INVENTORY OF PUTRAJAYA GREENHOUSE GAS EMISSIONS 2013

The 2013 Greenhouse gas emissions for Putrajaya were calculated based on seven sectors namely:

i. Government buildings
ii. Commercial buildings
iii. Public amenities and facilities
iv. Residential
v. Passenger transport
vi. Freight transport and
vii. Solid waste

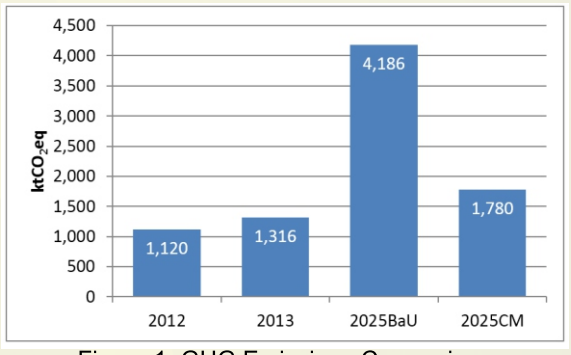

Figure 1: GHG Emissions Comparison

The overall GHG emissions for year 2013 were 1,316ktCO$_2$eq as compared to 1,120ktCO$_2$eq for year 2012. This due to various factors such as the increase in the completed building floor space, the number of population as well as the number of workers. Emissions per capita were 13.2tCO$_2$eq.

Figure 1 summarises the GHG emissions level for 2013 as compared to the base year 2007 and the taget year 2025.

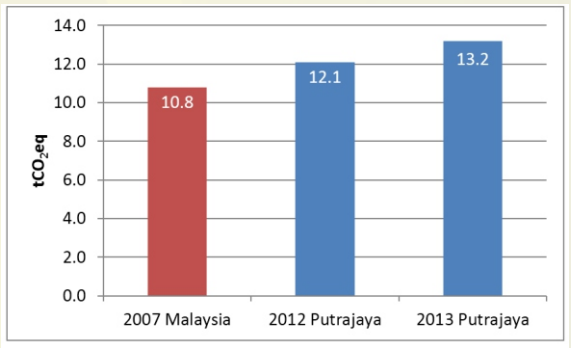

Figure 2: GHG Emissions per Capita

The inventory results indicates that the highest GHG emissions is from the building sector at 72% (953 ktCO$_2$eq), followed by the transportation sector at 24% (312ktCO$_2$eq) and solid waste at 4% (51ktCO$_2$eq).

The same scenario is observed since 2012 and this is closely related to the delopment of government office complexes, commercial premises as well as residential premises in 2013.

The highest source of GHG emissions is from the use of electricity at 58% (785ktCO$_2$eq), followed by petroleum at 22% (288ktCO$_2$eq) and natural gas at 16% (214ktCO$_2$eq). This indicates that the citywide energy sources are still dependent on non-renewable energy.

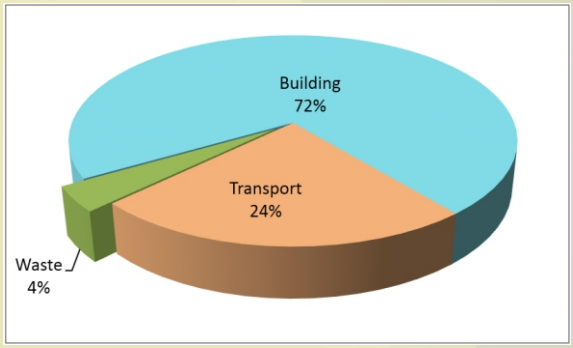

Figure 3: GHG Emissions based on Three Main Scopes

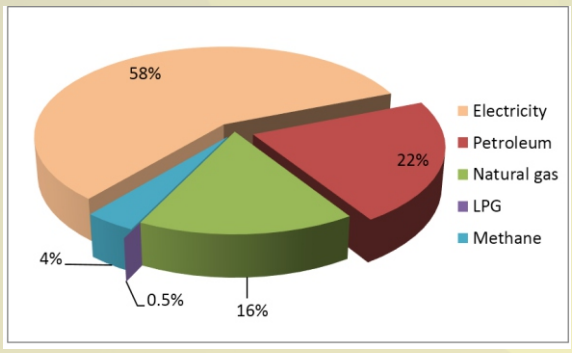

Figure 4: GHG emissions by source

Sector	2012	2013	2025BaU	2025CM
Residential	59	79	266	150
Government Buildings	461	600	363	139
Commercial Buildings	207	240	1435	769
Public amenities and facilities	21	34	240	112
Passenger transport	316	305	1314	368
Freight transport	7	7	156	89
Solid Waste	49	51	414	189
Total Emissions	**1,120**	**1,316**	**4,186**	**1,815**
Carbon sink				35
Net Emissions	**1,120**	**1,316**	**4,186**	**1,780**

Table 1: Comparison of GHG Emissions by Seven Sectors

Carbon Emissions from Building Sector

The building sector still remains the highest sector in terms of energy consumption. The distribution of floor area by bulding types are as follows; 46% residential floor area, 34% for government building space, 7% for commercial space and 13% for public amenties and facilities

A total of 63% of emissions in the building sector is contributed by government office buildings followed by commercial buildings at 25%.

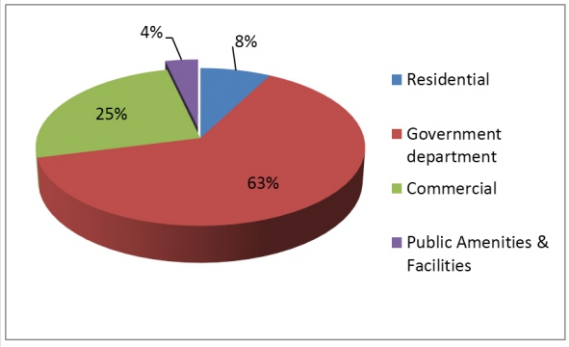

Figure 5: Carbon Emissions from building sector

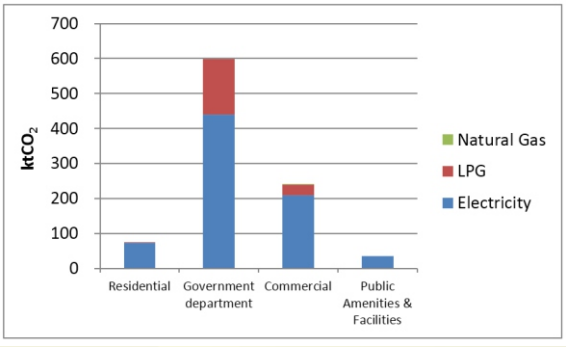

Figure 6: Building Sector Carbon Emissions by source

Carbon Emissions from Transportation Sector

Transporation sector was the second highest in energy consumption in Putrajaya. The increase in the number of population and workers resulted in the increase in trip generations. This scenario can be observed from the records of incoming and outgoing persons in and out of Putrajaya.

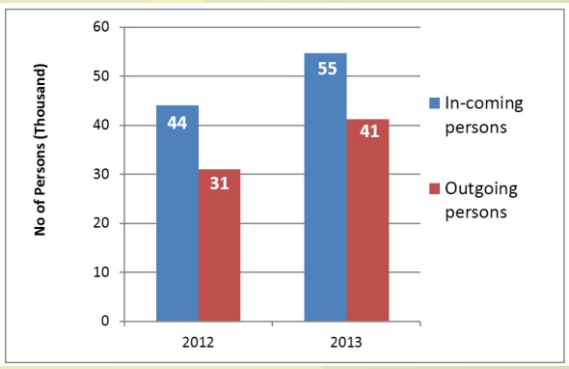

Figure 7: Incoming & Outgoing Persons Comparison

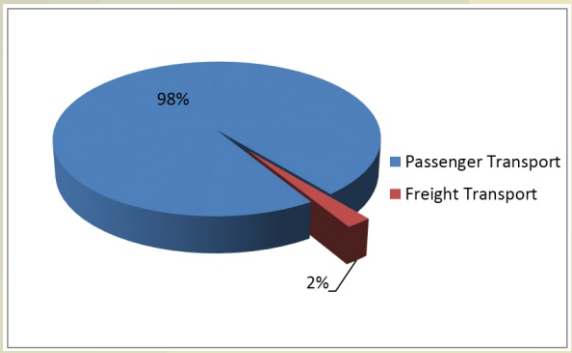

Figure 8: Carbon Emissions from Transportation Sector

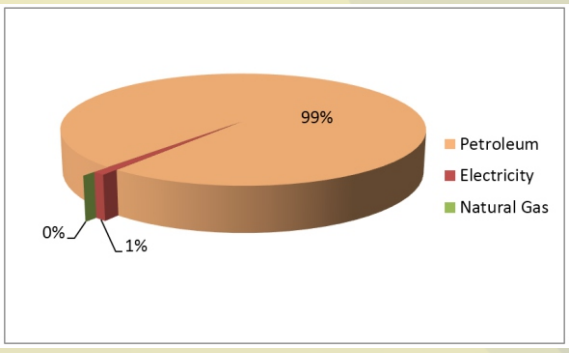

Figure 9: Carbon Emissions from Transportation Sector by Source

Carbon Emissions from Solid Waste Sector

In the waste sector, the inventory result for 2013 indicate an increase in GHG emissions at 51 $ktCO_2eq$ as compared to 2012 at 49$ktCO_2eq$.

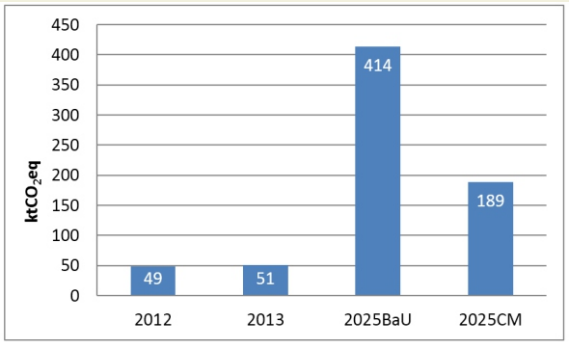

Figure 10: GHG Emissions Comparisons for Waste Sector

PERBADANAN PUTRAJAYA
Perbadanan Putrajaya Complex
24, Persiaran Perdana, Precinct 3,
62675 Putrajaya, Malaysia.
Tel : 603 8000 8000, Fax : 03-8887 5000
www.ppj.gov.my
http://www.facebook.com/putrajaya