

**2005 and 2010 Energy Use
and Greenhouse Gas
Emissions Inventory**

*MWCOG / NVPC Counties Discussion
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*Rob Graff, Manager
Office of Energy and Climate Change Initiatives
Delaware Valley Regional Planning Commission*

What Jeff requested:

“quick overview of how the inventory was developed for Philadelphia region, with focus on how it was translated to local government inventories.”

5 to 7 minutes

The Delaware Valley Regional Planning Commission (DVRPC)



- Metropolitan Planning Organization (MPO) for the Philadelphia region, created in 1965
- Bi-state (PA/NJ), nine counties
- Board made up of representatives of the counties, major cities, key state agencies, Governors' representatives
- Staff of over 120

How the inventory was developed

2005 and 2010 Inventories:

- Used national inventory categories and methods wherever possible
- Focus on geography of accountability, with an eye to what types of planning activities might reduce emissions – where the energy was used, why the miles were driven.
- Electricity and gas data from utilities, by user class
- eGRID used for electricity emissions factor; EPA used for GWP
- Other stationary energy allocated to region from state totals based on various demographic data

How the inventory was developed

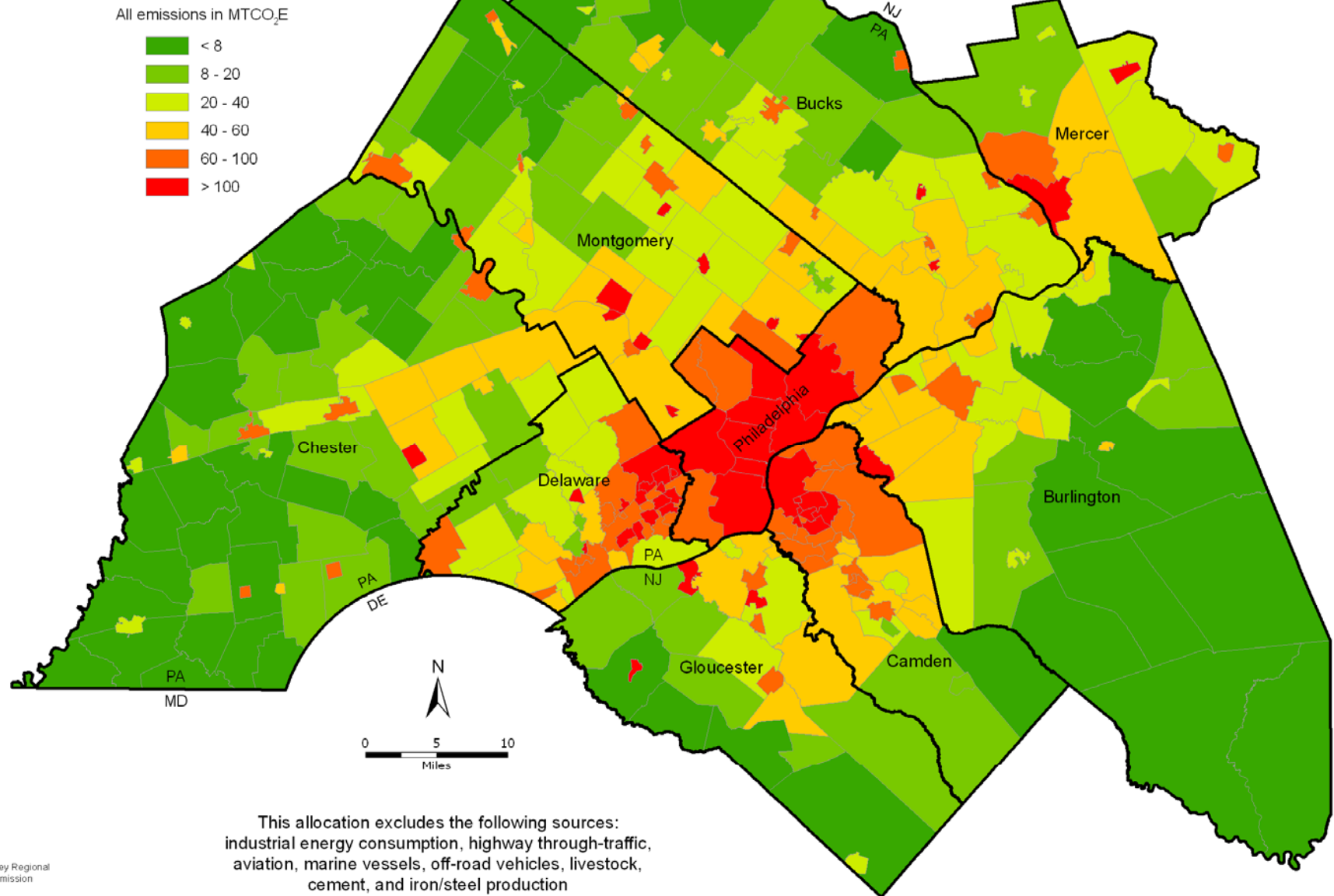
- VMT from DVRPC travel demand model and MOBILE6 and MOVES (2010)
- Air, Freight Rail, industrial process emissions, derived from national total using regional share of national activity
- Transit, ports, intercity rail calculated from various sources
- Agriculture derived from county-level animal population + DVRPC land use from aerial survey
- Etc. Full details at www.dvrpc.org/EnergyClimate

How it was translated to local government inventories

- Key motivation: DVRPC and local utilities were being contacted by munis whose leaders had signed the Mayor's Climate Protection Agreement and/or had joined ICLEI—Local Governments for Sustainability
 - VMT data by muni
 - Electricity and natural gas by muni
- We saw opportunities for efficiency, accuracy, and consistency if this was done regionally. Utility was happy to have us take it on for them.
- Allocation method varies by source
 - Sometimes excellent: e.g., billed electricity
 - Sometimes as good as you'll get: e.g., heating oil, VMT
 - Sometimes easy to improve locally: e.g., solid waste

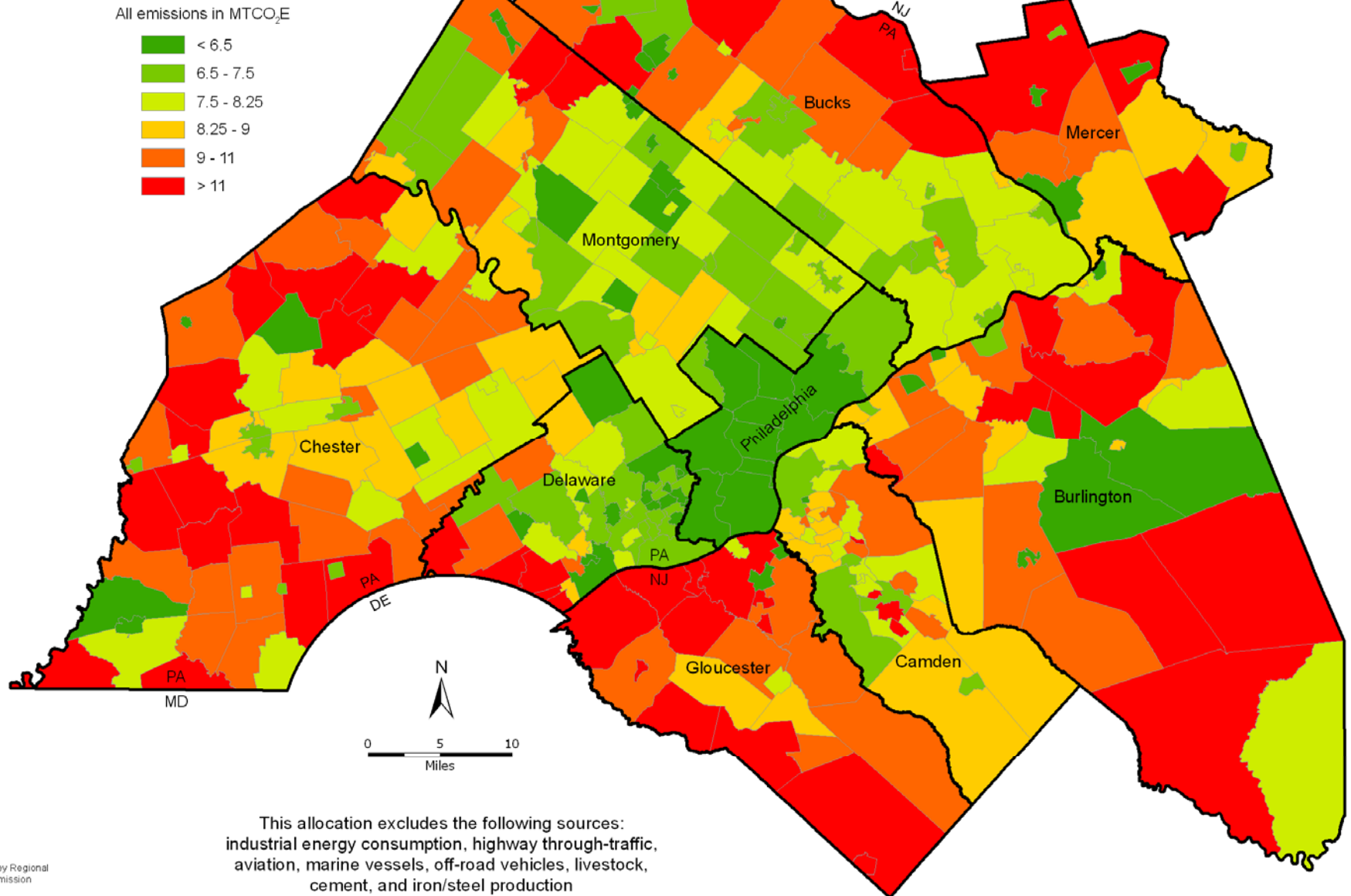
DVRPC Greenhouse Gas Emissions Inventory Allocation:

Emissions Per Acre
by Municipality (2005)



DVRPC Greenhouse Gas Emissions Inventory Allocation:

Emissions Per Population & Employment by Municipality (2005)



DVRPC 2005 GHG Inventory Allocation
Municipality Data Lookup Sheet

1.) Select Your County	Burlington	
2.) Select Your Municipality	Bordentown City	

Your Selections

Municipality	Bordentown City
County	Burlington
State	NJ
Municipality Code	242
Municipality Population, 2005	3,955
Municipality Households, 2005	1,751
Municipality Employment, 2005	2,248

Totals

Sector	Total Energy Use Billion BTU (BBTU)	Total GHG Emissions (MTCO ₂ eq.)
Residential	64	5,053
Commercial	46	3,795
Industrial	-	-
Mobile-Highway	254	18,631
Mobile Transit	1	104
Non-Energy GHG	NA	3,646
Total	364	31,228

Residential

	Energy Consumption			Total GHG Emissions (MTCO ₂ eq.)
	Billion BTU (BBTU)*	% of Total BBTU	Physical units	
Electricity	8	13.3%	2,480,877 kWh	1,377
Natural Gas	18	28.3%	175,570 CCF	958
Fuel Oil & Kerosene	36	56.3%	259,347 Gallons	2,634
LPG	1	2.1%	14,660 Gallons	83
Other Fuels	-	0.0%		-
Totals	64			5,053

*The value shown for BBTU of electricity represents only the direct energy content of the electricity itself, not that of fuels used to generate the electricity. An estimated 12 BBTU of coal (471 short tons), 1 BBTU of oil (178 barrels), 3 BBTU of natural gas (2 million cubic feet), and 0 BBTU of other fossil fuels were used to generate this electricity.

Grey shading indicates that the values were not calculated.

Commercial

	Energy Consumption			Total GHG Emissions (MTCO ₂ eq.)
	BBTU*	% of Total BBTU	Physical units	
Electricity	9	20.6%	2,765,367 kWh	1,535
Natural Gas	20	43.7%	193,935 CCF	1,058
Fuel Oil & Kerosene	15	32.7%	108,081 Gallons	1,095
LPG	0	0.5%	2,416 Gallons	14
Other Fuels	1	2.5%		92
Totals	46			3,795

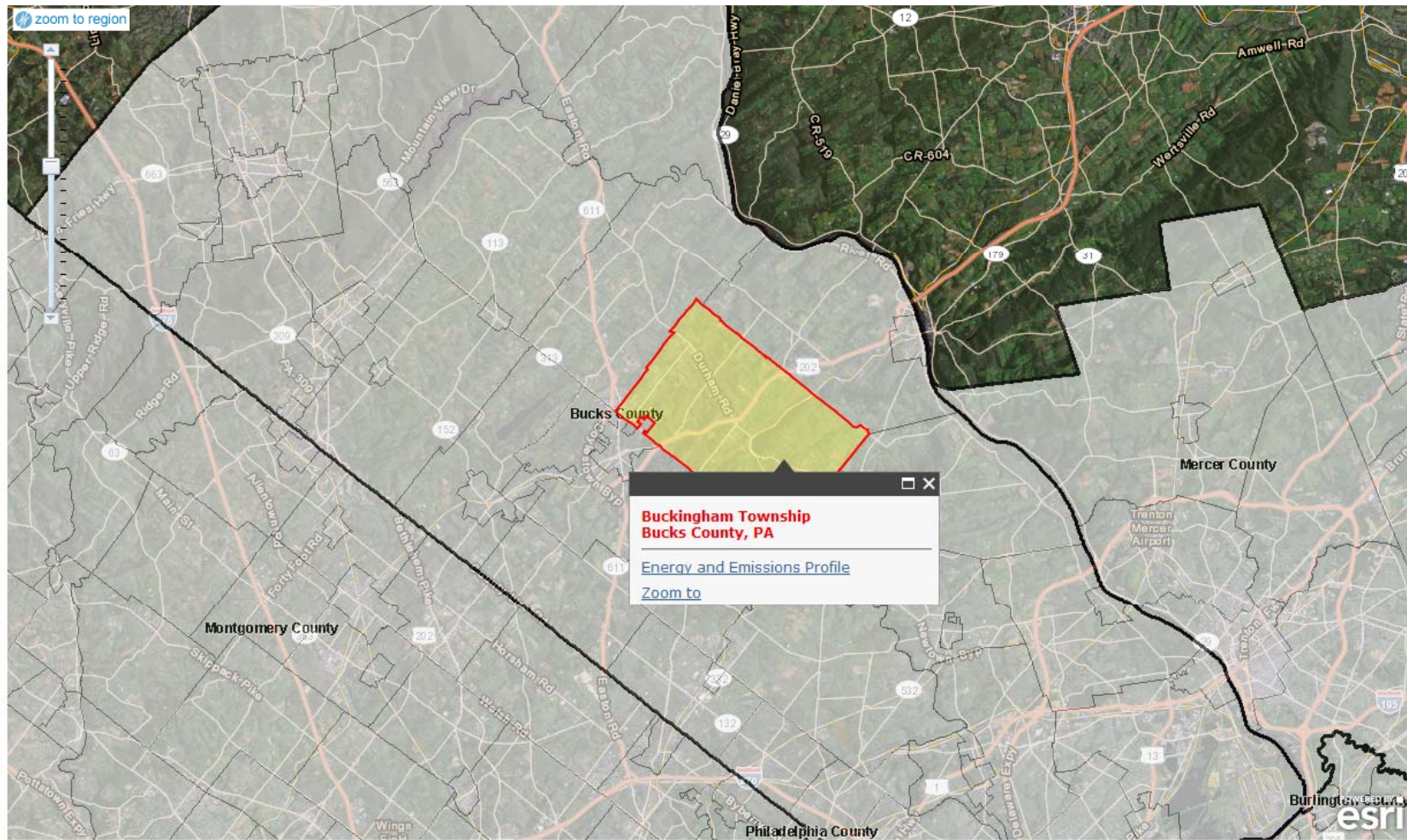
*The value shown for BBTU of electricity represents only the direct energy content of the electricity itself, not that of fuels used to generate the electricity. An estimated 13 BBTU of coal (525 short tons), 1 BBTU of oil (199 barrels), 3 BBTU of natural gas (3 million cubic feet), and 0 BBTU of other fossil fuels were used to generate this electricity.

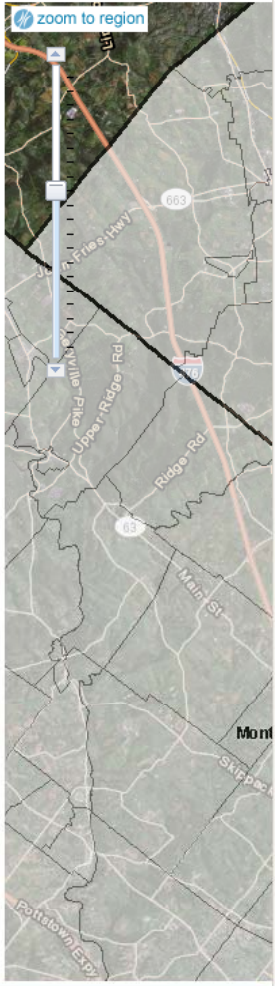
Grey shading indicates that the values were not calculated.



Energy and Emissions Profiles

Click on the map or use the search box to view profile

 [Help](#)



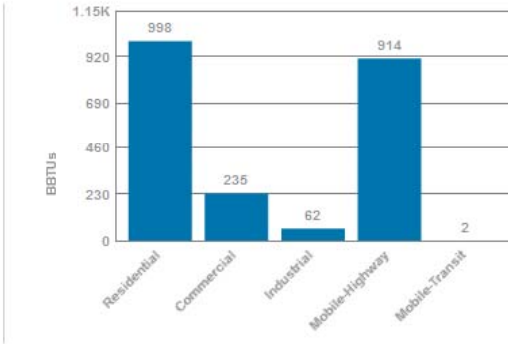
upland acres. Strategies for energy use and emissions reductions that may be applicable to municipalities of this planning type are highlighted at the end of this document. It is important to note that not all strategies are appropriate to all municipalities, even municipalities of the same planning area type.

Buckingham Township

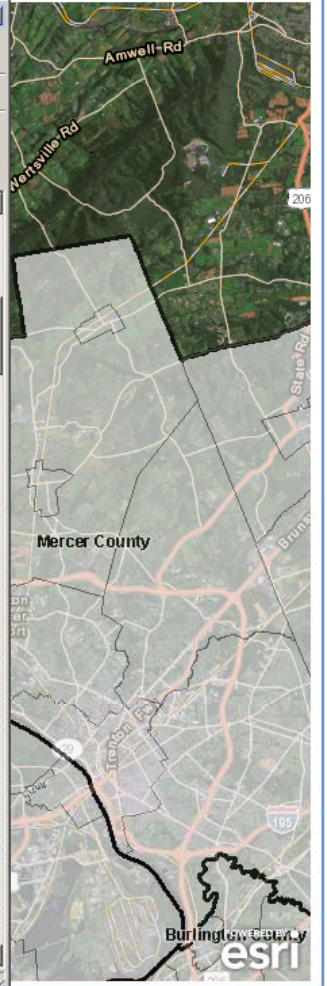
In 2005, the population of Buckingham Township was 18,693. Buckingham Township had 6,540 households. Total employment in Buckingham Township was 5,366. Buckingham Township consumed 2,211 billion BTUs (BBTUs) of energy. This, in combination with non-energy sources of greenhouse gasses, resulted in 227,391 metric tons of CO2 equivalent (MTCO2eq). Of sectors for which data is available and allocable, the residential sector consumed the most energy, consuming 998 BBTUs of energy. The residential sector produced the most emissions, emitting 100,092 MTCO2eq.

Energy Use By Sector

Sector	Energy Use (BBTU)
Residential	998
Commercial	235
Industrial	62
Mobile-Highway	914
Mobile-Transit	2
Total	2,211



Emissions by Sector



Key take-aways

The perfect is the enemy of the good

Learn to live with uncertainty

Your data may never be good enough to measure the rate of underlying change due to policies through the noise of natural variation

Provide instruction to local users on which information is best suited for local improvement (e.g., solid waste as opposed to metered electricity)

Keep in mind why you are doing an inventory

THANK YOU



www.dvrpc.org/EnergyClimate

Rob Graff, Manager
Office of Energy and Climate Change Initiatives
regraff@dvrpc.org
(215) 238-2826

