kWh)	Oil (Litres)	Gasoline (Litres)	Propane (Litres)	Wood (cords)	Equivalent CO_2 (tonnes)	Equivalent kWh of Oil	Equivalent kWh of Gasoline	Equivalent kWh of Propane	Equivalent kWh of Wood	Total Equivalent kWh	Total Energy Costs
Mini - Residential												
Pre 1970	555,937	176,523		0	130	996	1,906,449	0	0	725,233	3,187,619	$245,084
1970 to 1985	390,620	7,314		0	123	381	78,991	0	0	686,038	1,155,649	$58,643
1985 to 2012	60,480	7,830		0	0	77	84,564	0	0	0	145,044	$13,878
Small - Residential												
Pre 1970	5,520,388	785,518		80	1,888	7,251	8,483,591	0	568	10,558,719	24,563,266	$1,526,423
1970 to 1985	4,916,880	1,258,203		0	729	7,983	13,588,588	0	0	4,075,640	22,581,108	$1,822,765
1985 to 2012	1,666,998	189,194		0	276	2,058	2,043,300	0	0	1,544,169	5,254,466	$383,505
Large - Residential												
Pre 1970	9,319,401	1,604,646		0	4,063	13,001	17,330,173	0	0	22,725,305	49,374,879	$2,942,924
1970 to 1985	1,923,750	228,012		0	937	2,402	2,462,535	0	0	5,242,501	9,628,786	$514,126
1985 to 2012	1,061,100	278,539		50	108	1,742	3,008,219	0	355	604,431	4,674,105	$395,501
Mini - Commercial												
Pre 1970	35,000	3,667		0	0	42	39,600	0	0	0	74,600	$7,167
1970 to 1985	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
1985 to 2012	15,000	0		0	0	14	0	0	0	0	15,000	$1,500
						0	0	0	0	0	0	$0
Small - Commercial												
Pre 1970	248,363	27,691		0	0	305	299,059	0	0	0	547,422	$52,527
1970 to 1985	157,697	0		50	0	146	0	0	355	0	158,052	$15,815
1985 to 2012	350,972	0		9,500	0	339	0	0	67,450	0	418,422	$43,647
Large - Commercial												
Pre 1970	2,008,830	961,350		0	0	4,483	10,382,580	0	0	0	12,391,410	$1,162,233
1970 to 1985	285,000	303,050		12,000	0	1,109	3,272,940	0	85,200	0	3,643,140	$342,350
1985 to 2012	3,729,360	0		1,800	0	3,452	0	0	12,780	0	3,742,140	$374,556
Vehicles (Not Applicable)		0	0			0	0	0	0	0	0	$0
TOTAL ENERGY	32,260,776	5,831,536	0	23,480	8,254	45,797	62,980,588	0	166,708	46,162,036	141,570,108	
TOTAL COST	$3,226,078	$5,831,536	$0	$21,132	$825,398							$9,904,144

NOTE: Wood heat represents a zero net increase to Equivalent CO_2 and is in combination with predominantly an oil fired system.

ENERGY SUMMARY

Residential Buildings Sub-Totals	***25,415,553***	***4,535,779***	***0***	***130***	***8,254***	***35,892***	***48,986,409***	***0***	***923***	***46,162,036***	***120,564,921***	***7,902,849***
Commercial Buildings Sub-Totals	***6,845,222***	***1,295,757***	***0***	***23,350***	***0***	***9,904***	***13,994,179***	***0***	***165,785***	***0***	***21,005,186***	***2,001,295***
Vehicles Sub-Totals	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***
TOTAL ENERGY	***32,260,776***	***5,831,536***	***0***	***23,480***	***8,254***	***45,797***	***62,980,588***	***0***	***166,708***	***46,162,036***	***141,570,108***	
											TOTAL ENERGY COST	***$9,904,144***

DATA & ASSUMPTIONS **(Note: Shaded areas require numerical input.)**

1) ENERGY USAGE - RESIDENTIAL

Pre 1970 Residences

Percentage Change from Current to 2012	-9.0%	(Decrease)	-9.0%	(Decrease)	-9.0%	(Decrease)
	Mini		***Small***		***Large***	
Total no. of residences:	195		1014		1439	
No. of seasonal residences (non-heating electric load):	91		306		79	
Energy Efficiency Reduction Value =	10.0%		10.0%		10.0%	
Electricity:						
No. of electrically heated residences:	0		0		0	
No. of non-electrically heated residences with billing/energy usage data:	4		10		21	
No. of electrically heated residences with billing/energy usage data:		0		0		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	3,347		5,781		6,500	
2	6,227		4,833		7,612	
3	2,663		5,078		4,327	
4	4,403		10,110		7,122	
5			6,237		5,126	
6			12,129		5,052	
7			6,354		13,375	
8			10,986		2,921	
9			5,702		6,200	
10			10,365		7,700	
11					12,500	
12					7,488	
13					3,896	
14					11,854	
15					5,810	
16					8,847	
17					9,463	
18					4,028	
19					6,321	
20					8,018	
21					12,000	
Total billing/usage data (kWh):	16,640	0	77,575	0	156,160	0
Average usage (kWh per residence per year):	4,160	0	7,758	0	7,436	0
Assume electrically heated mini homes use (kWh):		15,000				
Assume electrically heated small homes use (kWh):				20,000		
Assume electrically heated large homes use (kWh):						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		10,800		12,200		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	***Small***	***Large***
No. of oil heated residences:	78	354	647
No. of oil heated residences with billing/energy usage data:	4	12	19
Annual Oil Consumption:			
1	3,640	1,500	1,820
2	1,820	910	910
3	2,660	1,347	1,298
4	910	910	1,820
5		3,125	910
6		900	3,750
7		3,077	3,125
8		1,800	900
9		1,700	3,600
10		4,000	900
11		428	4,500
12		3,600	3,600
13			500
14			1,800
15			1,200
16			1,800
17			3,800
18			3,557
19			1,250
Total billing/usage data (litres):	9,030	23,297	41,040
Average usage (litres per residence per year):	2,258	1,941	2,160

Propane:

	Mini	***Small***	***Large***
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking:	0	1	0
No. of propane heated residences with billing/energy usage data:	0	1	0
Annual Propane Consumption:			
1		80	
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	80	0
Average usage (litres per residence per year):	0	80	0

Wood:			
	Mini	***Small***	***Large***
No. of wood heated residences:	26	354	712
No. of wood heated residences with billing/energy usage data:	1	6	17
Annual Wood Consumption:			
1	5.0	6.0	4.0
2		5.0	8.0
3		4.0	1.5
4		5.0	3.0
5		7.0	7.0
6		5.0	10.0
7			6.0
8			7.0
9			10.0
10			2.0
11			8.0
12			8.0
13			6.0
14			5.0
15			1.5
16			6.0
17			4.0
Total billing/usage data (cords):	5.0	32.0	97.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted)	5.0	5.3	5.7
Percentage of the heating load:	65.0%	73.0%	75.0%
Remaining percentage of heat load:	35.0%	27.0%	25.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	9.1	95.6	178.0

1970 to 1985 Residences

Percentage Change from Current to 2012	0.0% (No Change)	0.0% (No Change)	0.0% (No Change)
	Mini	***Small***	***Large***
Total no. of residences:	126	835	285
No. of seasonal residences (non-heating electric load):	80	181	0
Energy Efficiency Reduction Value =	10.0%	10.0%	10.0%
Electricity:			
No. of electrically heated residences:	15	0	0
No. of non-electrically heated residences with billing/energy usage data:	2	6	7
No. of electrically heated residences with billing/energy usage data:	1	0	0
Annual Electricity Consumption:	Non-electrically heated / Electrically heated	Non-electrically heated / Electrically heated	Non-electrically heated / Electrically heated
1	7,500	12,889	15,000
2	11,702	6,772	8,554
3	9,471	8,841	7,701
4		4,055	13,800
5		8,144	12,576
6		6,141	14,667
7			5,248
8			
9			
10			
Total billing/usage data (kWh):	19,202 / 9,471	46,842 / 0	77,546 / 0
Average usage (kWh per residence per year):	9,601 / 9,471	7,807 / 0	11,078 / 0
Assume electrically heated small homes use (kWh):	15,000	20,000	
Assume electrically heated large homes use (kWh):			25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200	7,800	7,500
Therefore, the net electric heating load (kWh/res./yr.):	5,271	12,200	17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000	2,000	2,000

Oil:			
	Mini	***Small***	***Large***
No. of oil heated residences:	15	467	107
No. of oil heated residences with billing/energy usage data:	2	6	7
Annual Oil Consumption:			
1	250	2,000	3,640
2	750	3,125	3,125
3		3,125	900
4		3,600	1,365
5		3,600	2,500
6		1,300	500
7			900
8			
9			
10			
Total billing/usage data (litres):	1,000	16,750	12,930
Average usage (litres per residence per year):	500	2,792	1,847

Propane:			
	Mini	***Small***	***Large***
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking:	0	0	0
No. of propane heated residences with billing/energy usage data:	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	0
Average usage (litres per residence per year):	0	0	0

Wood:			
	Mini	***Small***	***Large***
No. of wood heated residences:	15	187	178
No. of wood heated residences with billing/energy usage data:	1	5	8
Annual Wood Consumption:			
1	8.0	2.0	8.0
2		2.0	3.0
3		8.0	0.1
4		3.0	9.0
5		4.5	8.0
6			3.0
7			7.0
8			4.0
9			
10			
Total billing/usage data (cords):	8.0	19.5	42.1
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted)	8.0	3.9	5.3
Percentage of the heating load:	94.0%	82.0%	83.0%
Remaining percentage of heat load:	6.0%	18.0%	17.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	100.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	0.9	33.6	30.3

1985 to 2012 Residences

	Mini		Small		Large	
Percentage Change from Current to 2012	20.0% (Increase)		20.0% (Increase)		20.0% (Increase)	
Total no. of residences:	20		298		157	
No. of seasonal residences (non-heating electric load):	8		96		0	
Energy Efficiency Reduction Value =	10.0%		10.0%		10.0%	
Electricity:						
No. of electrically heated residences:	0		9		0	
No. of non-electrically heated residences with billing/energy usage data:	1		3		3	
No. of electrically heated residences with billing/energy usage data:		0		1		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1	8,966		10,610		19,430	
2			10,614		2,308	
3			10,332		7,509	
4				17,810		
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	8,966	0	31,556	17,810	29,247	0
Average usage (kWh per residence per year):	8,966	0	10,519	17,810	9,749	0
Assume electrically heated mini homes use (kWh):		15,000				
				20,000		
Assume electrically heated large homes use (kWh):						25,000
Assume a non-heating electric load (kWh/res./yr.):	4,200		7,800		7,500	
Therefore, the net electric heating load (kWh/res./yr.):		10,800		10,010		17,500
Assume a non-heating electric load for seasonal residences (kWh/seasonal residence/year):	2,000		2,000		2,000	

Oil:

	Mini	Small	Large
No. of oil heated residences:	12	114	118
No. of oil heated residences with billing/energy usage data:	1	3	2
Annual Oil Consumption:			
1	725	228	1,800
2		1,875	2,700
3		2,700	
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	725	4,803	4,500
Average usage (litres per residence per year):	725	1,601	2,250

Propane:

	Mini	Small	Large
No. of propane heated residences:	0	0	0
No. of residences using propane for auxilliary heat or cooking:	0	0	1
No. of propane heated residences with billing/energy usage data:	0	0	1
Annual Propane Consumption:			
1			50
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	50
Average usage (litres per residence per year):	0	0	50

Wood:

	Mini	Small	Large
No. of wood heated residences:	0	79	39
No. of wood heated residences with billing/energy usage data:	0	2	2
Annual Wood Consumption:			
1		5.0	1.5
2		2.0	4.0
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	7.0	5.5
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted)	0.0	3.5	2.8
Percentage of the heating load:	0.0%	78.0%	50.0%
Remaining percentage of heat load:	100.0%	22.0%	50.0%
Percentage of remaining load as electric heat:	0.0%	0.0%	0.0%
Remaining heat load distributed as equivalent electrically heated residences:	0.0	0.0	0.0
Percentage of remaining load as oil heat:	0.0%	100.0%	100.0%
Remaining heat load distributed as equivalent oil heated residences:	0.0	17.4	19.7

2) ENERGY USAGE - COMMERCIAL

Pre 1970 Commercial

	Mini		Small		Large	
Percentage Change from Current to 2012	0.0% (No Change)		0.0% (No Change)		0.0% (No Change)	
Total no. of commercial:	5		16		203	
Energy Efficiency Reduction Value =	0.0%		0.0%		0.0%	
Electricity:						
No. of electrically heated commercial:	3		8		15	
No. of non-electrically heated commercial with billing/energy usage data:	1		0		7	
No. of electrically heated commercial with billing/energy usage data:		1		5		1
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1		8,400		8,985		41,040
2	8,630			33,600	17,000	
3				41,507	26,500	
4				6,911	14,000	
5				25,224	21,469	
6					14,423	
7					14,400	
8						
9						
10						
Total billing/usage data (kWh):	8,630	8,400	0	116,227	107,792	41,040
Average usage (kWh per commercial per year):	8,630	8,400	0	23,245	15,399	41,040
		15,000				
				20,000		
						25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		4,200		15,445		33,540

Oil:

	Mini	Small	Large
No. of oil heated commercial:	2	8	174
No. of oil heated commercial with billing/energy usage data:	1	3	6
Annual Oil Consumption:			
1	2,200	1,365	2,250
2		7,969	2,500
3		1,050	4,500
4			11,000
5			11,000
6			1,900
7			
8			
9			
10			
Total billing/usage data (litres):	2,200	10,384	33,150
Average usage (litres per commercial per year):	2,200	3,461	5,525

Propane:

	Mini	Small	Large
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	0	0
No. of propane heated commercial with billing/energy usage data:	0	0	0
Annual Propane Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	0
Average usage (litres per commercial per year):	0	0	0

Wood:

	Mini	*Small*	*Large*
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted)	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

1970 to 1985 Commercial

Percentage Change from Current to 2012	0.0% (No Change)	0.0% (No Change)	0.0% (No Change)
	Mini	*Small*	*Large*
Total no. of commercial:	1	13	38
Energy Efficiency Reduction Value =	0.0%	0.0%	0.0%

Electricity:						
No. of electrically heated commercial:	1		10		0	
No. of non-electrically heated commercial with billing/energy usage data:	0		0		3	
No. of electrically heated commercial with billing/energy usage data:		0		1		0
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				13,574	35,400	
2					62,880	
3					22,000	
4						
5						
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	0	0	0	13,574	120,280	0
Average usage (kWh per commercial per year):	0	0	0	13,574	40,093	0
Assume electrically heated mini commercial use (kWh):		15,000				
				20,000		
Assume electrically heated large commercial use (kWh):						25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		5,774		17,500

Oil:

	Mini	*Small*	*Large*
No. of oil heated commercial:	0	3	38
No. of oil heated commercial with billing/energy usage data:	0	0	2
Annual Oil Consumption:			
1			2,200
2			13,750
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	0	15,950
Average usage (litres per commercial per year):	0	0	7,975
Assume oil heated mini commercial use (L/com./yr.)			
Assume oil heated small commercial use (L/com./yr.)			

Propane:

	Mini	*Small*	*Large*
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	1	1
No. of propane heated commercial with billing/energy usage data:	0	1	1
Annual Propane Consumption:			
1		50	12,000
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	50	12,000
Average usage (litres per commercial per year):	0	50	12,000

Wood:

	Mini	*Small*	*Large*
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:	0	0	0
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted)	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

1985 to 2012 Commercial

Percentage Change from Current to 2012	0.0% (No Change)	0.0% (No Change)	0.0% (No Change)
	Mini	*Small*	*Large*
Total no. of commercial:	1	13	40
Energy Efficiency Reduction Value =	0.0%	0.0%	0.0%

Electricity:						
No. of electrically heated commercial:	1		7		24	
No. of non-electrically heated commercial with billing/energy usage data:	0		1		2	
No. of electrically heated commercial with billing/energy usage data:		0		4		2
Annual Electricity Consumption:	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated	Non-electrically heated	Electrically heated
1				71,431	161,560	
2				27,600		129,000
3				32,760	110,400	
4				52,992		70,500
5			63,500			101,280
6						
7						
8						
9						
10						
Total billing/usage data (kWh):	0	0	63,500	184,783	271,960	300,780
Average usage (kWh per residence per year):	0	0	63,500	46,196	135,980	150,390
Assume electrically heated mini commercial use (kWh):		15,000				
				20,000		
						25,000
Assume a non-heating electric load (kWh/com./yr.):	4,200		7,800		7,500	
Assume an electric heating load (kWh/com./yr.):		10,800		38,396		142,890

Oil:

	Mini	***Small***	***Large***
No. of oil heated commercial:	0	2	16
No. of oil heated commercial with billing/energy usage data:			
Annual Oil Consumption:			
1		1,500	6,223
2			7,500
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	1,500	13,723
Average usage (litres per commercial per year):	0	0	0
Assume oil heated mini commercial use (L/com./yr.)			
Assume oil heated small commercial use (L/com./yr.)			
Assume oil heated large commercial use (L/com./yr.)			

Propane:

	Mini	***Small***	***Large***
No. of propane heated commercial:	0	0	0
No. of commercial using propane for auxilliary heat or cooking:	0	1	1
No. of propane heated commercial with billing/energy usage data:	0	1	1
Annual Propane Consumption:			
1		9,500	1,800
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (litres):	0	9,500	1,800
Average usage (litres per commercial per year):	0	9,500	1,800

Wood:

	Mini	***Small***	***Large***
No. of wood heated commercial:	0	0	0
No. of wood heated commercial with billing/energy usage data:			
Annual Wood Consumption:			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Total billing/usage data (cords):	0.0	0.0	0.0
Average no. of cords of seasoned hardwood (If no data, then assumed values are used and highlighted)	0.0	0.0	0.0
Percentage of the heating load:			
Remaining percentage of heat load:	100.0%	100.0%	100.0%
Percentage of remaining load as electric heat:			
Remaining heat load distributed as equivalent electrically heated commercial:	0.0	0.0	0.0
Percentage of remaining load as oil heat:			
Remaining heat load distributed as equivalent oil heated commercial:	0.0	0.0	0.0

3) EQUIVALENCY ASSUMPTIONS

Electricity:

1 MWh =	0.925	tonnes of CO_2 based on NSPI data
1 kWh =	0.000925	tonnes of CO_2 based on NSPI data
1 kWh =	$0.10	

Oil (No. 2 Diesel):

1 litre =	2.73	kg of CO_2
1 litre =	0.00273	tonnes of CO_2
1 litre =	10.8	kWh
1 litre =	$1.00	

Gasoline:

1 litre =	2.36	kg of CO_2
1 litre =	0.00236	tonnes of CO_2
1 litre =	9.7	kWh
1 litre =	$1.00	

Propane:

1 litre =	1.5	kg of CO_2
1 litre =	0.0015	tonnes of CO_2
1 litre =	7.1	kWh
1 litre =	$0.90	

Firewood (seasoned maple):

1 cord =	5592.7	kWh
1 cord =	$100.00	
1 cord =	4 ft. X 4 ft. x 8 ft. stacked	
1 cord =	1.36	tonnes
1 tonne =	4112	kWh
1 cord =	518	litres of oil (No. 2 diesel)

Bunker 'C' Oil (No. 6 Diesel):

1 litre =	2.85	kg of CO_2
1 litre =	0.00285	tonnes of CO_2
1 litre =	11.6	kWh
1 litre =	$0.35	

4) VEHICLES

Type	Quantity	Fuel Type	Estimated Mileage (km/year/vehicle)	Estimated Fuel Consumption Rate (L/100 km)	Estimated Fuel Consumption (L)	Diesel Summary (L)	Gasoline Summary (L)
					0		
					0		
					0		
					0		
					0		
					0		
					0		
					0		

Note: Approximately _____ per year in fuel costs.
Asssume diesel represents _____ of these costs. → $0.00

S Diesel = 0 → 0 L

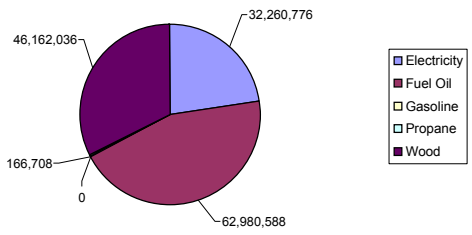
Asssume gasoline represents 100.0% of these costs. → $0.00

S Gasoline = 0 → 0 L

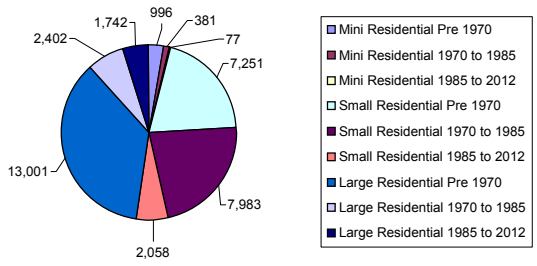
Note: Place diesel related values under those for heating oil in the above table as they are a similar fuel type.

5) CHARTS

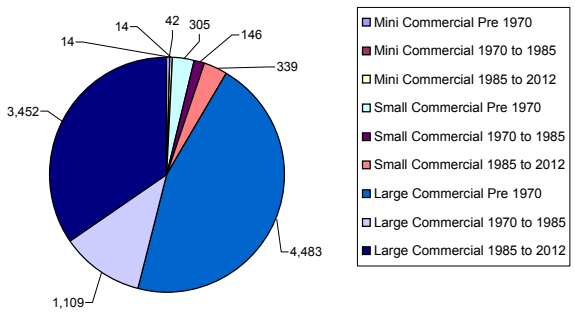
Annual Energy Consumption - 2012 EEM - Realistic	
	kWh
Electricity	32,260,776
Fuel Oil	62,980,588
Gasoline	0
Propane	166,708
Wood	46,162,036
TOTAL	**141,570,108**



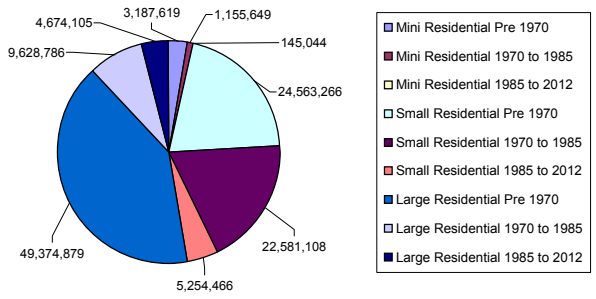
Equivalent CO_2 - Residential - 2012 EEM - Realistic	
	tonnes
Mini Residential Pre 1970	996
Mini Residential 1970 to 1985	381
Mini Residential 1985 to 2012	77
Small Residential Pre 1970	7,251
Small Residential 1970 to 1985	7,983
Small Residential 1985 to 2012	2,058
Large Residential Pre 1970	13,001
Large Residential 1970 to 1985	2,402
Large Residential 1985 to 2012	1,742
TOTAL	35,892



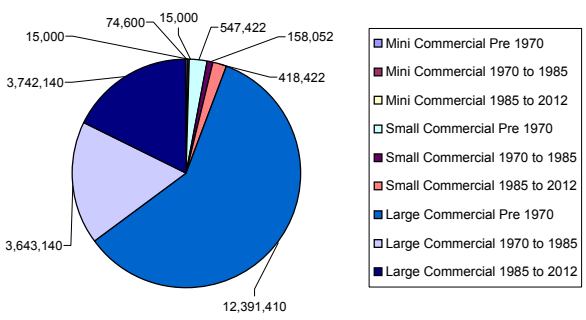
Equivalent CO_2 - Commercial - 2012 EEM - Realistic	
	tonnes
Mini Commercial Pre 1970	42
Mini Commercial 1970 to 1985	14
Mini Commercial 1985 to 2012	14
Small Commercial Pre 1970	305
Small Commercial 1970 to 1985	146
Small Commercial 1985 to 2012	339
Large Commercial Pre 1970	4,483
Large Commercial 1970 to 1985	1,109
Large Commercial 1985 to 2012	3,452
TOTAL	9,904



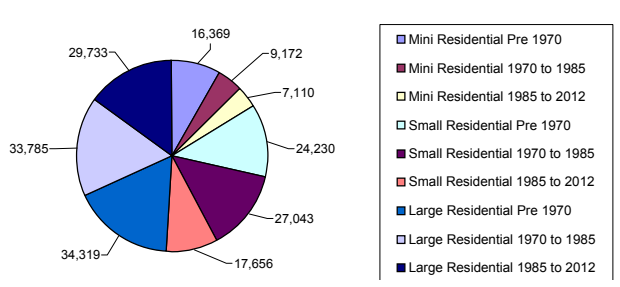
Annual Energy Consumption - Residential - 2012 EEM - Realistic	
	kWh
Mini Residential Pre 1970	3,187,619
Mini Residential 1970 to 1985	1,155,649
Mini Residential 1985 to 2012	145,044
Small Residential Pre 1970	24,563,266
Small Residential 1970 to 1985	22,581,108
Small Residential 1985 to 2012	5,254,466
Large Residential Pre 1970	49,374,879
Large Residential 1970 to 1985	9,628,786
Large Residential 1985 to 2012	4,674,105
TOTAL	120,564,921



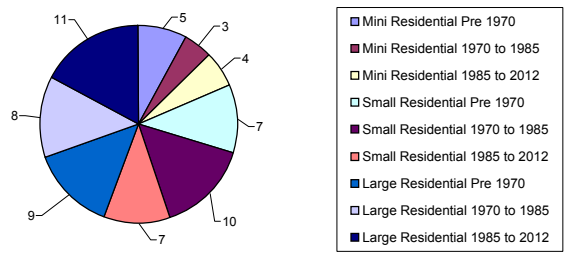
Annual Energy Consumption - Commercial - 2012 EEM - Realistic	
	kWh
Mini Commercial Pre 1970	74,600
Mini Commercial 1970 to 1985	15,000
Mini Commercial 1985 to 2012	15,000
Small Commercial Pre 1970	547,422
Small Commercial 1970 to 1985	158,052
Small Commercial 1985 to 2012	418,422
Large Commercial Pre 1970	12,391,410
Large Commercial 1970 to 1985	3,643,140
Large Commercial 1985 to 2012	3,742,140
TOTAL	21,005,186



Annual Energy Consumption Per Dwelling Type - Residential - 2012 EEM - Realistic			
	Total kWh	Total No. of Units	kWh per Dwelling Type
Mini Residential Pre 1970	3,187,619	195	16,369
Mini Residential 1970 to 1985	1,155,649	126	9,172
Mini Residential 1985 to 2012	145,044	20	7,110
Small Residential Pre 1970	24,563,266	1014	24,230
Small Residential 1970 to 1985	22,581,108	835	27,043
Small Residential 1985 to 2012	5,254,466	298	17,656
Large Residential Pre 1970	49,374,879	1439	34,319
Large Residential 1970 to 1985	9,628,786	285	33,785
Large Residential 1985 to 2012	4,674,105	157	29,733
TOTAL	120,564,921	4,368	199,418



Equivalent CO_2 Per Dwelling Type - Residential - 2012 EEM - Realistic			
	Total CO_2 (tonnes)	Total No. of Units	CO_2 per Dwelling Type (tonnes)
Mini Residential Pre 1970	996	195	5
Mini Residential 1970 to 1985	381	126	3
Mini Residential 1985 to 2012	77	20	4
Small Residential Pre 1970	7,251	1014	7
Small Residential 1970 to 1985	7,983	835	10
Small Residential 1985 to 2012	2,058	298	7
Large Residential Pre 1970	13,001	1439	9
Large Residential 1970 to 1985	2,402	285	8
Large Residential 1985 to 2012	1,742	157	11
TOTAL	35,892	4,368	



Municipality of the District of Clare

Revised: October 24, 2006

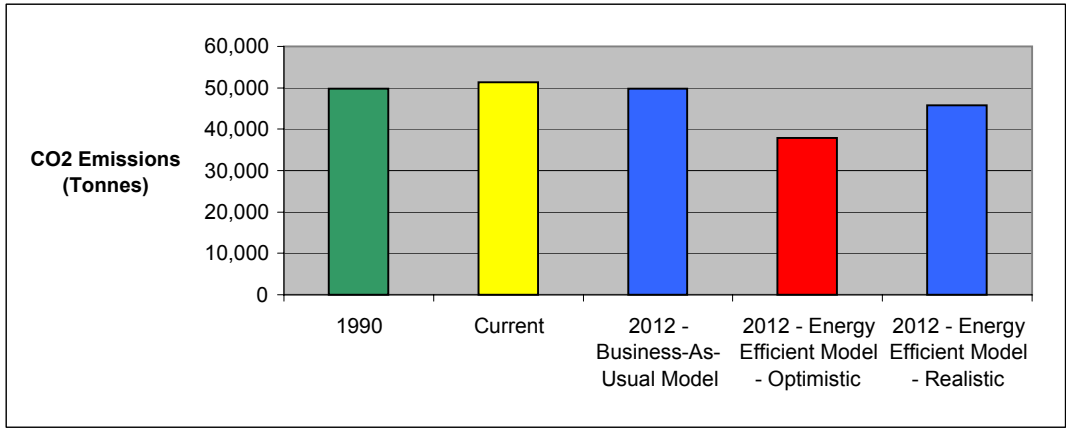
Annual CO_2 Emissions (Tonnes)

1990	49,749
Current	51,401
2012 - Business-As-Usual Model	49,785
2012 - Energy Efficient Model - Optimistic	37,821
2012 - Energy Efficient Model - Realistic	45,797

The emissions difference between the 1990 base year and the current 2006 model is: -1,653 tonnes → **3.3%** **Increase in Emission Levels**

The emissions difference by 2012 between the business-as usual model and the most optimistic energy-efficient model is: 11,964 tonnes → **24.0%** **Decrease in Emission Levels**

The emissions difference by 2012 between the business-as usual model and the most realistic energy-efficient model is: 3,988 tonnes → **8.0%** **Decrease in Emission Levels**



Municipality of the District of Clare

Revised: October 24, 2006

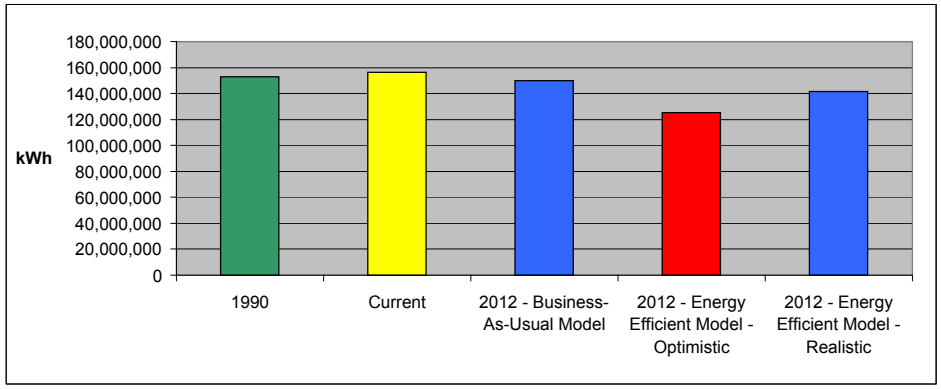
Annual Energy Consumption (kWh)

1990	153,068,873
Current	156,112,931
2012 - Business-As-Usual Model	149,836,992
2012 - Energy Efficient Model - Optimistic	125,036,338
2012 - Energy Efficient Model - Realistic	141,570,108

The energy consumption difference between the 1990 base year and the current 2006 model is: -3,044,057 kWh → **Increase in Emission Levels**

The energy consumption saving difference by 2012 between the business-as-usual model and the most optimistic energy-efficient model is: 24,800,654 kWh → **Decrease in Emission Levels**

The energy consumption saving difference by 2012 between the business-as-usual model and the most realistic energy-efficient model is: 8,266,885 kWh → **Decrease in Emission Levels**



Municipality of the District of Clare

Revised: October 24, 2006

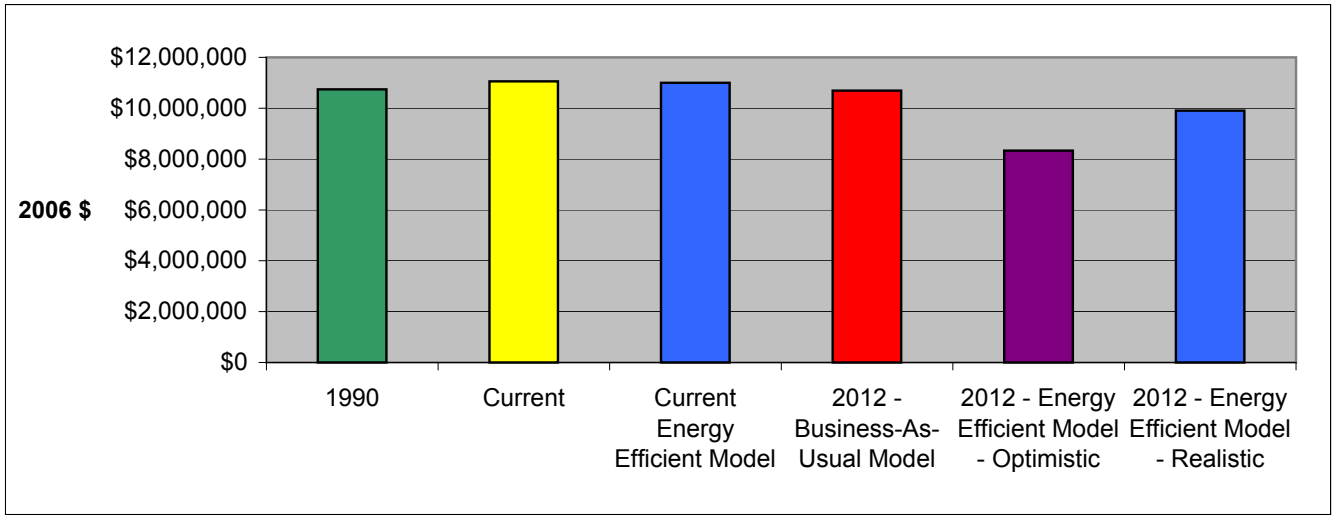
Annual Energy Cost 2006 $

1990	$10,738,891
Current	$11,055,782
Current Energy Efficient Model	$10,999,099
2012 - Business-As-Usual Model	$10,690,514
2012 - Energy Efficient Model - Optimistic	$8,331,403
2012 - Energy Efficient Model - Realistic	$9,904,144

The energy cost saving difference between the current model and the current energy efficient model is: → $56,683

The energy cost saving difference by 2012 between the business-as-usual model and the most optimistic energy efficient model is: → $2,359,111

The energy cost saving difference by 2012 between the business-as-usual model and the most realistic energy efficient model is: → $786,370



Energy Cost Assumptions	
Electricity Average	10 ¢ / kWh
Fuel Oil Average	100 ¢ / L
Gasoline Average	100 ¢ / L
Propane Average	90 ¢ / L
Wood Average	$ 100 / cord

APPENDIX B
Landfill Emissions Calculations

Summary Report

Landfill Name or Identifier: Clare

Date: Thursday, November 16, 2006

Description/Comments:

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} kL_o \left(\frac{M_i}{10} \right) e^{-kt_{ij}}$$

Where,

Q_{CH4} = annual methane generation in the year of the calculation ($m^3/year$)
i = 1-year time increment
n = (year of the calculation) - (initial year of waste acceptance)
j = 0.1-year time increment
k = methane generation rate ($year^{-1}$)
L_o = potential methane generation capacity (m^3/Mg)
M_i = mass of waste accepted in the i^{th} year (Mg)
t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (*decimal years*, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**1984**	
Landfill Closure Year (with 80-year limit)	**2005**	
Actual Closure Year (without limit)	***2005***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity		*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.050**	$year^{-1}$
Potential Methane Generation Capacity, L_o	**170**	m^3/Mg
NMOC Concentration	**4,000**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	**Total landfill gas**
Gas / Pollutant #2:	**Methane**
Gas / Pollutant #3:	**Carbon dioxide**
Gas / Pollutant #4:	**NMOC**

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1984	22,560	24,816	0	0
1985	22,560	24,816	22,560	24,816
1986	22,560	24,816	45,120	49,632
1987	22,560	24,816	67,680	74,448
1988	22,560	24,816	90,240	99,264
1989	22,560	24,816	112,800	124,080
1990	22,560	24,816	135,360	148,896
1991	22,560	24,816	157,920	173,712
1992	22,560	24,816	180,480	198,528
1993	22,560	24,816	203,040	223,344
1994	22,560	24,816	225,600	248,160
1995	22,560	24,816	248,160	272,976
1996	22,560	24,816	270,720	297,792
1997	22,560	24,816	293,280	322,608
1998	22,560	24,816	315,840	347,424
1999	22,560	24,816	338,400	372,240
2000	22,560	24,816	360,960	397,056
2001	22,560	24,816	383,520	421,872
2002	22,560	24,816	406,080	446,688
2003	22,560	24,816	428,640	471,504
2004	22,560	24,816	451,200	496,320
2005	22,560	24,816	473,760	521,136
2006	0	0	496,320	545,952
2007	0	0	496,320	545,952
2008	0	0	496,320	545,952
2009	0	0	496,320	545,952
2010	0	0	496,320	545,952
2011	0	0	496,320	545,952
2012	0	0	496,320	545,952
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2014	0	0	496,320	545,952
2015	0	0	496,320	545,952
2016	0	0	496,320	545,952
2017	0	0	496,320	545,952
2018	0	0	496,320	545,952
2019	0	0	496,320	545,952
2020	0	0	496,320	545,952
2021	0	0	496,320	545,952
2022	0	0	496,320	545,952
2023	0	0	496,320	545,952

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2024	0	0	496,320	545,952
2025	0	0	496,320	545,952
2026	0	0	496,320	545,952
2027	0	0	496,320	545,952
2028	0	0	496,320	545,952
2029	0	0	496,320	545,952
2030	0	0	496,320	545,952
2031	0	0	496,320	545,952
2032	0	0	496,320	545,952
2033	0	0	496,320	545,952
2034	0	0	496,320	545,952
2035	0	0	496,320	545,952
2036	0	0	496,320	545,952
2037	0	0	496,320	545,952
2038	0	0	496,320	545,952
2039	0	0	496,320	545,952
2040	0	0	496,320	545,952
2041	0	0	496,320	545,952
2042	0	0	496,320	545,952
2043	0	0	496,320	545,952
2044	0	0	496,320	545,952
2045	0	0	496,320	545,952
2046	0	0	496,320	545,952
2047	0	0	496,320	545,952
2048	0	0	496,320	545,952
2049	0	0	496,320	545,952
2050	0	0	496,320	545,952
2051	0	0	496,320	545,952
2052	0	0	496,320	545,952
2053	0	0	496,320	545,952
2054	0	0	496,320	545,952
2055	0	0	496,320	545,952
2056	0	0	496,320	545,952
2057	0	0	496,320	545,952
2058	0	0	496,320	545,952
2059	0	0	496,320	545,952
2060	0	0	496,320	545,952
2061	0	0	496,320	545,952
2062	0	0	496,320	545,952
2063	0	0	496,320	545,952

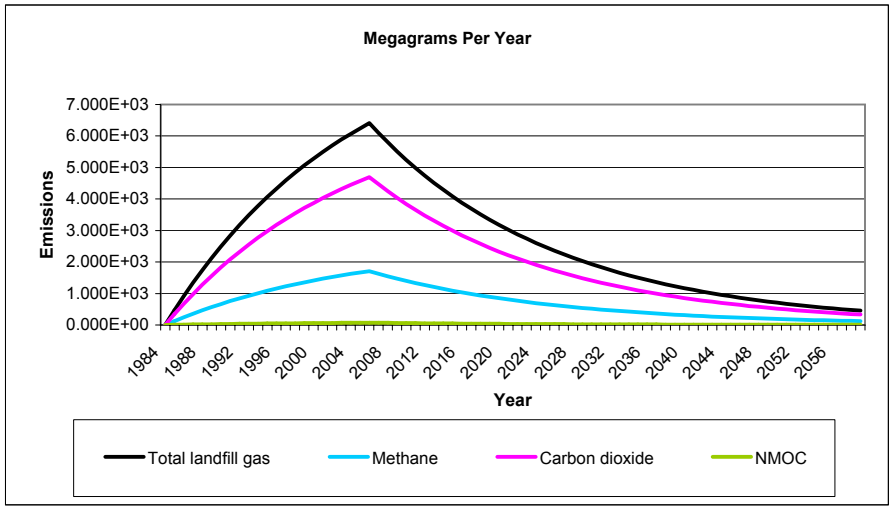
Pollutant Parameters

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

Pollutant Parameters (Continued)

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Graphs


Megagrams Per Year
Emissions
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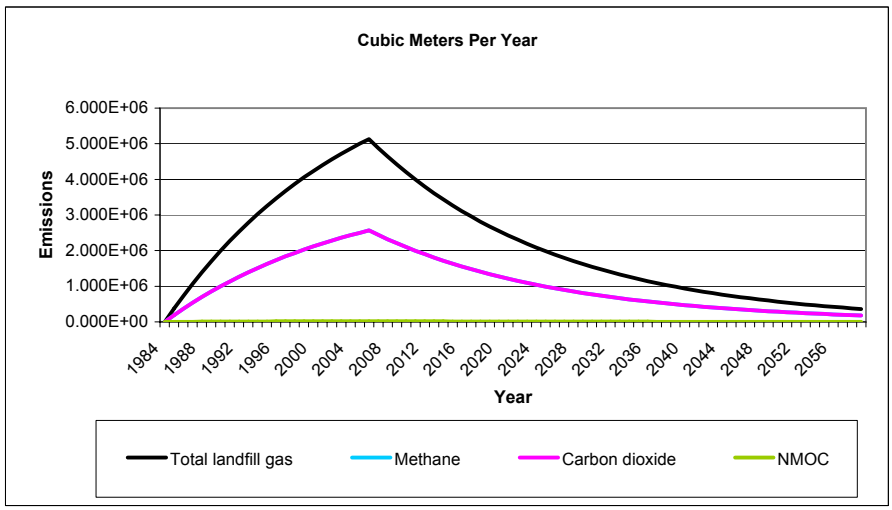
6.000E+03
5.000E+03
4.000E+03
3.000E+03
2.000E+03
1.000E+03
0.000E+00
1984 1988 1992 1996 2000 2004 2008 2012 2016 2020 2024 2028 2032 2036 2040 2044 2048 2052 2056
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
Emissions
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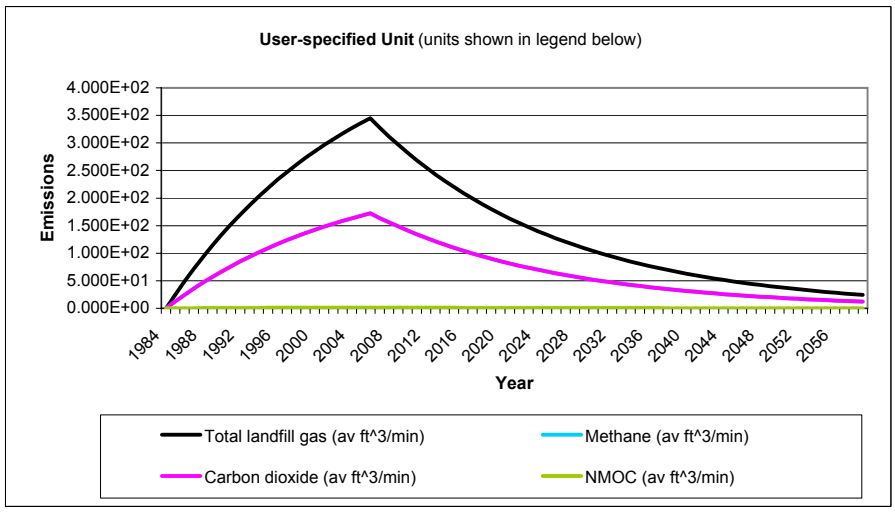
5.000E+06
4.000E+06
3.000E+06
2.000E+06
1.000E+06
0.000E+00
1984 1988 1992 1996 2000 2004 2008 2012 2016 2020 2024 2028 2032 2036 2040 2044 2048 2052 2056
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
Emissions
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3.500E+02
3.000E+02
2.500E+02
2.000E+02
1.500E+02
1.000E+02
5.000E+01
0.000E+00
1984 1988 1992 1996 2000 2004 2008 2012 2016 2020 2024 2028 2032 2036 2040 2044 2048 2052 2056
Year
Total landfill gas (av ft^3/min)
Methane (av ft^3/min)
Carbon dioxide (av ft^3/min)
NMOC (av ft^3/min)

Results

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1984	0	0	0	0	0	0
1985	4.683E+02	3.750E+05	2.520E+01	1.251E+02	1.875E+05	1.260E+01
1986	9.138E+02	7.318E+05	4.917E+01	2.441E+02	3.659E+05	2.458E+01
1987	1.338E+03	1.071E+06	7.197E+01	3.573E+02	5.355E+05	3.598E+01
1988	1.741E+03	1.394E+06	9.366E+01	4.650E+02	6.969E+05	4.683E+01
1989	2.124E+03	1.701E+06	1.143E+02	5.674E+02	8.505E+05	5.714E+01
1990	2.489E+03	1.993E+06	1.339E+02	6.648E+02	9.965E+05	6.695E+01
1991	2.836E+03	2.271E+06	1.526E+02	7.575E+02	1.135E+06	7.629E+01
1992	3.166E+03	2.535E+06	1.703E+02	8.456E+02	1.268E+06	8.517E+01
1993	3.480E+03	2.786E+06	1.872E+02	9.295E+02	1.393E+06	9.361E+01
1994	3.778E+03	3.026E+06	2.033E+02	1.009E+03	1.513E+06	1.016E+02
1995	4.063E+03	3.253E+06	2.186E+02	1.085E+03	1.627E+06	1.093E+02
1996	4.333E+03	3.469E+06	2.331E+02	1.157E+03	1.735E+06	1.166E+02
1997	4.590E+03	3.675E+06	2.469E+02	1.226E+03	1.838E+06	1.235E+02
1998	4.834E+03	3.871E+06	2.601E+02	1.291E+03	1.936E+06	1.300E+02
1999	5.067E+03	4.057E+06	2.726E+02	1.353E+03	2.029E+06	1.363E+02
2000	5.288E+03	4.234E+06	2.845E+02	1.412E+03	2.117E+06	1.423E+02
2001	5.499E+03	4.403E+06	2.958E+02	1.469E+03	2.201E+06	1.479E+02
2002	5.699E+03	4.563E+06	3.066E+02	1.522E+03	2.282E+06	1.533E+02
2003	5.889E+03	4.716E+06	3.168E+02	1.573E+03	2.358E+06	1.584E+02
2004	6.070E+03	4.861E+06	3.266E+02	1.621E+03	2.430E+06	1.633E+02
2005	6.243E+03	4.999E+06	3.359E+02	1.667E+03	2.499E+06	1.679E+02
2006	6.406E+03	5.130E+06	3.447E+02	1.711E+03	2.565E+06	1.723E+02
2007	6.094E+03	4.880E+06	3.279E+02	1.628E+03	2.440E+06	1.639E+02
2008	5.797E+03	4.642E+06	3.119E+02	1.548E+03	2.321E+06	1.559E+02
2009	5.514E+03	4.415E+06	2.967E+02	1.473E+03	2.208E+06	1.483E+02
2010	5.245E+03	4.200E+06	2.822E+02	1.401E+03	2.100E+06	1.411E+02
2011	4.989E+03	3.995E+06	2.684E+02	1.333E+03	1.998E+06	1.342E+02
2012	4.746E+03	3.800E+06	2.553E+02	1.268E+03	1.900E+06	1.277E+02
2013	4.515E+03	3.615E+06	2.429E+02	1.206E+03	1.808E+06	1.214E+02
2014	4.294E+03	3.439E+06	2.310E+02	1.147E+03	1.719E+06	1.155E+02
2015	4.085E+03	3.271E+06	2.198E+02	1.091E+03	1.636E+06	1.099E+02
2016	3.886E+03	3.111E+06	2.091E+02	1.038E+03	1.556E+06	1.045E+02
2017	3.696E+03	2.960E+06	1.989E+02	9.873E+02	1.480E+06	9.943E+01
2018	3.516E+03	2.815E+06	1.892E+02	9.391E+02	1.408E+06	9.458E+01
2019	3.344E+03	2.678E+06	1.799E+02	8.933E+02	1.339E+06	8.997E+01
2020	3.181E+03	2.547E+06	1.712E+02	8.498E+02	1.274E+06	8.558E+01
2021	3.026E+03	2.423E+06	1.628E+02	8.083E+02	1.212E+06	8.141E+01
2022	2.879E+03	2.305E+06	1.549E+02	7.689E+02	1.153E+06	7.744E+01
2023	2.738E+03	2.193E+06	1.473E+02	7.314E+02	1.096E+06	7.366E+01
2024	2.605E+03	2.086E+06	1.401E+02	6.957E+02	1.043E+06	7.007E+01
2025	2.478E+03	1.984E+06	1.333E+02	6.618E+02	9.920E+05	6.665E+01
2026	2.357E+03	1.887E+06	1.268E+02	6.295E+02	9.436E+05	6.340E+01
2027	2.242E+03	1.795E+06	1.206E+02	5.988E+02	8.976E+05	6.031E+01
2028	2.133E+03	1.708E+06	1.147E+02	5.696E+02	8.538E+05	5.737E+01
2029	2.029E+03	1.624E+06	1.091E+02	5.418E+02	8.122E+05	5.457E+01
2030	1.930E+03	1.545E+06	1.038E+02	5.154E+02	7.726E+05	5.191E+01
2031	1.835E+03	1.470E+06	9.875E+01	4.903E+02	7.349E+05	4.938E+01
2032	1.746E+03	1.398E+06	9.394E+01	4.664E+02	6.990E+05	4.697E+01
2033	1.661E+03	1.330E+06	8.936E+01	4.436E+02	6.649E+05	4.468E+01

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2034	1.580E+03	1.265E+06	8.500E+01	4.220E+02	6.325E+05	4.250E+01
2035	1.503E+03	1.203E+06	8.085E+01	4.014E+02	6.017E+05	4.043E+01
2036	1.429E+03	1.145E+06	7.691E+01	3.818E+02	5.723E+05	3.845E+01
2037	1.360E+03	1.089E+06	7.316E+01	3.632E+02	5.444E+05	3.658E+01
2038	1.293E+03	1.036E+06	6.959E+01	3.455E+02	5.179E+05	3.479E+01
2039	1.230E+03	9.852E+05	6.620E+01	3.286E+02	4.926E+05	3.310E+01
2040	1.170E+03	9.372E+05	6.297E+01	3.126E+02	4.686E+05	3.148E+01
2041	1.113E+03	8.915E+05	5.990E+01	2.974E+02	4.457E+05	2.995E+01
2042	1.059E+03	8.480E+05	5.698E+01	2.829E+02	4.240E+05	2.849E+01
2043	1.007E+03	8.066E+05	5.420E+01	2.691E+02	4.033E+05	2.710E+01
2044	9.582E+02	7.673E+05	5.155E+01	2.559E+02	3.836E+05	2.578E+01
2045	9.115E+02	7.299E+05	4.904E+01	2.435E+02	3.649E+05	2.452E+01
2046	8.670E+02	6.943E+05	4.665E+01	2.316E+02	3.471E+05	2.332E+01
2047	8.247E+02	6.604E+05	4.437E+01	2.203E+02	3.302E+05	2.219E+01
2048	7.845E+02	6.282E+05	4.221E+01	2.095E+02	3.141E+05	2.110E+01
2049	7.462E+02	5.976E+05	4.015E+01	1.993E+02	2.988E+05	2.007E+01
2050	7.098E+02	5.684E+05	3.819E+01	1.896E+02	2.842E+05	1.910E+01
2051	6.752E+02	5.407E+05	3.633E+01	1.804E+02	2.703E+05	1.816E+01
2052	6.423E+02	5.143E+05	3.456E+01	1.716E+02	2.572E+05	1.728E+01
2053	6.110E+02	4.892E+05	3.287E+01	1.632E+02	2.446E+05	1.644E+01
2054	5.812E+02	4.654E+05	3.127E+01	1.552E+02	2.327E+05	1.563E+01
2055	5.528E+02	4.427E+05	2.974E+01	1.477E+02	2.213E+05	1.487E+01
2056	5.259E+02	4.211E+05	2.829E+01	1.405E+02	2.105E+05	1.415E+01
2057	5.002E+02	4.006E+05	2.691E+01	1.336E+02	2.003E+05	1.346E+01
2058	4.758E+02	3.810E+05	2.560E+01	1.271E+02	1.905E+05	1.280E+01
2059	4.526E+02	3.624E+05	2.435E+01	1.209E+02	1.812E+05	1.218E+01
2060	4.305E+02	3.448E+05	2.316E+01	1.150E+02	1.724E+05	1.158E+01
2061	4.095E+02	3.279E+05	2.203E+01	1.094E+02	1.640E+05	1.102E+01
2062	3.896E+02	3.120E+05	2.096E+01	1.041E+02	1.560E+05	1.048E+01
2063	3.706E+02	2.967E+05	1.994E+01	9.898E+01	1.484E+05	9.969E+00
2064	3.525E+02	2.823E+05	1.897E+01	9.416E+01	1.411E+05	9.483E+00
2065	3.353E+02	2.685E+05	1.804E+01	8.956E+01	1.343E+05	9.020E+00
2066	3.190E+02	2.554E+05	1.716E+01	8.520E+01	1.277E+05	8.580E+00
2067	3.034E+02	2.429E+05	1.632E+01	8.104E+01	1.215E+05	8.162E+00
2068	2.886E+02	2.311E+05	1.553E+01	7.709E+01	1.156E+05	7.764E+00
2069	2.745E+02	2.198E+05	1.477E+01	7.333E+01	1.099E+05	7.385E+00
2070	2.611E+02	2.091E+05	1.405E+01	6.975E+01	1.046E+05	7.025E+00
2071	2.484E+02	1.989E+05	1.336E+01	6.635E+01	9.945E+04	6.682E+00
2072	2.363E+02	1.892E+05	1.271E+01	6.312E+01	9.460E+04	6.356E+00
2073	2.248E+02	1.800E+05	1.209E+01	6.004E+01	8.999E+04	6.046E+00
2074	2.138E+02	1.712E+05	1.150E+01	5.711E+01	8.560E+04	5.752E+00
2075	2.034E+02	1.629E+05	1.094E+01	5.432E+01	8.143E+04	5.471E+00
2076	1.935E+02	1.549E+05	1.041E+01	5.167E+01	7.746E+04	5.204E+00
2077	1.840E+02	1.474E+05	9.901E+00	4.915E+01	7.368E+04	4.950E+00
2078	1.750E+02	1.402E+05	9.418E+00	4.676E+01	7.008E+04	4.709E+00
2079	1.665E+02	1.333E+05	8.959E+00	4.448E+01	6.667E+04	4.479E+00
2080	1.584E+02	1.268E+05	8.522E+00	4.231E+01	6.342E+04	4.261E+00
2081	1.507E+02	1.206E+05	8.106E+00	4.024E+01	6.032E+04	4.053E+00
2082	1.433E+02	1.148E+05	7.711E+00	3.828E+01	5.738E+04	3.855E+00
2083	1.363E+02	1.092E+05	7.335E+00	3.641E+01	5.458E+04	3.667E+00
2084	1.297E+02	1.038E+05	6.977E+00	3.464E+01	5.192E+04	3.488E+00

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2085	1.234E+02	9.878E+04	6.637E+00	3.295E+01	4.939E+04	3.318E+00
2086	1.173E+02	9.396E+04	6.313E+00	3.134E+01	4.698E+04	3.157E+00
2087	1.116E+02	8.938E+04	6.005E+00	2.981E+01	4.469E+04	3.003E+00
2088	1.062E+02	8.502E+04	5.712E+00	2.836E+01	4.251E+04	2.856E+00
2089	1.010E+02	8.087E+04	5.434E+00	2.698E+01	4.044E+04	2.717E+00
2090	9.607E+01	7.693E+04	5.169E+00	2.566E+01	3.846E+04	2.584E+00
2091	9.138E+01	7.317E+04	4.917E+00	2.441E+01	3.659E+04	2.458E+00
2092	8.693E+01	6.961E+04	4.677E+00	2.322E+01	3.480E+04	2.338E+00
2093	8.269E+01	6.621E+04	4.449E+00	2.209E+01	3.311E+04	2.224E+00
2094	7.865E+01	6.298E+04	4.232E+00	2.101E+01	3.149E+04	2.116E+00
2095	7.482E+01	5.991E+04	4.025E+00	1.998E+01	2.996E+04	2.013E+00
2096	7.117E+01	5.699E+04	3.829E+00	1.901E+01	2.849E+04	1.915E+00
2097	6.770E+01	5.421E+04	3.642E+00	1.808E+01	2.710E+04	1.821E+00
2098	6.440E+01	5.157E+04	3.465E+00	1.720E+01	2.578E+04	1.732E+00
2099	6.126E+01	4.905E+04	3.296E+00	1.636E+01	2.453E+04	1.648E+00
2100	5.827E+01	4.666E+04	3.135E+00	1.556E+01	2.333E+04	1.567E+00
2101	5.543E+01	4.438E+04	2.982E+00	1.480E+01	2.219E+04	1.491E+00
2102	5.272E+01	4.222E+04	2.837E+00	1.408E+01	2.111E+04	1.418E+00
2103	5.015E+01	4.016E+04	2.698E+00	1.340E+01	2.008E+04	1.349E+00
2104	4.771E+01	3.820E+04	2.567E+00	1.274E+01	1.910E+04	1.283E+00
2105	4.538E+01	3.634E+04	2.442E+00	1.212E+01	1.817E+04	1.221E+00
2106	4.317E+01	3.457E+04	2.322E+00	1.153E+01	1.728E+04	1.161E+00
2107	4.106E+01	3.288E+04	2.209E+00	1.097E+01	1.644E+04	1.105E+00
2108	3.906E+01	3.128E+04	2.101E+00	1.043E+01	1.564E+04	1.051E+00
2109	3.715E+01	2.975E+04	1.999E+00	9.924E+00	1.488E+04	9.995E-01
2110	3.534E+01	2.830E+04	1.901E+00	9.440E+00	1.415E+04	9.507E-01
2111	3.362E+01	2.692E+04	1.809E+00	8.980E+00	1.346E+04	9.044E-01
2112	3.198E+01	2.561E+04	1.721E+00	8.542E+00	1.280E+04	8.603E-01
2113	3.042E+01	2.436E+04	1.637E+00	8.125E+00	1.218E+04	8.183E-01
2114	2.894E+01	2.317E+04	1.557E+00	7.729E+00	1.158E+04	7.784E-01
2115	2.752E+01	2.204E+04	1.481E+00	7.352E+00	1.102E+04	7.404E-01
2116	2.618E+01	2.096E+04	1.409E+00	6.993E+00	1.048E+04	7.043E-01
2117	2.490E+01	1.994E+04	1.340E+00	6.652E+00	9.971E+03	6.700E-01
2118	2.369E+01	1.897E+04	1.275E+00	6.328E+00	9.485E+03	6.373E-01
2119	2.253E+01	1.804E+04	1.212E+00	6.019E+00	9.022E+03	6.062E-01
2120	2.144E+01	1.716E+04	1.153E+00	5.726E+00	8.582E+03	5.766E-01
2121	2.039E+01	1.633E+04	1.097E+00	5.446E+00	8.164E+03	5.485E-01
2122	1.940E+01	1.553E+04	1.044E+00	5.181E+00	7.766E+03	5.218E-01
2123	1.845E+01	1.477E+04	9.926E-01	4.928E+00	7.387E+03	4.963E-01
2124	1.755E+01	1.405E+04	9.442E-01	4.688E+00	7.027E+03	4.721E-01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1984	0	0	0	0	0	0
1985	3.432E+02	1.875E+05	1.260E+01	5.377E+00	1.500E+03	1.008E-01
1986	6.697E+02	3.659E+05	2.458E+01	1.049E+01	2.927E+03	1.967E-01
1987	9.803E+02	5.355E+05	3.598E+01	1.536E+01	4.284E+03	2.879E-01
1988	1.276E+03	6.969E+05	4.683E+01	1.999E+01	5.576E+03	3.746E-01
1989	1.557E+03	8.505E+05	5.714E+01	2.439E+01	6.804E+03	4.571E-01
1990	1.824E+03	9.965E+05	6.695E+01	2.858E+01	7.972E+03	5.356E-01
1991	2.078E+03	1.135E+06	7.629E+01	3.256E+01	9.083E+03	6.103E-01
1992	2.320E+03	1.268E+06	8.517E+01	3.635E+01	1.014E+04	6.813E-01
1993	2.550E+03	1.393E+06	9.361E+01	3.995E+01	1.115E+04	7.489E-01
1994	2.769E+03	1.513E+06	1.016E+02	4.338E+01	1.210E+04	8.132E-01
1995	2.977E+03	1.627E+06	1.093E+02	4.664E+01	1.301E+04	8.743E-01
1996	3.175E+03	1.735E+06	1.166E+02	4.974E+01	1.388E+04	9.324E-01
1997	3.364E+03	1.838E+06	1.235E+02	5.270E+01	1.470E+04	9.878E-01
1998	3.543E+03	1.936E+06	1.300E+02	5.550E+01	1.548E+04	1.040E+00
1999	3.713E+03	2.029E+06	1.363E+02	5.817E+01	1.623E+04	1.090E+00
2000	3.876E+03	2.117E+06	1.423E+02	6.071E+01	1.694E+04	1.138E+00
2001	4.030E+03	2.201E+06	1.479E+02	6.313E+01	1.761E+04	1.183E+00
2002	4.177E+03	2.282E+06	1.533E+02	6.543E+01	1.825E+04	1.226E+00
2003	4.316E+03	2.358E+06	1.584E+02	6.761E+01	1.886E+04	1.267E+00
2004	4.449E+03	2.430E+06	1.633E+02	6.969E+01	1.944E+04	1.306E+00
2005	4.575E+03	2.499E+06	1.679E+02	7.167E+01	1.999E+04	1.343E+00
2006	4.695E+03	2.565E+06	1.723E+02	7.355E+01	2.052E+04	1.379E+00
2007	4.466E+03	2.440E+06	1.639E+02	6.997E+01	1.952E+04	1.311E+00
2008	4.248E+03	2.321E+06	1.559E+02	6.655E+01	1.857E+04	1.248E+00
2009	4.041E+03	2.208E+06	1.483E+02	6.331E+01	1.766E+04	1.187E+00
2010	3.844E+03	2.100E+06	1.411E+02	6.022E+01	1.680E+04	1.129E+00
2011	3.657E+03	1.998E+06	1.342E+02	5.728E+01	1.598E+04	1.074E+00
2012	3.478E+03	1.900E+06	1.277E+02	5.449E+01	1.520E+04	1.021E+00
2013	3.309E+03	1.808E+06	1.214E+02	5.183E+01	1.446E+04	9.716E-01
2014	3.147E+03	1.719E+06	1.155E+02	4.930E+01	1.375E+04	9.242E-01
2015	2.994E+03	1.636E+06	1.099E+02	4.690E+01	1.308E+04	8.791E-01
2016	2.848E+03	1.556E+06	1.045E+02	4.461E+01	1.245E+04	8.362E-01
2017	2.709E+03	1.480E+06	9.943E+01	4.244E+01	1.184E+04	7.955E-01
2018	2.577E+03	1.408E+06	9.458E+01	4.037E+01	1.126E+04	7.567E-01
2019	2.451E+03	1.339E+06	8.997E+01	3.840E+01	1.071E+04	7.198E-01
2020	2.332E+03	1.274E+06	8.558E+01	3.653E+01	1.019E+04	6.847E-01
2021	2.218E+03	1.212E+06	8.141E+01	3.474E+01	9.693E+03	6.513E-01
2022	2.110E+03	1.153E+06	7.744E+01	3.305E+01	9.220E+03	6.195E-01
2023	2.007E+03	1.096E+06	7.366E+01	3.144E+01	8.770E+03	5.893E-01
2024	1.909E+03	1.043E+06	7.007E+01	2.990E+01	8.343E+03	5.605E-01
2025	1.816E+03	9.920E+05	6.665E+01	2.845E+01	7.936E+03	5.332E-01
2026	1.727E+03	9.436E+05	6.340E+01	2.706E+01	7.549E+03	5.072E-01
2027	1.643E+03	8.976E+05	6.031E+01	2.574E+01	7.181E+03	4.825E-01
2028	1.563E+03	8.538E+05	5.737E+01	2.448E+01	6.830E+03	4.589E-01
2029	1.487E+03	8.122E+05	5.457E+01	2.329E+01	6.497E+03	4.366E-01
2030	1.414E+03	7.726E+05	5.191E+01	2.215E+01	6.180E+03	4.153E-01
2031	1.345E+03	7.349E+05	4.938E+01	2.107E+01	5.879E+03	3.950E-01
2032	1.280E+03	6.990E+05	4.697E+01	2.005E+01	5.592E+03	3.757E-01
2033	1.217E+03	6.649E+05	4.468E+01	1.907E+01	5.320E+03	3.574E-01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2034	1.158E+03	6.325E+05	4.250E+01	1.814E+01	5.060E+03	3.400E-01
2035	1.101E+03	6.017E+05	4.043E+01	1.725E+01	4.813E+03	3.234E-01
2036	1.048E+03	5.723E+05	3.845E+01	1.641E+01	4.579E+03	3.076E-01
2037	9.965E+02	5.444E+05	3.658E+01	1.561E+01	4.355E+03	2.926E-01
2038	9.479E+02	5.179E+05	3.479E+01	1.485E+01	4.143E+03	2.784E-01
2039	9.017E+02	4.926E+05	3.310E+01	1.413E+01	3.941E+03	2.648E-01
2040	8.577E+02	4.686E+05	3.148E+01	1.344E+01	3.749E+03	2.519E-01
2041	8.159E+02	4.457E+05	2.995E+01	1.278E+01	3.566E+03	2.396E-01
2042	7.761E+02	4.240E+05	2.849E+01	1.216E+01	3.392E+03	2.279E-01
2043	7.383E+02	4.033E+05	2.710E+01	1.157E+01	3.226E+03	2.168E-01
2044	7.023E+02	3.836E+05	2.578E+01	1.100E+01	3.069E+03	2.062E-01
2045	6.680E+02	3.649E+05	2.452E+01	1.046E+01	2.919E+03	1.962E-01
2046	6.354E+02	3.471E+05	2.332E+01	9.954E+00	2.777E+03	1.866E-01
2047	6.044E+02	3.302E+05	2.219E+01	9.469E+00	2.642E+03	1.775E-01
2048	5.750E+02	3.141E+05	2.110E+01	9.007E+00	2.513E+03	1.688E-01
2049	5.469E+02	2.988E+05	2.007E+01	8.568E+00	2.390E+03	1.606E-01
2050	5.202E+02	2.842E+05	1.910E+01	8.150E+00	2.274E+03	1.528E-01
2051	4.949E+02	2.703E+05	1.816E+01	7.752E+00	2.163E+03	1.453E-01
2052	4.707E+02	2.572E+05	1.728E+01	7.374E+00	2.057E+03	1.382E-01
2053	4.478E+02	2.446E+05	1.644E+01	7.015E+00	1.957E+03	1.315E-01
2054	4.259E+02	2.327E+05	1.563E+01	6.673E+00	1.862E+03	1.251E-01
2055	4.052E+02	2.213E+05	1.487E+01	6.347E+00	1.771E+03	1.190E-01
2056	3.854E+02	2.105E+05	1.415E+01	6.038E+00	1.684E+03	1.132E-01
2057	3.666E+02	2.003E+05	1.346E+01	5.743E+00	1.602E+03	1.077E-01
2058	3.487E+02	1.905E+05	1.280E+01	5.463E+00	1.524E+03	1.024E-01
2059	3.317E+02	1.812E+05	1.218E+01	5.197E+00	1.450E+03	9.741E-02
2060	3.155E+02	1.724E+05	1.158E+01	4.943E+00	1.379E+03	9.266E-02
2061	3.002E+02	1.640E+05	1.102E+01	4.702E+00	1.312E+03	8.814E-02
2062	2.855E+02	1.560E+05	1.048E+01	4.473E+00	1.248E+03	8.384E-02
2063	2.716E+02	1.484E+05	9.969E+00	4.255E+00	1.187E+03	7.975E-02
2064	2.583E+02	1.411E+05	9.483E+00	4.047E+00	1.129E+03	7.586E-02
2065	2.457E+02	1.343E+05	9.020E+00	3.850E+00	1.074E+03	7.216E-02
2066	2.338E+02	1.277E+05	8.580E+00	3.662E+00	1.022E+03	6.864E-02
2067	2.224E+02	1.215E+05	8.162E+00	3.483E+00	9.718E+02	6.529E-02
2068	2.115E+02	1.156E+05	7.764E+00	3.313E+00	9.244E+02	6.211E-02
2069	2.012E+02	1.099E+05	7.385E+00	3.152E+00	8.793E+02	5.908E-02
2070	1.914E+02	1.046E+05	7.025E+00	2.998E+00	8.364E+02	5.620E-02
2071	1.821E+02	9.945E+04	6.682E+00	2.852E+00	7.956E+02	5.346E-02
2072	1.732E+02	9.460E+04	6.356E+00	2.713E+00	7.568E+02	5.085E-02
2073	1.647E+02	8.999E+04	6.046E+00	2.581E+00	7.199E+02	4.837E-02
2074	1.567E+02	8.560E+04	5.752E+00	2.455E+00	6.848E+02	4.601E-02
2075	1.491E+02	8.143E+04	5.471E+00	2.335E+00	6.514E+02	4.377E-02
2076	1.418E+02	7.746E+04	5.204E+00	2.221E+00	6.196E+02	4.163E-02
2077	1.349E+02	7.368E+04	4.950E+00	2.113E+00	5.894E+02	3.960E-02
2078	1.283E+02	7.008E+04	4.709E+00	2.010E+00	5.607E+02	3.767E-02
2079	1.220E+02	6.667E+04	4.479E+00	1.912E+00	5.333E+02	3.583E-02
2080	1.161E+02	6.342E+04	4.261E+00	1.818E+00	5.073E+02	3.409E-02
2081	1.104E+02	6.032E+04	4.053E+00	1.730E+00	4.826E+02	3.242E-02
2082	1.050E+02	5.738E+04	3.855E+00	1.645E+00	4.590E+02	3.084E-02
2083	9.991E+01	5.458E+04	3.667E+00	1.565E+00	4.367E+02	2.934E-02
2084	9.504E+01	5.192E+04	3.488E+00	1.489E+00	4.154E+02	2.791E-02

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2085	9.040E+01	4.939E+04	3.318E+00	1.416E+00	3.951E+02	2.655E-02
2086	8.600E+01	4.698E+04	3.157E+00	1.347E+00	3.758E+02	2.525E-02
2087	8.180E+01	4.469E+04	3.003E+00	1.281E+00	3.575E+02	2.402E-02
2088	7.781E+01	4.251E+04	2.856E+00	1.219E+00	3.401E+02	2.285E-02
2089	7.402E+01	4.044E+04	2.717E+00	1.160E+00	3.235E+02	2.173E-02
2090	7.041E+01	3.846E+04	2.584E+00	1.103E+00	3.077E+02	2.067E-02
2091	6.697E+01	3.659E+04	2.458E+00	1.049E+00	2.927E+02	1.967E-02
2092	6.371E+01	3.480E+04	2.338E+00	9.980E-01	2.784E+02	1.871E-02
2093	6.060E+01	3.311E+04	2.224E+00	9.493E-01	2.648E+02	1.779E-02
2094	5.764E+01	3.149E+04	2.116E+00	9.030E-01	2.519E+02	1.693E-02
2095	5.483E+01	2.996E+04	2.013E+00	8.590E-01	2.396E+02	1.610E-02
2096	5.216E+01	2.849E+04	1.915E+00	8.171E-01	2.280E+02	1.532E-02
2097	4.961E+01	2.710E+04	1.821E+00	7.772E-01	2.168E+02	1.457E-02
2098	4.720E+01	2.578E+04	1.732E+00	7.393E-01	2.063E+02	1.386E-02
2099	4.489E+01	2.453E+04	1.648E+00	7.033E-01	1.962E+02	1.318E-02
2100	4.270E+01	2.333E+04	1.567E+00	6.690E-01	1.866E+02	1.254E-02
2101	4.062E+01	2.219E+04	1.491E+00	6.364E-01	1.775E+02	1.193E-02
2102	3.864E+01	2.111E+04	1.418E+00	6.053E-01	1.689E+02	1.135E-02
2103	3.676E+01	2.008E+04	1.349E+00	5.758E-01	1.606E+02	1.079E-02
2104	3.496E+01	1.910E+04	1.283E+00	5.477E-01	1.528E+02	1.027E-02
2105	3.326E+01	1.817E+04	1.221E+00	5.210E-01	1.454E+02	9.766E-03
2106	3.164E+01	1.728E+04	1.161E+00	4.956E-01	1.383E+02	9.290E-03
2107	3.009E+01	1.644E+04	1.105E+00	4.714E-01	1.315E+02	8.837E-03
2108	2.863E+01	1.564E+04	1.051E+00	4.484E-01	1.251E+02	8.406E-03
2109	2.723E+01	1.488E+04	9.995E-01	4.266E-01	1.190E+02	7.996E-03
2110	2.590E+01	1.415E+04	9.507E-01	4.058E-01	1.132E+02	7.606E-03
2111	2.464E+01	1.346E+04	9.044E-01	3.860E-01	1.077E+02	7.235E-03
2112	2.344E+01	1.280E+04	8.603E-01	3.671E-01	1.024E+02	6.882E-03
2113	2.229E+01	1.218E+04	8.183E-01	3.492E-01	9.743E+01	6.546E-03
2114	2.121E+01	1.158E+04	7.784E-01	3.322E-01	9.268E+01	6.227E-03
2115	2.017E+01	1.102E+04	7.404E-01	3.160E-01	8.816E+01	5.923E-03
2116	1.919E+01	1.048E+04	7.043E-01	3.006E-01	8.386E+01	5.635E-03
2117	1.825E+01	9.971E+03	6.700E-01	2.859E-01	7.977E+01	5.360E-03
2118	1.736E+01	9.485E+03	6.373E-01	2.720E-01	7.588E+01	5.098E-03
2119	1.652E+01	9.022E+03	6.062E-01	2.587E-01	7.218E+01	4.850E-03
2120	1.571E+01	8.582E+03	5.766E-01	2.461E-01	6.866E+01	4.613E-03
2121	1.494E+01	8.164E+03	5.485E-01	2.341E-01	6.531E+01	4.388E-03
2122	1.421E+01	7.766E+03	5.218E-01	2.227E-01	6.212E+01	4.174E-03
2123	1.352E+01	7.387E+03	4.963E-01	2.118E-01	5.909E+01	3.971E-03
2124	1.286E+01	7.027E+03	4.721E-01	2.015E-01	5.621E+01	3.777E-03

APPENDIX C
Nova Scotia Emission Coefficients

APPENDIX C: NOVA SCOTIA EMISSION COEFFICIENTS

The following table outlines the emissions generated during the production of one kilowatt hour of electricity in the province of Nova Scotia during the years 1990 to 2000.

Year	CO2 (kg/kWh)	N2O (kg/kWh)	CH4 (kg/kWh)
1990	0.715(eCO_2)	0	0
1991	0.828	2.23E-05	0.000128
1992	0.851	0.00721	0.000132
1993	0.835	0.00692	0.000128
1994	0.773	0.00592	0.000114
1995	0.748	0.00447	0.000111
1996	0.782	0.00494	0.000113
1997	0.715 (eCO_2)	0	0
1998	0.785	0.00345	0.000106
1999	0.864	0.00259	7.97E-05
2000	0.937	0.00185	5.87E-05
2002	0.763 (eCO_2)	0	0

APPENDIX D
Emission Coefficients for Fuels

APPENDIX D
EMISSION COEFFICIENTS FOR FUELS

No. 2 Oil (diesel)	2.73 kg of CO_2 per litre of fuel combusted
Gasoline	2.36 kg of CO_2 per litre of fuel combusted
No. 2 Oil (Bunker)	2.85 kg of CO_2 per litre of fuel combusted
Propane	1.5 kg of CO_2 per litre of fuel combusted