



# DUBLIN REGION'S BASELINE EMISSIONS INVENTORY 2016

## SUMMARY REPORT

# Dublin Region's Baseline Emissions Inventory 2016

## Summary Report

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This report has been prepared by Codema and funded by the Sustainable Energy Authority of Ireland under the SEAI Sustainable Energy Research, Development & Demonstration Programme 2017, Grant number RDD/00114

October 2017

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# Table of Contents

Summary Report .....	1
Dublin Region Baseline Emissions Inventory .....	2
Dublin City Baseline Emissions Inventory .....	3
Dún Laoghaire-Rathdown Baseline Emissions Inventory .....	4
Fingal Baseline Emissions Inventory .....	5
South Dublin Baseline Emissions Inventory .....	6

## Summary Report

This report summarises the results of the Baseline Emissions Inventory (BEI) calculations for the Dublin region, created through support from the Sustainable Energy Authority of Ireland's (SEAI's) RD&D programme 2017. The BEIs have been created for each individual local authority area in Dublin, and then amalgamated to give a regional BEI to support the work of Ireland's first regional *Climate Change Mitigation and Adaptation Action Plan* for the Dublin Local Authorities.

The BEI for the Dublin region has been established following the methodology as set out in the '*Developing CO2 Baselines: A Step-by-Step Guide for Your Local Authority*' report, which also forms part of Codema's SEAI RD&D 2017 project. This methodology is based on European best practice and best available information, and supports the requirements of the Covenant of Mayors for Climate and Energy initiative. Local authorities wishing to sign up to the Covenant of Mayors will be required to carry out a Sustainable Energy Action Plan and include a BEI as part of this work. The Dublin Local Authorities have all signed up to the Covenant of Mayors, and the BEI's, as set out in this summary report, will form part of their submissions.

The Dublin region's BEI gives a total energy and emissions figure for the county area, including emissions from all buildings, transport, waste and wastewater. The results of the Dublin BEI analysis show;

- Dublin uses **13.4 MWh of total final energy per capita**,
- Dublin emits **6.2 tCO<sub>2</sub> eq. per capita**, which is much lower than the national average of 12.8 tCO<sub>2</sub> eq. per capita<sup>1</sup> due to the low levels of agricultural practices in the Dublin region. When compared to the CO<sub>2</sub> per capita of other urban regions, Dublin has higher emissions than London at 4.2 tCO<sub>2</sub> eq. per capita, and similar emissions to Belfast at 6.02 tCO<sub>2</sub> eq. per capita<sup>2</sup>.
- The transport sector has the largest share of Dublin's CO<sub>2</sub> emissions, contributing **37% of total CO<sub>2</sub> emissions**.
- Waste contributes more emissions to Dublin's baseline than all municipal activities combined.
- Dublin City has the largest emissions of the four Dublin local authority areas, due to high levels of transport and commercial activity, higher population, and an older building stock.
- Dún Laoghaire-Rathdown has the lowest emissions of the Dublin local authority areas, due to fewer kilometres of motorways and busy transport routes, lower levels of industrial activities, and lower population.

The following tables show the results of the BEI analysis for the Dublin region and all four Dublin local authorities. These baselines show the preliminary results of the analysis during the SEAI RD&D project timeline, and are subject to refinement as more sources of data become available.

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<sup>1</sup> Ireland 2050: How do our greenhouse gas emissions compare with other countries? Ireland2050.ie

<sup>2</sup> UK Department of Energy and Climate Change 2014 (latest figures).

## Dublin Region Baseline Emissions Inventory

Table 1 Dublin Region's Baseline Emission Inventory; Energy and CO<sub>2</sub> Emissions\*

Dublin Region														Total
	Electricity	Fossil Fuels								Renewable Energies				
		Natural Gas	Liquid Gas	Heating Oil	Diesel	Gasoline	Peat	Coal	Other Fossil Fuels	Biofuel	Other Biomass	Onsite Generation	Geothermal	
Residential (MWh)	1,753,606	6,139,055	17,567	1,091,612	-	-	727	11,022	57,278	22	5,438	-	-	9,076,326
Commercial (MWh)	3,103,533	2,455,166	135,425	1,775,713	-	-	-	178,553	-	2,329	342,133	-	148,778	8,141,630
Transport (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal (MWh)	110,497	65,886	443	4,706	29,404	741	-	-	-	-	348	844	-	212,869
Social Housing (MWh)	82,045	541,231	595	7,886	-	-	-	1,651	1,769	-	100	-	-	635,276
Waste (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Energy (MWh)</b>	<b>5,049,680</b>	<b>9,201,338</b>	<b>154,030</b>	<b>2,879,917</b>	<b>29,404</b>	<b>741</b>	<b>727</b>	<b>191,225</b>	<b>59,046</b>	<b>2,351</b>	<b>348,019</b>	<b>844</b>	<b>148,778</b>	<b>18,066,102</b>
Residential (tCO <sub>2</sub> )	819,811	1,256,665	4,028	284,365	-	-	279	3,754	15,116	-	-	-	-	2,384,016
Commercial (tCO <sub>2</sub> )	1,450,902	502,572	31,053	462,573	-	-	-	60,815	-	-	-	-	-	2,507,915
Transport (tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	3,061,245
Municipal (tCO <sub>2</sub> )	51,657	13,487	101	1,238	7,763	187	-	-	-	-	-	-	-	74,433
Social Housing (tCO <sub>2</sub> )	38,356	110,790	136	2,054	-	-	-	562	467	-	-	-	-	152,366
Waste (tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	128,060
Wastewater(tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	30,944
<b>Total Emissions (tCO<sub>2</sub>/tCO<sub>2</sub>eq)</b>	<b>2,360,725</b>	<b>1,883,514</b>	<b>35,319</b>	<b>750,230</b>	<b>7,763</b>	<b>187</b>	<b>279</b>	<b>65,131</b>	<b>15,582</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>8,338,979</b>

\*These are preliminary figures for 2016, and are subject to change

## Dublin City Baseline Emissions Inventory

Table 2 Dublin City's Baseline Emission Inventory; Energy and CO<sub>2</sub> Emissions\*

Dublin City	Emissions Inventory													Total
	Electricity	Fossil Fuels								Renewable Energies				
	Natural Gas	Liquid Gas	Heating Oil	Diesel	Gasoline	Peat	Coal	Other Fossil Fuels	Biofuel	Other Biomass	Onsite Generation	Geothermal		
Residential (MWh)	858,420	2,475,768	3,231	217,398	-	-	245	5,394	24,676	16	1,318	-	-	<b>3,586,466</b>
Commercial (MWh)	1,562,934	1,089,877	50,114	838,631	-	-	-	51,901	-	677	135,997	-	73,344	<b>3,803,474</b>
Transport (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal (MWh)	52,204	44,133	-	2,202	17,350	376	-	-	-	-	-	844	-	<b>117,110</b>
Social Housing (MWh)	48,670	343,905	479	2,068	-	-	-	-	929	-	-	-	-	<b>396,050</b>
Waste (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Energy (MWh)</b>	<b>2,522,228</b>	<b>3,953,682</b>	<b>53,823</b>	<b>1,060,299</b>	<b>17,350</b>	<b>376</b>	<b>245</b>	<b>57,295</b>	<b>25,605</b>	<b>693</b>	<b>137,315</b>	<b>844</b>	<b>73,344</b>	<b>7,903,101</b>
Residential (tCO <sub>2</sub> )	401,311	506,790	741	56,632	-	-	94	1,837	6,512	-	-	-	-	<b>973,917</b>
Commercial (tCO <sub>2</sub> )	730,672	223,098	11,491	218,463	-	-	-	17,677	-	-	-	-	-	<b>1,201,401</b>
Transport (tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>870,522</b>
Municipal (tCO <sub>2</sub> )	24,406	9,034	-	581	4,580	95	-	-	-	-	-	-	-	<b>38,696</b>
Social Housing (tCO <sub>2</sub> )	22,753	70,397	110	539	-	-	-	-	245	-	-	-	-	<b>94,044</b>
Waste (tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>52,652</b>
Wastewater(tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>12,723</b>
<b>Total Emissions (tCO<sub>2</sub>/tCO<sub>2</sub>eq)</b>	<b>1,179,142</b>	<b>809,319</b>	<b>12,342</b>	<b>276,215</b>	<b>4,580</b>	<b>95</b>	<b>94</b>	<b>19,515</b>	<b>6,757</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3,243,956</b>

\*These are preliminary figures for 2016, and are subject to change

## Dún Laoghaire-Rathdown Baseline Emissions Inventory

Table 3 Dún Laoghaire-Rathdown's Baseline Emission Inventory; Energy and CO<sub>2</sub> Emissions\*

Dún Laoghaire-Rathdown	Emissions Inventory													Total
	Electricity	Fossil Fuels								Renewable Energies				
		Natural Gas	Liquid Gas	Heating Oil	Diesel	Gasoline	Peat	Coal	Other Fossil Fuels	Biofuel	Other Biomass	Onsite Generation	Geothermal	
Residential (MWh)	296,585	1,197,897	5,548	336,591			215	2,341	13,996	3	1,666	-	-	<b>1,854,841</b>
Commercial (MWh)	267,761	199,783	9,780	150,741	-	-	-	11,137	-	145	25,871	-	13,012	<b>678,229</b>
Transport (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal (MWh)	19,000	6,873	74	970	2,584	54	-	-	-	-	348	-	-	<b>29,902</b>
Social Housing (MWh)	6,842	50,731	-	1,692	-	-	-	-	123	-	11	-	-	<b>59,400</b>
Waste (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Energy (MWh)</b>	<b>590,188</b>	<b>1,455,285</b>	<b>15,401</b>	<b>489,993</b>	<b>2,584</b>	<b>54</b>	<b>215</b>	<b>13,477</b>	<b>14,119</b>	<b>148</b>	<b>27,896</b>	<b>-</b>	<b>13,012</b>	<b>2,622,372</b>
Residential (tCO <sub>2</sub> )	138,654	245,210	1,272	87,682	-	-	82	797	3,693	-	-	-	-	<b>477,390</b>
Commercial (tCO <sub>2</sub> )	125,178	40,896	2,242	39,268	-	-	-	3,793	-	-	-	-	-	<b>211,377</b>
Transport (tCO <sub>2</sub> )														<b>410,735</b>
Municipal (tCO <sub>2</sub> )	8,883	1,407	17	256	682	14	-	-	-	-	-	-	-	<b>11,258</b>
Social Housing (tCO <sub>2</sub> )	3,199	10,385	-	441	-	-	-	-	33	-	-	-	-	<b>14,057</b>
Waste (tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>20,681</b>
Wastewater(tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>4,997</b>
<b>Total Emissions (tCO<sub>2</sub>/tCO<sub>2</sub>eq)</b>	<b>275,913</b>	<b>297,897</b>	<b>3,531</b>	<b>127,647</b>	<b>682</b>	<b>14</b>	<b>82</b>	<b>4,590</b>	<b>3,726</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,150,495</b>

\*These are preliminary figures for 2016, and are subject to change

## Fingal Baseline Emissions Inventory

Table 4 Fingal's Baselines Emission Inventory; Energy and CO<sub>2</sub> Emissions\*

Fingal														Total
	Electricity	Fossil Fuels								Renewable Energies				
		Natural Gas	Liquid Gas	Heating Oil	Diesel	Gasoline	Peat	Coal	Other Fossil Fuels	Biofuel	Other Biomass	Onsite Generation	Geothermal	
Residential (MWh)	329,265	1,269,098	5,462	291,135	-	-	143	1,523	9,713	3	1,471	-	-	<b>1,907,813</b>
Commercial (MWh)	554,518	528,853	35,052	352,881	-	-	-	54,548	-	711	83,034	-	27,756	<b>1,637,353</b>
Transport (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal (MWh)	20,376	6,873	-	-	5,927	206	-	-	-	-	-	-	-	<b>33,383</b>
Social Housing (MWh)	7,821	53,625	-	1,436	-	-	-	16	222	-	26	-	-	<b>63,144</b>
Waste (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Energy (MWh)</b>	<b>911,980</b>	<b>1,858,449</b>	<b>40,514</b>	<b>645,452</b>	<b>5,927</b>	<b>206</b>	<b>143</b>	<b>56,086</b>	<b>9,935</b>	<b>714</b>	<b>84,531</b>	<b>-</b>	<b>27,756</b>	<b>3,641,693</b>
Residential (tCO <sub>2</sub> )	153,931	259,784	1,252	75,841	-	-	55	519	2,563	-	-	-	-	<b>493,946</b>
Commercial (tCO <sub>2</sub> )	259,237	108,256	8,037	91,925	-	-	-	18,579	-	-	-	-	-	<b>486,035</b>
Transport (tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>979,665</b>
Municipal (tCO <sub>2</sub> )	9,526	1,407	-	-	1,565	52	-	-	-	-	-	-	-	<b>12,550</b>
Social Housing (tCO <sub>2</sub> )	3,656	10,977	-	374	-	-	-	5	58	-	-	-	-	<b>15,071</b>
Waste (tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>28,195</b>
Wastewater(tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>6,813</b>
<b>Total Emissions (tCO<sub>2</sub>/tCO<sub>2</sub>eq)</b>	<b>426,351</b>	<b>380,424</b>	<b>9,290</b>	<b>168,140</b>	<b>1,565</b>	<b>52</b>	<b>55</b>	<b>19,103</b>	<b>2,622</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2,022,275</b>

\*These are preliminary figures for 2016, and are subject to change



## South Dublin Baseline Emissions Inventory

Table 5 South Dublin's Emission Inventory; Energy and CO<sub>2</sub> Emissions\*

South Dublin													Total	
	Electricity	Fossil Fuels								Renewable Energies				
		Natural Gas	Liquid Gas	Heating Oil	Diesel	Gasoline	Peat	Coal	Other Fossil Fuels	Biofuel	Other Biomass	Onsite Generation		Geothermal
Residential (MWh)	269,335	1,196,292	3,327	246,488	-	-	124	1,764	8,892	1	982	-	-	1,727,206
Commercial (MWh)	718,320	636,653	40,479	433,460	-	-	-	60,968	-	795	97,232	-	34,667	2,022,575
Transport (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal (MWh)	18,916	8,007	370	1,534	3,542	105	-	-	-	-	-	-	-	32,474
Social Housing (MWh)	18,712	92,971	116	2,691	-	-	-	1,635	494	-	63	-	-	116,681
Waste (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Energy (MWh)</b>	<b>1,025,283</b>	<b>1,933,922</b>	<b>44,292</b>	<b>684,173</b>	<b>3,542</b>	<b>105</b>	<b>124</b>	<b>64,367</b>	<b>9,387</b>	<b>796</b>	<b>98,277</b>	<b>-</b>	<b>34,667</b>	<b>3,898,936</b>
Residential (tCO <sub>2</sub> )	125,914	244,881	763	64,210	-	-	48	601	2,347	-	-	-	-	438,763
Commercial (tCO <sub>2</sub> )	335,814	130,323	9,282	112,916	-	-	-	20,766	-	-	-	-	-	609,101
Transport (tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	800,323
Municipal (tCO <sub>2</sub> )	8,843	1,639	85	401	935	26	-	-	-	-	-	-	-	11,929
Social Housing (tCO <sub>2</sub> )	8,748	19,031	27	701	-	-	-	557	130	-	-	-	-	29,194
Waste (tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	26,532
Wastewater(tCO <sub>2</sub> eq)	-	-	-	-	-	-	-	-	-	-	-	-	-	6,411
<b>Total Emissions (tCO<sub>2</sub>/tCO<sub>2</sub>eq)</b>	<b>479,320</b>	<b>395,874</b>	<b>10,156</b>	<b>178,228</b>	<b>935</b>	<b>26</b>	<b>48</b>	<b>21,923</b>	<b>2,477</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,922,253</b>

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