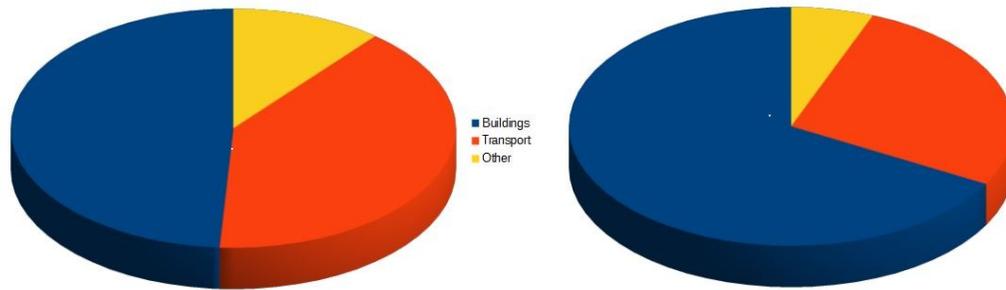


## GHG and Energy in Ottawa



The pie chart on the left shows the assumptions made by the City of Ottawa for its GHG emissions. However, those estimates are based on Provincial figures that do not include the fugitive emissions from natural gas. Some natural gas escapes from the generation processes and from the distribution of the gas but since those emissions primarily occur outside of Ontario they are not included in the values reported by the Provincial agencies. Since those so-called "fugitive emissions" would not exist if Ottawa did not use natural gas they should be considered to be a part of the GHG totals that result from the choices being made by the City. Both the Ontario Ministry of Environment and the Ontario Power Authority have confirmed that their figures do not include the emissions from outside Ontario, reported in the [MOE](#) and [OPA](#) emails attached to this report.

The primary constituent of natural gas is methane, which has a very high Global Warming Potential (GWP). A value of 72 was used for the graph on the above right, although some experts argue that it should be 105. Ontario will soon need to switch to the use of shale gas because the natural gas from Alberta oil is very nearly exhausted (see the NEB reports) and that may give rise to an even higher figure because of the unknown quantity of gas that is released in the rock by the fracking process but not collected during the well's production period.

The pie chart on the upper right includes the fugitive emission contribution to the GHG emissions attributable to the consumption of natural gas in Ottawa. The Buildings sector accounts for more than two thirds of the total GHG emissions so it is by far the most significant factor that needs to be addressed by the City. Moreover the City could if it chooses reduce the Buildings GHG to nearly zero because it enjoys a large measure of control over both the Buildings sector and the electric power distribution (via its ownership of Hydro Ottawa). The City has only a comparatively minor degree of control over the GHG from the Transportation sector, which accounts for most of the remaining emissions.

The [dual function exergy storage system](#) that is advocated by Sustainability-Journal stores both electricity (via exergy) and heat at the same time. It provides an inexpensive answer to the need to provide both forms of energy without generating any GHG but it cannot be implemented unless it incorporates both storage elements. Without the co-operation of Hydro Ottawa the City will be doomed to continue spewing out massive amounts of greenhouse gases and its citizens will needlessly be spending billions of dollars for both electricity and natural gas. With such co-operation there is a potential for Ontario to save up to [44 billion dollars per year](#) for which Ottawa's share would be \$2.9 billion per year.