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Summary document: eThekweni Greenhouse Gas Emissions Inventory 2011

1 Synopsis

A Greenhouse Gas (GHG) Emissions Inventory for the eThekweni Municipality has been compiled for the 2011 calendar year. The inventory identifies the sources of GHG emissions from both the government and community sectors within the eThekweni Municipal Area. The eThekweni Municipality has compiled the emissions Inventory to help plan climate change mitigation strategies within the Municipality.

The GHG Emissions Inventory (GHGEI) is divided into two sub-inventories, one for the broader eThekweni community and one for municipality or local government emissions. The local government “sub-inventory” includes GHG emissions from activities under the control of the eThekweni Municipality entity, whilst the community inventory includes GHG emissions from various sectors within the boundary of the eThekweni Municipal Area.

The total greenhouse emissions recorded for entire eThekweni Municipal Area was 27,649,400 tCO₂e¹ for the 2011 year. The largest contribution to this footprint was transportation (37% of the total GHGs) followed closely by Industry emissions (32%). A graph showing the inventory by sector is shown above (Figure 1).

The 2010 Baseline GHGEI was developed as an easy to use EXCEL sheet and that allows for reporting of GHG emissions on an annual basis, such tool has been updated for the first time in order to calculate 2011 emissions. The process of developing the 2011 GHGEI highlighted a number of data inadequacies that have partly been addressed in the current version; however other concerns still need to be systematically addressed in future GHGEIs.

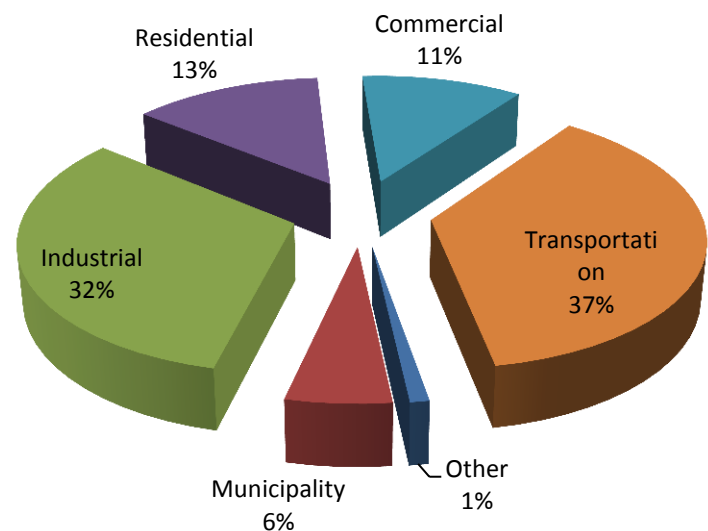


Figure 1: GHG emissions by sector

¹ Includes scope 1, 2 and selected scope 3 emissions (see below)

2 Background

In 2010 eThekweni Municipality, together with a number of cities across the globe, became a signatory of The Global Cities Covenant on Climate (the “Mexico City Pact”). Through this covenant, the Municipality committed to record its annual GHG emissions, climate change commitments, climate mitigation and adaptation measures, and actions. The 2011 eThekweni GHG Inventory, in addition to assisting in meeting the Municipality’s commitments to The Global Cities Covenant on Climate, is meant to aid the Municipality in forecasting emission trends, identifying the point and mobile sources of emissions generated, and setting goals for future reductions and mitigation.

The reporting of a municipal inventory also aligns eThekweni Municipality with the intentions of the National Climate Change Response White Paper (Department of Environmental Affairs, 2011) and the broader national government policy on climate change.

3 Methodology Used

The following Local Government GHG Emissions Analysis Protocols, developed by ICLEI – Local Governments for Sustainability, were used to guide the development of the eThekweni GHG Inventory:

- International Local Government GHG Emissions Analysis Protocol Version 1.0²; and
- Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories Version 1.1³.

These protocols provide a standardized set of guidelines to assist local governments in quantifying and reporting GHG emissions associated with their government and community operations. Both protocols are based upon the Corporate GHG Protocol⁴ developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) as well as technical guidance provided by the United Nations Intergovernmental Panel on Climate Change (IPCC). Activities that cause emissions are recorded in different emission scopes:

- Scope 1 are any direct emissions produced by the organisation or area, such as combustion of fuel.
- Scope 2 activities are indirect emissions produced by electricity that is purchased by the organisation or area.
- Scope 3 emissions are those that occur from the organisation or area’s activities but the sources of the emissions are owned or controlled by another entity, such as emissions from flights where planes are not owned by the organisation/area in question.

² Available at <http://www.icleiusa.org/tools/ghg-protocol>

³ Available at <http://www.icleiusa.org/tools/ghg-protocol>

⁴ Available at <http://www.ghgprotocol.org/standards/corporate-standard>

The figure below is a summary of the different types of scopes for GHG emissions.

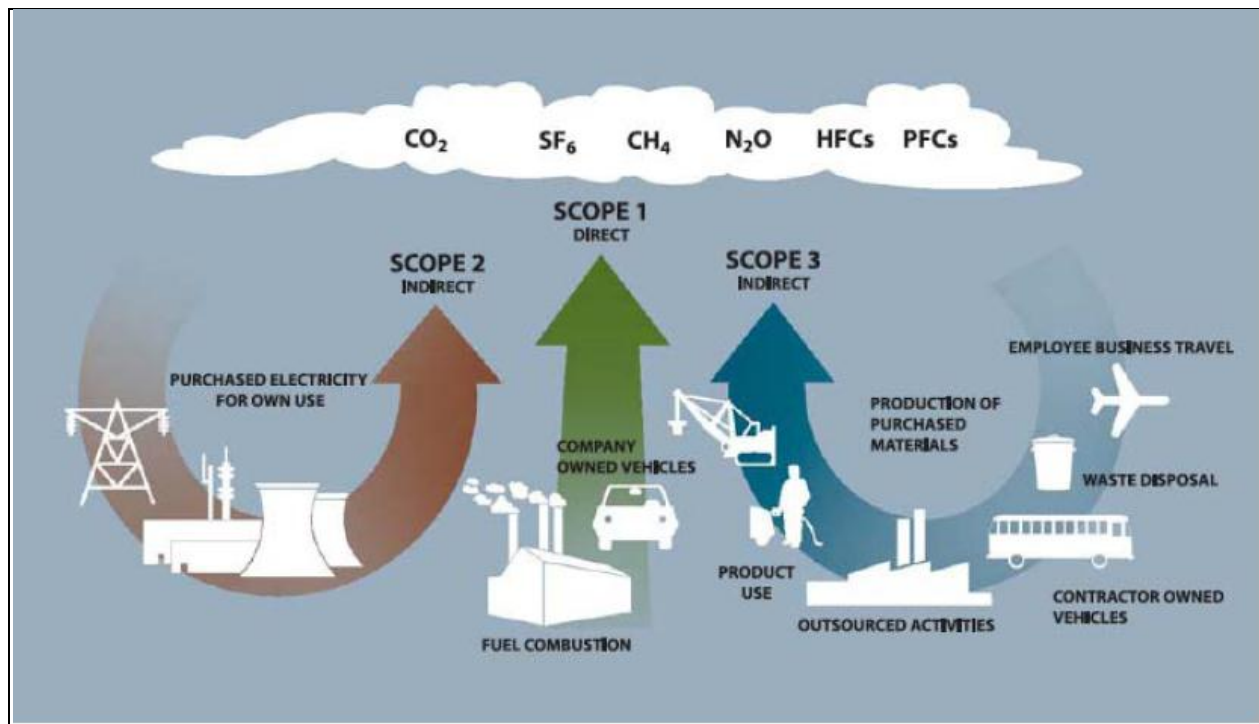


Figure 2: Total Government Emissions by Sector (Image Source: www.ghgprotocol.org)

It is important that emission scopes are differentiated as this helps to avoid the possibility of double counting emissions and misrepresenting emissions when reporting. Scope 1 and 2 emission reporting is compulsory under the WRI’s GHG Protocol.

The eThekweni 2011 GHG Emissions Inventory comprises 2 sub-inventories, includes emissions from the government sector and a separate sub-inventory documenting emissions from the broader community. The government inventory includes GHG emissions from direct and indirect activities under the control of the eThekweni Municipality. The community inventory includes GHG emissions from industry, commercial and residential sectors as well as transport, waste and agriculture within the boundary of the eThekweni Municipal Area. The tables below show the emissions sources for government and community that are included in the Inventory.

Table 1: Government Emission Sources collected according to Scope

Scope 1	Scope 2	Scope 3
Stationary Fuel Combustion	Electricity Consumption	Employee Air Travel
Mobile Fuel Combustion	Electricity Transmission & Distribution (Technical and Non-technical losses)	Transit vehicles operated by contractor
Wastewater Treatment		Electricity consumption by Eskom owned streetlights
Solid Waste Disposal		

Table 2: Community Emission Sources collected according to Scope

Scope 1	Scope 2	Scope 3
Stationary Fuel Combustion	Electricity Consumption	Air Transport Systems
Mobile Fuel Combustion		Marine Transport Systems
Solid Waste Disposal		
Enteric Fermentation		
Pre-harvest Cane Burning		

In order to standardise reporting, activity data (such as fuel consumption) is multiplied by an emissions factor to convert all data to tonnes carbon dioxide equivalent (tCO₂e). Emission factors are generally internationally accepted values, but are published by a range of different entities. South Africa has not published a list of emission factors for use in South Africa, with the one exception being an emission factor for electricity provided by ESKOM⁵. Therefore the United Kingdom Government Department of Environment, Food and Rural Affairs (DEFRA) and the International Panel for the Climate Change (IPCC) published emission factors have been used.

4 Results

For 2011 the total carbon emissions recorded for the entire eThekweni Municipal Area was 27,649,400 tCO₂e. This following section provides more detail on this figure but is divided into emissions from the Municipality and emissions from the broader community. The division into government and community emissions is standard practice as data for local government emissions is generally more readily available.

4.1 Local Government Emissions

Total local government emissions for the 2011 period were 1,551,420tCO₂e. The government emissions sub-inventory included operations that are directly under the eThekweni Municipality's control and emissions arising from the use of all significant assets and services during 2011. The table below summarises the municipal emissions by GHG scope.

Table 3: Municipal Emissions by Scope

Emissions Scope	GHG Sources	Municipal Emissions (tCO ₂ e)
Scope 1	Stationary Fuel Combustion, Mobile Fuel Combustion, Wastewater Treatment, Solid Waste Disposal	450,555(29%)
Scope 2	Electricity Consumption, Electricity Transmission & Distribution (Technical and Non-technical losses)	1,066,649 (69%)
Scope 3	Employee Air Travel, Transit vehicles operated by contractor, Electricity consumption by Eskom owned streetlights	34,216 (2%)

The graph below (Figure 3) shows the distribution of emissions by sector for the government emissions for 2011. A breakdown of the sectors by emission source is provided in Table 4. The highest municipal emission source, contributing 45 % to the Municipality's total 2011 emission inventory, was electrical transmission and distribution losses (scope 2). This figure includes technical and non-technical losses from electricity purchased from Eskom. Although the emissions

⁵ 1KWh = 1.03kg CO₂e

figure for transmission and distribution losses is relatively high compared to the other municipal associated emissions, only 5.9% of the total electricity bought from Eskom was lost due to technical and non-technical causes⁶.

The second highest municipal emission source was from the sale of Certified Emission Reductions (carbon credits), contributing 15% to the total Municipal emissions. The sale of CERs are from the municipal landfill gas to electricity project and are recorded as a separate category of emissions as the CO₂e reduction is claimed by the purchaser (see below for more details). CERs are followed by Municipal Building and Facilities (11%) and Municipal Solid Waste facilities (10%).

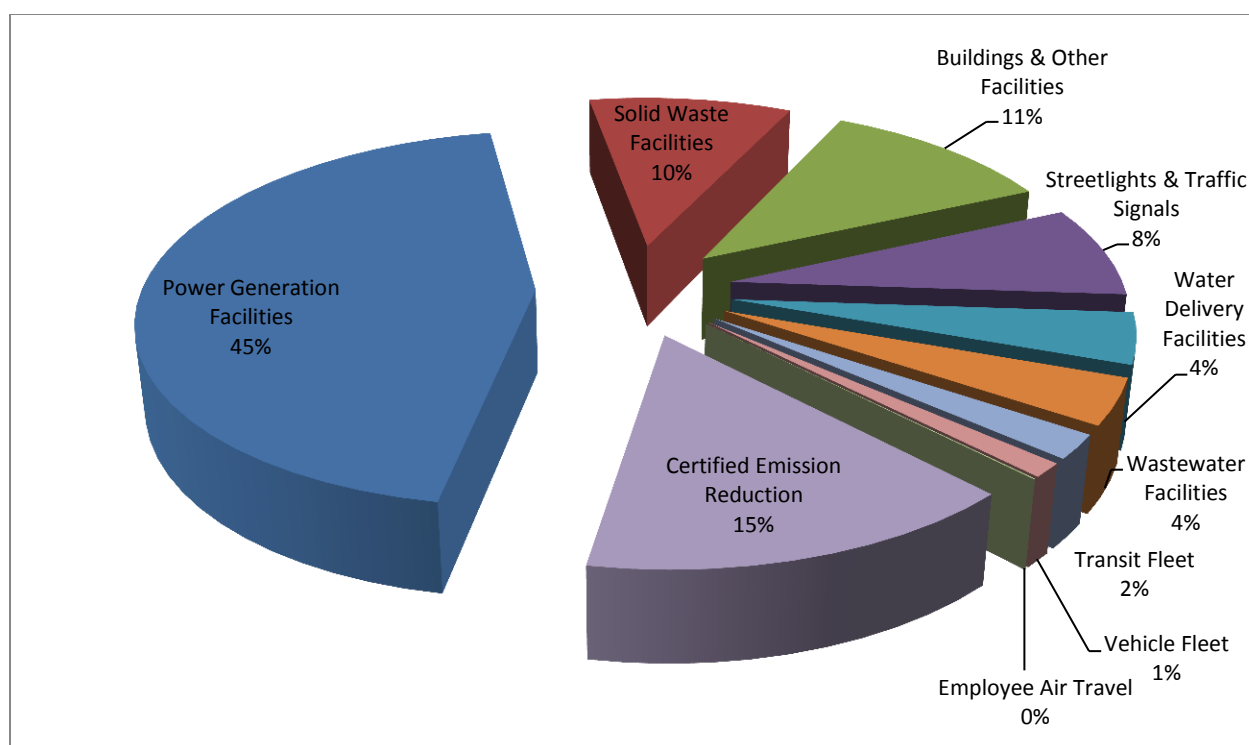


Figure 3: Total Government Emissions by Sector

Table 4: Municipal Operation Emissions by Sector and Source

Sector	Scope	Emission Sources	Emissions (tonnes CO ₂ e)
Buildings & Other Facilities	1	Stationary Fuel Combustion	17,310
	2	Purchased Electricity	156,351
Streetlights & Traffic Signals	2	Electricity consumption by municipal owned streetlights & traffic signals	119,798
	3	Electricity consumption by Eskom owned streetlights	1,333
Water Delivery Facilities	2	Purchased electricity	67,405
Wastewater Facilities	1	Stationary and process emissions	29,675
	2	Purchased electricity	31,037
Vehicle Fleet	1	Mobile fuel combustion	18,581
Transit Fleet	3	Mobile fuel combustion	31,951

⁶ National Treasury, Local Government Budgets and Expenditure Review 2011, pp 154 [here](#)

Sector	Scope	Emission Sources	Emissions (tonnes CO ₂ e)
Power Generation Facilities	2	Electrical distribution losses	690,311
Solid Waste Facilities	1	Fugitive emissions	150,483
	2	Purchased electricity	1,747
Employee Air Travel	3	Mobile fuel combustion	932
Certified Emission Reduction	1	Certified Emission Reduction	234,507
Total Government Emissions			1,551,420

4.2 Certified Emission Reduction

Unlike the 2010 GHGEI, the 2011 GHGEI included Certified Emission Reduction (CERs). CERs are tradable commodities developed through the Clean Development Mechanism (CDM) Executive Board of the United Nations Framework Convention on Climate Change (UNFCCC). In essence the CDM allows project developers who are able to quantify emission reduction, to package and sell these reductions as CERs.

The eThekweni Municipality had two CDM projects registered with the UNFCCC for the 2011 GHGIE reporting period, namely the *Durban Landfill-Gas-To-Electricity Project – Mariannahill And La Mercy Landfills*⁷ and *Durban Landfill-Gas Bisasar Road*⁸. For the 2011 period, the eThekweni Municipality registered 234,506 CERs for these 2 projects (see table below).

Table 5: Municipal Intensity Figures

Source	Units	Total
Bisasar Road Landfill	t CO ₂ e	200,673
Marian Hill Report 1	t CO ₂ e	25,382
Marian-hill Report 2	t CO ₂ e	8,451.5
		234,506.5

The methodology for reporting CERs within Greenhouse Gas Emissions Inventories is currently not clearly defined. The uncertainty includes whether or not to include the CERs in the inventory at all, which scope to classify CERs as and which greenhouse gas. To add to the uncertainty, the CERs for the period have not yet been sold. It was not clear whether the CERs should be recorded in the year of sale or the year of certification. For the purposes of the 2011 GHGEI the following decisions regarding the recording of CERS were implemented:

Table 6: Certified Emission Reduction (CERs) reporting decisions

Uncertainty	Decision	Reason
Should CERs be included in the GHGEI or should they be excluded as the actual destruction of CH ₄ is taking place in the City.	Yes to be included	Although the CH ₄ is being destroyed, the sale of CERs allows this emission reduction to be included in the CER purchaser's emission inventory, not the municipalities. This will avoid double counting of the CERs.

⁷ <https://cdm.unfccc.int/Projects/DB/TUEV-SUED1154520464.04>

⁸ <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1214927681.45>

Uncertainty	Decision	Reason
Which scope should CERs be classified as	Scope 1	CERs from these projects are as a result of methane destruction (which is Scope 1). It was unclear whether Scope 1 would be the in principal decision for CERs going forward.
Which GHG should the CERs be classified as?	CO2	The CERS are quantified as CO2e and generally consist of a mixture of greenhouse gasses.
Should CERs be recorded in the year of sale or year of certification?	Year of Certification	Although the CERs are not sold yet, they are monitored and reported for the 2011 period. In the event that the CERs are not sold, the Municipality will have the opportunity to retire the credits in the year when this decision is made.

4.3 Community Emissions

Total community (excluding local government) emissions equated to 26,097,979 tCO₂e. The community emissions inventory includes GHG emissions associated with activities occurring within the eThekweni Municipality's geopolitical boundary generated during 2011. The table below shows community emissions by scope.

Table 7: Community Emissions by Scope

Emissions Scope	GHG Sources	Community Emissions (tCO ₂ e)
Scope 1	Stationary Fuel Combustion, Mobile Fuel Combustion, Solid Waste Disposal, Enteric Fermentation, Pre-harvest Cane Burning	10,271,299 (39%)
Scope 2	Electricity Consumption	11,226,826 (43%)
Scope 3	Air Transport Systems, Marine Transport Systems	4,599,854 (18%)

The sector contributing 34% to the total community GHG emissions is the industrial sector through purchased electricity and stationary fuel combustion. The second major contributor was the on-road and off-road (ground) transport sector contributing 22% to overall community emissions. The third highest contributor to community emissions was the air and water transport systems sector deriving its emissions from fuel consumption at 17%. Collectively (ground, air and water), transport sector emissions contribute the most significant proportion of the community emissions, at 39%. The residential sector is also significant, at 14% or 3,596,951 tCO₂e. Figure 4 below illustrates the total community emissions produced in eThekweni by sectors. A more in-depth breakdown of the sectors according to emission source can be found in Table 6.

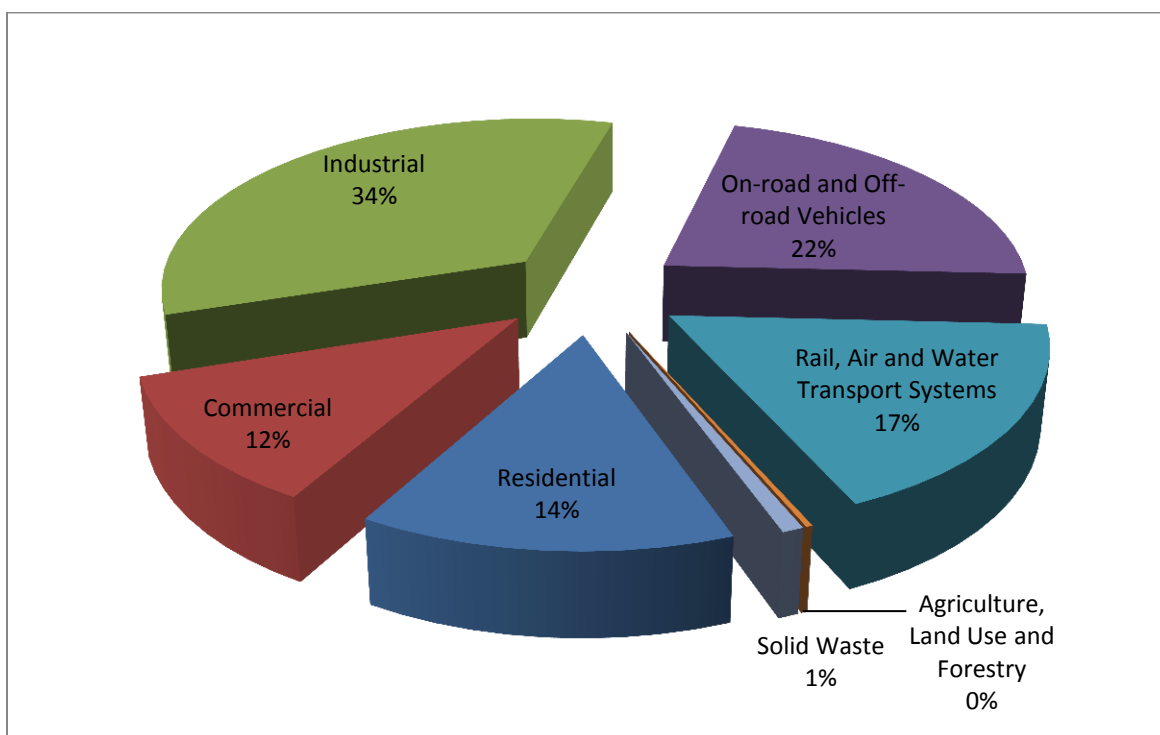


Figure 4: Total Community Emissions by Sector

Table 8: Community Operation Emissions by Sector and Source

Sector	Scope	Emission Sources	Emissions (tonnes CO ₂ e)
Residential	1	Stationary Fuel Combustion	179,841
	2	Electricity Consumption	3,417,110
Commercial	2	Electricity Consumption	3,067,300
Industrial	1	Stationary Fuel Combustion	4,147,892
	2	Electricity Consumption	4,742,415
On-road and Off-road Vehicles	1	Mobile Fuel Combustion	5,668,964
Rail, Air and Water Transport Systems	3	Air Travel	4,599,854
Solid Waste	1	Fugitive Emissions	209,280
Agriculture, Land Use and Forestry	1	Enteric Fermentation	65,322
Total Community Emissions			26,097,979

5 Analysis of the GHG Inventory

5.1 Total Emissions

For 2011 the total⁹ carbon emissions recorded for eThekweni Municipality was 27,649,400 tCO₂e. Local Government Emissions account for 6% of the total eThekweni emissions (Figure 5). Transportation (ground, air and water) and Industry contribute the highest to the total emissions (Figure 5). Emissions from the industry are also significant, which is representative of the influential manufacturing and processing component of the city's economy.

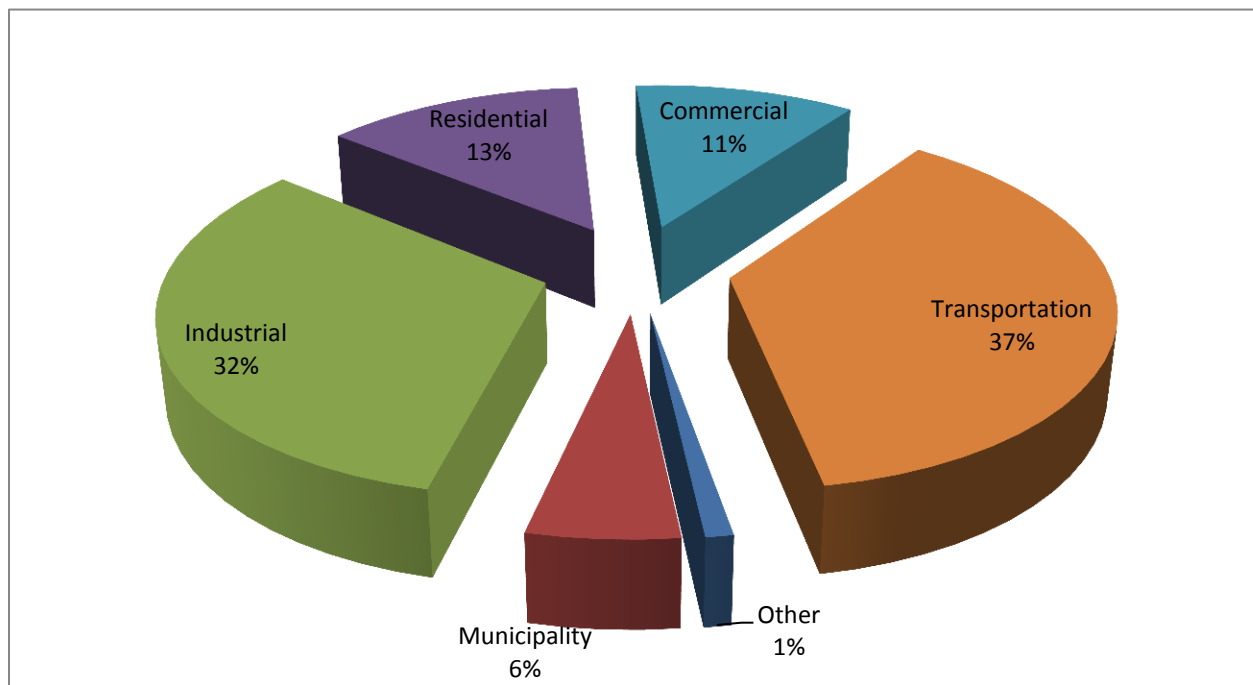


Figure 5: Carbon emissions by Sector

This “emission by sector” representation is largely an indication of the demand for energy in the city. The graph above illustrates that industry and transport have a large energy demand in comparison to residence and commercial activities. This sector comparison turn helps prioritize climate change mitigation interventions to sectors where there are large demands on energy.

Conversely, the total emission value of 27,649,400 tCO₂e can also be assessed by “source” or *supply*. The graph below is an indication of where the greenhouse gasses in the city come from. As to be expected Transport Fuels¹⁰ are responsible for 37% of total GHG footprint, which matches the 37% allocation in the transport sector (Graph 5 above). Electricity however is the largest source of Greenhouse Gasses, responsible for 45% of the total footprint. Stationary Combustion¹¹ also contributes to the overall GHG footprint with 16% of the total emissions. However there are serious data gaps in this particular category and research needs to be conducted to better understand the emissions from different stationary combustion sources. For the purposes of this Graph CERs are classified as a separate source of emissions.

⁹ Municipal and community emissions

¹⁰ Including: Petrol, Diesel, Jet Fuel, Marine Diesel and Fuel Oil

¹¹ Including: Heavy Furnace Oil; Bitumen; Natural Gas; LPG; Coal; Coke; Illuminating Paraffin; Paraffin Wax; Refinery Gas

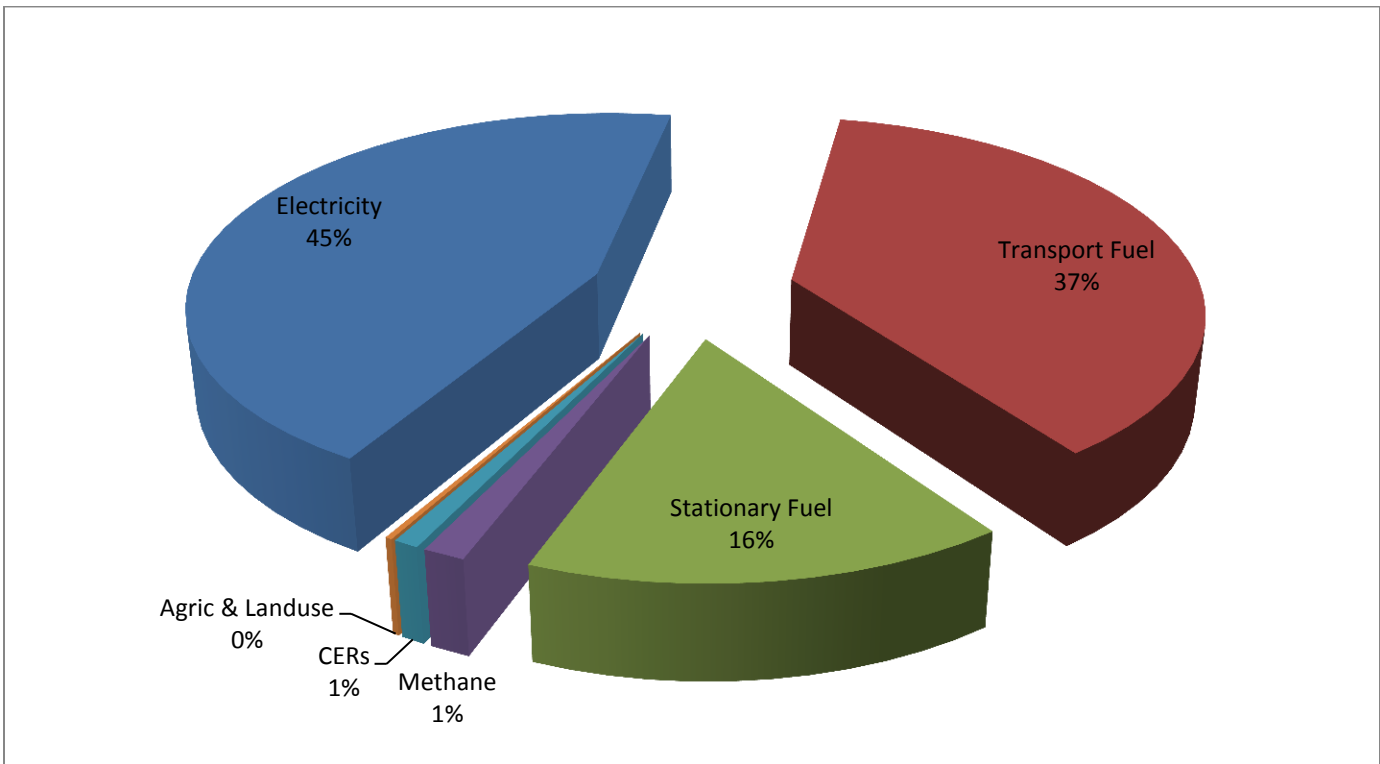


Figure 6: Carbon emissions by Source

The imported electricity supplied in the city was 11 724 GWh (99.6%) compared to locally generated (renewable) electricity of 45 GWh (See figure 7 below). This local generation is predominantly from the Municipal Landfill Gas to Electricity Project¹².

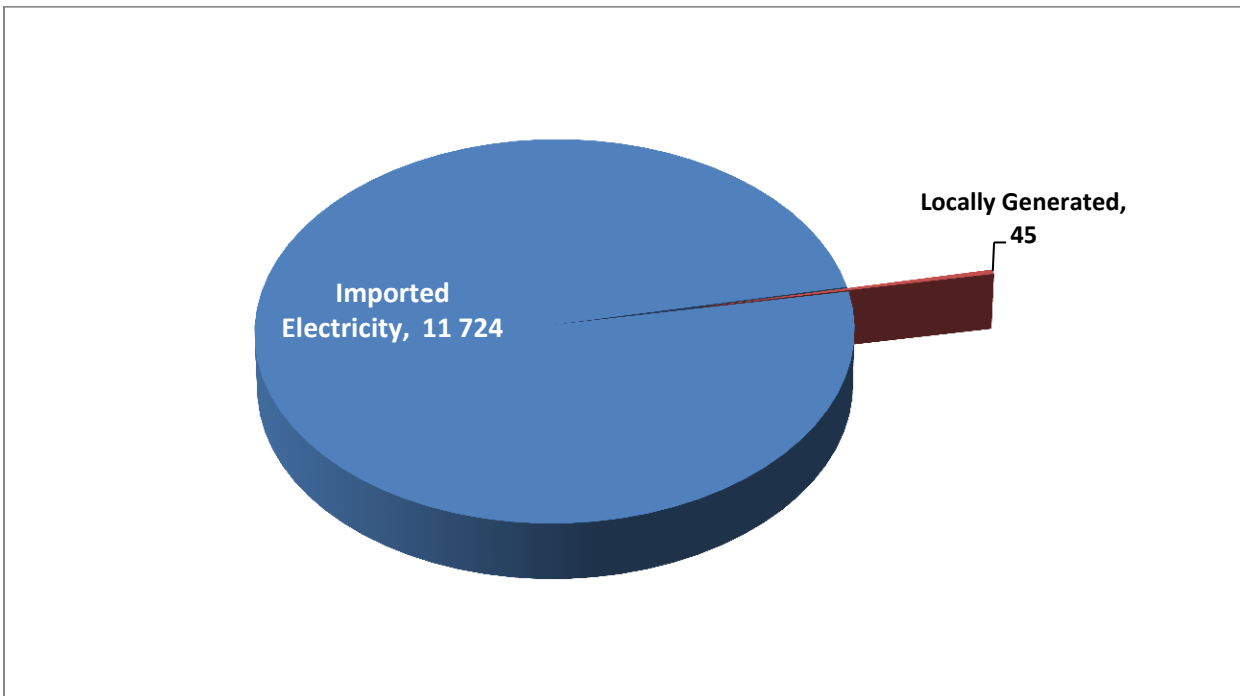


Figure 7: Electricity Supply by Source in the eThekweni Municipal Area (GWh)

¹² <http://www.kzenergy.org.za/durban-landfill-gas-to-electricity-project/>

5.2 Municipal Emissions

The spread of municipal emissions by infrastructure type is provided in the graph below. This graph excludes electricity transmission losses to more clearly identify area of operations within the municipality that have high carbon outputs. Certified Emission Reductions were responsible for the largest component of the municipal footprint (excluding transmission losses) followed by Solid Waste Operations and Water and Sanitation Operations. The Solid Waste emissions are predominantly from methane while Water and Sanitation are from electricity usage (77%) and some methane (23%). The bulk of the remaining infrastructure emissions are from the use of electricity (Figure 9 below).

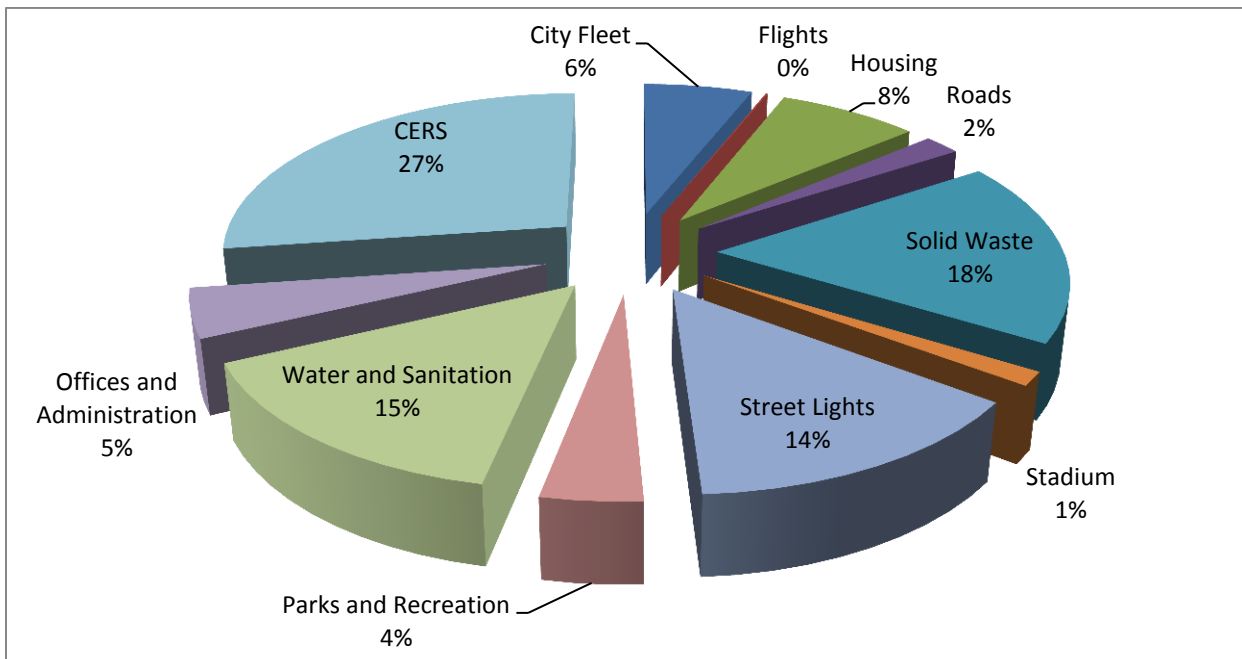


Figure 8: Municipal Emissions by Infrastructure Type tCO₂e (excluding electricity transmission losses)

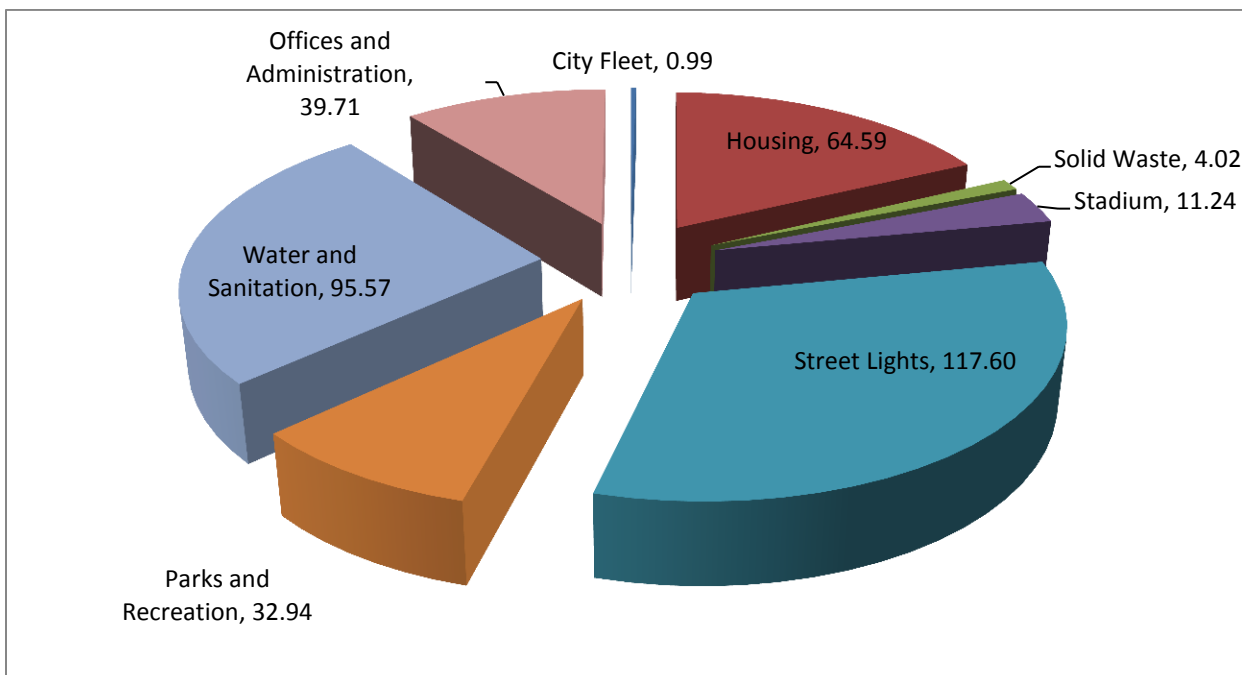


Figure 9: Municipal Electricity Consumption GWh (excluding electricity transmission losses)

5.3 Intensity of Emissions

5.3.1 Government Intensity Figures

Emission intensity figures for the Municipality are recorded below in Table 7. These figures were calculated by combining all municipal scope 1 and 2 emissions and dividing them by the relevant indicator.

Table 9: Municipal Intensity Figures

Intensity Figure	Unit	Metric Numerator	Unit	Metric Denominator	Unit
R 57.21	tCO ₂ e / million Rand of operating budget	1 517 205	tCO ₂ e (Municipal Scope 1 & 2)	R 26 520.00 ¹³	Million Rand Operating Budget (2012/ 2013)
R 286.27	tCO ₂ e / million Rand of Capital budget	1 517 205	tCO ₂ e (Municipal Scope 1 & 2)	R 5 300.00 ¹⁴	Million Rand Capital Budget (2012/ 2013)
76.16	tCO ₂ e / Permanent employee	1 517 205	tCO ₂ e (Municipal Scope 1 & 2)	19 920 ¹⁵	Permanent Employees

5.3.2 Community Intensity Figures

Community intensity figures are recorded below. These emissions were calculated by combining relevant sector scope emissions and dividing them by the relevant indicators.

Table 10: Community Emissions Figures

Intensity Figure	Unit	Metric Numerator	Unit	Metric Denominator	Unit
3.76	tCO ₂ e / household	3,596,951	tCO ₂ e (Residential Scope 1 & 2)	956 071 ¹⁶	Number of households within the EMA
R 56.07	tCO ₂ e / million Rand of Capital budget	3,067,300	tCO ₂ e (Commercial Scope 1 & 2)	R 54 700.00 ¹⁷	2011 Annual retail trade sales

5.3.3 Total Emissions Intensity Figures

Total emission intensity figures (for the municipality and the community) are recorded below in Table 8. These emissions were calculated by combining relevant sector scope emissions and dividing them by the relevant indicators. A per capita figure has been calculated using total scope 1 and 2 emissions, and separately using emissions from all three scopes to account for different methodologies of calculating this figure.

¹³ http://www.durban.gov.za/media_publications/Press_Releases/Pages/201213BudgetAdopted.aspx

¹⁴ http://www.durban.gov.za/media_publications/Press_Releases/Pages/201213BudgetAdopted.aspx

¹⁵ EThekweni Municipality, Human Resources

¹⁶ EThekweni Municipality, Integrated Developed Plan 2012/2013

¹⁷ http://www.durban.gov.za/media_publications/edge/Documents/Edge%20Fast%20Facts%20Issue%204%202012.pdf

Table 11: Total Emissions Intensity Figures

Intensity Figure	Unit	Metric Numerator	Unit	Metric Denominator	Unit
6.67	tCO ₂ e / Capita	23,015,329	tCO ₂ e (Scope 1 & 2)	3,442,361 ¹⁸	Population within the EMA
8.03	tCO ₂ e / Capita	27, 649,400	tCO ₂ e (Scope 1, 2 & 3)	3,442,361	Population within the EMA

5.4 Quality of Data Used for the 2011 eThekweni Municipality GHG Inventory

As with the 2010 GHGEI, data availability was a significant concern in compiling the 2011 inventory. Information on data availability and data gaps is provided in the Technical GHG Report for 2011. Where complete data was not provided, previous inventory data was used. The eThekweni Municipality, takes note of these data gaps, and has initiated a reporting systems to better collate GHG emission information going forward.

5.5 Comparison with previous GHGIE

The process for developing the 2010 GHGEI was more rigorous than previous GHGEIs in the city, in that it aligned with international best practice and reporting methodologies. The 2010 GHGEI also set up a tool and system as well as a baseline for reporting going forward. Comparisons with GHG data prior to 2010 therefore is not accurate because different methodologies were used to collate and analyze the data. This historic data is nevertheless provided below and is indicative of a general trend in increasing emissions. This data is provided in the table and graph below.

Table 12: Historic Emissions Data for the eThekweni Municipality (tCO₂e)

Year	Government Emissions	Community Emissions	Total Emissions
Yr 2002	1,047,000	18,890,000	19,937,000
Yr 2003/2004	1,247,000	18,890,000	20,137,000
Yr 2005/2006	1,118,061	21,413,906	22,531,967
Yr 2010	1,107,214	25,962,074	27,069,288
Yr 2011	1,551,420	26,097,979	27,649,400

¹⁸ STATSSA: Census 2011: Municipal Fact sheet

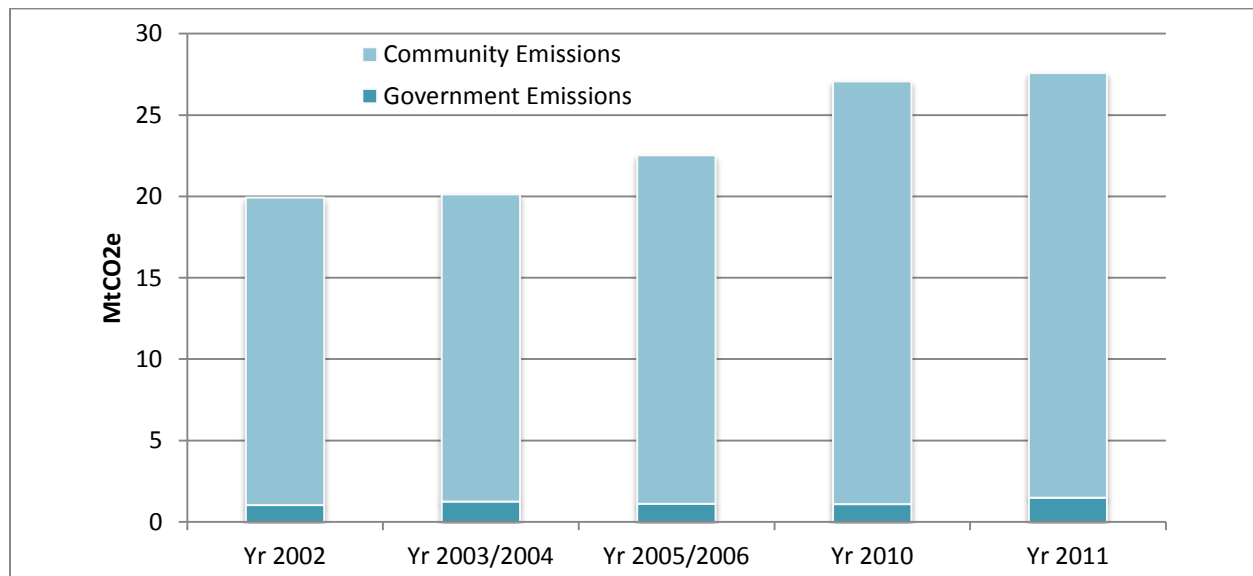


Figure 10: Historic Emissions Data for the eThekweni Municipality (tCO₂e)

The 2011 GHGEI followed the same methodology and reporting system as the 2010 GHGEI and these results can therefore be compared with more certainty. When comparing data from 2010 and 2011 it is evident that there has been an overall increase in Greenhouse Gas emissions in the city from 27.066 MtCO₂e in 2010 to 27.649 MtCO₂e in 2011. This equates to an overall increase of 2.14% for the year (or 583,114 tCO₂e). The bulk of this increase is due to the inclusion of Certified Emissions Reductions (234,506 tCO₂e) which wasn't included in the 2010 GHGEI. If the CERs are excluded from the comparison, the overall increase of 348 607.8 tCO₂e equates to a 1.3% increase.

This average increase does however mask the significant variability seen in the data between the 2 years. The table below is a more detailed summary of the data difference per type and category of emission. As is evident from the comment column there are many discrepancies in the data and systems for reporting data are changing. This table also illustrates that the data collection process is improving over time.

Table 13: Data Comparison between 2010 and 2011 Reporting Periods

Scope	Type	Sub-Type	2010 (tCO2e)	2011 (tCO2e)		Comment
Municipal Scope 1	Fuel Consumption	Stationary Fuel Combustion	99.85	17 309.79	17236%	Error in 2010 Heavy Fuel Oil data and improved data for 2011
		Vehicle Fleet	36 798.73	18 580.76	-50%	Assumed error in 2010 fuel usage data
	Solid Waste	Solid Waste (CH4)	129 007.97	150 483.06	17%	Reduction in the flare efficiency for Bisasar Road Landfill site
	Wastewater Treatment	Wastewater (CH4)	19 188.41	29 675.24	55%	Significant increase in population data (possible error in 2010 data)
	CERs	Certified Emission Reduction	-	234 506.50		Previously not included
Municipal Scope 2	Electricity Consumption	Buildings	196 522.65	156 350.86	-20%	System for classifying municipal infrastructure changed to align with billing system
		Streetlights & Traffic Signals	110 956.33	119 798.04	8%	
		Water Delivery Facilities	50 186.08	67 404.77	34%	
		Transmission and Distribution Losses	505 006.31	690 311.41	37%	
		Solid Waste Facilities	672.13	1 747.04	160%	
	Wastewater Facilities	23 442.83	31 037.08	32%	Assumed error in 2010 street light data	
Municipal Scope 3	Transport Systems	Streetlights	1 076.11	1 332.70	24%	
		Transit Fleet	30 540.96	31 951.42	5%	Data improvements to include all flights
		Flights	713.28	931.72	31%	
Subtotal Municipal			1 104 211.65	1 551 420.37	41%	

Scope	Type	Sub-Type	2010 (tCO ₂ e)	2011 (tCO ₂ e)		Comment
Community Scope 1	Fuel Consumption	Stationary Fuel Combustion	4 531 814.62	4 327 733.46	-5%	No data available from Department of Energy. Research required to better quantify this category of emission.
		Mobile Fuel Combustion	5 267 209.94	5 668 963.52	8%	Fair reflection of increase fuel sales
	Solid Waste	Solid Waste	168 298.00	209 280.00	24%	More accurate data for 2011 obtained.
	Agric & Landuse	Agric & Landuse	65 383.96	65 322.36	0%	
Community Scope 2	Electricity Consumption	Residential	3 564 529.89	3 417 110.09	-4%	Fair reflection of electricity sales
		Commercial	2 684 323.64	3 067 300.36	14%	Fair reflection of electricity sales
		Industrial	4 813 255.49	4 742 415.06	-1%	Fair reflection of electricity sales
Community Scope 3	Transport Systems	Air Transport Systems	439 501.62	172 097.92	-61%	Data inconsistency in Department of Energy Fuel data.
		Water Transport Systems	4 427 756.39	4 427 756.39	0%	No data received for 2011
Subtotal Community			25 962 073.54	26 097 979.15	1%	
Total			27 066 285.19	27 649 399.52	2.2%	

6 Conclusion and Way Forward

The compilation of the eThekweni GHG Emission Inventory is an important step in documenting the eThekweni Municipality's government and community emissions that are contributing to climate change. So far two quantifications have taken place, the baseline for 2010 with estimated emissions of 27,066,285 tCO₂ and the update for 2011 with estimated emissions of 27,649,400 tCO₂e.

Some of the previous concerns related to the data accuracy have been addressed in the 2011 Inventory however there are still some significant data gaps. These include stationary fuel combustion (particularly coal), marine fuel and some aviation fuel. Additional efforts should be also made to ensure appropriate quality assurance and control of data provided from municipal stakeholders and departments. The adequate compilation of GHGEI would be able to more accurately direct future efforts and the commitment from the eThekweni municipality in the mitigation of climate change.