Estimated Inventory Guide

Partners for Climate Protection

You're busy. And starting a new project as complicated as figuring out how to cut greenhouse gas emissions can seem overwhelming.

To help kick start the process, FCM has developed a new tool: the Estimated Inventory. The Estimated Inventory paints a picture: it estimates the distribution of emissions among sectors like buildings, transportation, and industry, and guides you to where your greatest opportunities for reductions are. The estimated inventory is the outline of your greenhouse gas picture, while the detailed corporate and community inventory that you will complete for Milestone One verifies the detail.

You can use the Estimated Inventory to pursue projects immediately in areas where the greatest reduction benefits are, and to guide you in completing the detailed corporate and community inventories.

FCM also offers the Green Municipal Funds (GMF) through the Centre for Sustainable Community Development. GMF is there to help: apply to the Enabling Fund for up to $100,000 to complete your inventories and a local action plan. Once you have identified feasible projects, you can then apply to the Investment Fund for financing.

Greenhouse Gas Emissions Inventory and Forecast (*Milestone One)*

Where to Start

The Estimated Inventory combines municipal operations (corporate) and community emissions. To complete Milestone One you will do separate inventories for corporate operations and the community.

The Estimated Inventory is a valuable reference tool and is not intended to replace the more detailed inventories needed to complete Milestone One.

Key Assumptions

Your estimated inventory is based on:

1. A 1994 baseline year, with the exception of population data.
2. Population is based on the 1996 Statistics Canada Census data.
3. Municipal population growth in 1994 at the provincial population growth rate.
4. Energy use patterns roughly equivalent to those of municipal governments in your province/territory.

Because the Estimated Inventory uses province-wide estimates, community detail will be missing until Milestone One is completed.

Adjusting an Estimated Inventory

There are several simple changes that you can make to the attached Estimated Inventory to make it more representative of your community. Refer to Figure 1.

Correcting Baseline Year Population

Step 1: Baseline year selection: The default baseline year used in the Estimated Inventories is 1994. If your municipality has selected a different baseline year for the actual inventory, simply change the baseline year and adjust the data provided. (To adjust the data see Step 2.)

Step 2: Population adjustment: If the population data in the supplied Estimated Inventory is incorrect, you can adjust it by calculating the ratio between the estimated population with the actual population data for the baseline year. Divide the actual population data figure by the estimated population figure supplied.

Federation of Canadian Municipalities

Correcting Baseline Year Population

Example:
In Figure 1, if the estimated 1994 population is stated as 80,000 **(A)**, but your local census data provides a 1998 population of 100,000 **(B)**, then your correction factor is 100/80 = 1.25. Multiply your emissions using this correction factor to adjust your inventory **(C)**. This will provide you with the correct total energy and emissions **(D)**.

Figure 1

Municipality	Anytown		
Province/Territory	Anywhere		
Baseline Year	~~1994~~	*1998*	
Baseline Population	~~80,000~~ **(A)**	**100,000 (B)**	

Community Inventory		Energy (GJ)		Emissions (Mg eCO_2)		
			(C)		**(C)**	
Residential	Electricity	~~22,458~~	28,072	~~749~~	936	
	Natural Gas	~~32,465~~	40,581	~~1,604~~	2,005	
	District Energy	~~0~~	0	~~0~~	0	
	Fuel Oil	~~1,872~~	2,340	~~137~~	171	
	Propane	~~600~~	750	~~36~~	45	
	Wood	~~0~~	0	~~0~~	0	*36.6%*
Commercial	Electricity	~~18,316~~	22,895	~~611~~	763	
	Natural Gas	~~20,875~~	26,093	~~1,031~~	1,289	
	District Energy	~~0~~	0	~~0~~	0	
	Fuel Oil	~~3,230~~	4,038	~~236~~	296	
	Propane	~~1,839~~	2,299	~~110~~	138	
	Wood	~~0~~	0	~~0~~	0	*28.9%*
Industrial	Electricity	~~11,030~~	13,788	~~368~~	460	
	Natural Gas	~~10,949~~	13,686	~~541~~	676	
	District Energy	~~0~~	0	~~0~~	0	
	Fuel Oil	~~2,429~~	3,036	~~178~~	222	
	Propane	~~419~~	524	~~25~~	31	
	Wood	~~0~~	0	~~0~~	0	*16.1%*
Transportation	Natural Gas	~~5,294~~	6,618	~~262~~	327	
	Gasoline	~~1,846~~	2,307	~~126~~	157	
	Diesel	~~7,835~~	9,794	~~553~~	691	*13.6%*
Waste	Tonnes	~~0~~	0	~~326~~	408	
Other		~~0~~	0	~~0~~	0	*4.7%*
		(D)		**(D)**		
TOTAL COMMUNITY		~~141,457~~	176,821	~~6,892~~	8,615	
Total Community plus Corporate		~~144,405~~	180,507	~~7,107~~	8,884	
						0.08 Mg eCO_2/capita community
						1.66 GJ/capita community
Corporate Inventory						
Buildings	Electricity	~~338~~	422	~~11~~	14	
	Natural gas	~~885~~	1,107	~~44~~	55	
	Fuel oil	~~264~~	329	~~19~~	24	
	Steam	~~0~~	0	~~0~~	0	*34.5%*
Vehicle Fleet	Natural gas	~~70~~	87	~~6~~	7	

A Baseline year selected is 1998, not the default 1994
B Baseline year population is 100,000 not 80,000. Ratio of assumed population to actual population is 100,000/80,000 = 1.25
C Multiply each fuel and its corresponding emissions by the ratio of population calculated (e.g. 1.25) for both the community and corporate inventories.
D Correct total energy and emissions based on new calculations.

For more information about Milestone One and the Green Municipal Funds, refer to http://kn.fcm.ca or contact FCM at (613)241-5221 or communities@fcm.ca

Correcting Sector Estimate

If the percentage distribution of emissions among community sectors (commercial, industrial, residential, transportation and waste) is markedly different than estimated using provincial statistics, the ratios can be adjusted by calculating a ratio of change for each sector and multiplying the estimated emissions by the change ratio.

Example:
If commercial sector emissions are not equivalent to the estimated emissions you can adjust by calculating the ratio of change i.e. the commercial sector emissions in Figure 2 are estimated at 30 per cent (28.9%) but the ratio of new information to the estimated inventory is half that amount. Simply multiply the estimated commercial emissions by half **(A)** and recalculate the final GHG emissions. This same adjustment can be made for all sectors in the community inventory **(B)**. Recalculate the per cent distribution for all sectors **(C)**.

Figure 2

Municipality	Anytown
Province/Territory	Anywhere
Baseline Year	1994
Baseline Population	80,000

Community Inventory		Energy (GJ)		Emissions (Mg eCO_2)		
Residential	Electricity	22,458		749		**(C)**
	Natural Gas	32,465		1,604		
	District Energy	0		0		
	Fuel Oil	1,872		137		*~~36.6%~~*
	Propane	600		36		
	Wood	0		0		*42.8%*
		(A)		**(A)**		
Commercial	Electricity	~~18,316~~	9,158	~~611~~	305	
	Natural Gas	~~20,875~~	10,437	~~1,031~~	516	
	District Energy	~~0~~	0	~~0~~	0	
	Fuel Oil	~~3,230~~	1,615	~~236~~	118	
	Propane	~~1,839~~	919	~~110~~	55	*~~28.9%~~*
	Wood	~~0~~	0	~~0~~	0	*16.9%*
Industrial	Electricity	11,030		368		
	Natural Gas	10,949		541		
	District Energy	0		0		
	Fuel Oil	2,429		178		*~~16.1%~~*
	Propane	419		25		
	Wood	0		0		*18.8%*
Transportation	Natural Gas	5,294		262		*~~13.6%~~*
	Gasoline	1,846		126		
	Diesel	7,835		553		*15.9%*
Waste	Tonnes	0		326		
						~~4.7%~~
Other		0		0		*5.5%*
		(B)		**(B)**		
TOTAL COMMUNITY		~~141,457~~	119,327	~~6,892~~	5,898	
Total Community plus Corporate		~~144,405~~	122,275	~~7,107~~	6,113	
						~~0.09~~
						0.07 Mg eCO_2/capita community
						~~1.77~~
						1.53 GJ/capita community
Corporate Inventory						
Buildings	Electricity	338		11		
	Natural gas	885		44		
	Fuel oil	264		19		
	Steam	0		0		*34.5%*
Vehicle Fleet	Natural gas	70		6		

A Correct sector percentage. E.g. Commercial sector energy use and emissions are overstated. Actual values are half of the proxy values. Multiply each energy source and each associated emission by 0.5.
B Correct totals based on the changes in the commercial sector energy and emission values.
C Recalculate per cent distribution for all sectors.