



EXCERPT FROM ZECOS MATERIAL FLOW STUDY 21 JUNE 2013

Extrapolated to all 600 occupied dwellings in Ballynagran the primary energy saving of 12,250,000 kWh would be possible based on the table below. The energy assessment found that approximately 11% of the primary energy demand for the dwellings is for electricity for fixed lighting and pumps.

Potential savings in delivered energy are displayed in table 3-2 below.

Potential (delivered) energy saving for dwellings in the community						
Type	Space heating (fossil fuel based – factor 1.1)	Hot water heating (fossil fuel based – factor 1.1)	Hot water heating (electricity based – factor 2.4)	Electricity usage for pumps and lighting (factor 2.4)	Total existing demand	Total potential saving (50%)
Primary Energy	16,830,000	2,887,500	2,100,000	2,682,500	24,500,000	12,250,000
Delivered Energy	15,300,000	2,625,000	875,000	1,118,000	19,920,000	9,950,000

Table 2-11 Primary energy to delivered energy conversion¹

Assuming a potential saving of 50% in delivered energy for the households in Ballynagran a saving of **9,950,000 kWh** could be achieved.

In 2011 77 houses of the approximately 200 eligible houses participated in an energy retrofit support scheme where up to €5,000 from the Ballynagran landfill fund was being made available for energy improvement works to houses within the core area around the landfill site. Of the 77 applicants 54 dwellings completed energy retrofit works. The works included various types of insulation (attic, wall, cavity, external and dry lining insulation), boiler and controls upgrades, solar heating and windows upgrades. Since the vast majority of the houses where improvement works were carried out under the

¹ DEAP Manual Table 8 Fuel Data: Delivered heating energy (oil/ gas/ biomass) x factor 1.1 = primary energy. Delivered electricity x 2.4 = primary energy

grant scheme had been previously energy assessed by MosArt Ltd a detailed review of the energy improvements achieved was undertaken and is summarized in table 2-11 below.

Estimated energy savings from retrofit programme 2011				
Building	Total Floor Area	<u>Before</u> total energy usage for hot water/ heat/ fixed lighting and pumps	<u>After</u> total energy usage for hot water/ heat/ fixed lighting and pumps	Total annual savings through retro fit programme
	(m2)	kWh/annum	kWh/annum	kWh/annum
1	124	23,219	18,800	4,419
2	228	29,428	26,227	3,201
3	101	25,862	20,112	5,750
4	127	48,310	32,273	16,036
5	66	15,692	13,229	2,463
6	71	16,991	14,566	2,425
7	180	28,012	22,514	5,497
8	296	39,276	31,583	7,693
9	245	54,081	46,883	7,198
10	97	36,826	30,475	6,351
11	91	23,840	19,164	4,676
12	109	29,100	20,412	8,687
13	347	114,139	87,382	26,757
14	191	45,225	26,484	18,741
15	170	30,029	25,264	4,765
16	265	45,914	37,142	8,771
17	71	31,364	23,425	7,939
18	88	47,794	13,966	33,827
19	321	41,778	39,220	2,558
20	209	68,406	45,384	23,021
21	261	36,175	28,723	7,452
22	178	39,366	32,008	7,359
23	202	31,346	24,818	6,529
24	137	49,386	34,421	14,965
25	291	60,432	42,582	17,850
26	191	50,649	46,797	3,852
27	111	30,837	26,017	4,820
28	107	48,783	47,115	1,668
29	88	23,519	21,011	2,508
30	153	25,582	22,546	3,036
31	259	46,014	45,856	158
32	299	126,731	120,907	5,825
33	184	27,558	26,489	1,069
34	200	30,798	24,148	6,650
35	128	22,570	20,673	1,897

36	117	23,026	20,628	2,397
37	247	36,418	30,403	6,014
38	145	40,847	37,007	3,840
39	166	60,950	58,118	2,832
40	105	40,194	38,876	1,318
41	154	24,421	22,213	2,208
42	365	18,027	15,863	2,164
43	146	30,289	23,602	6,687
44	334	56,292	53,958	2,335
45	95	15,882	12,666	3,216
46	112	46,638	44,744	1,894
47	110	22,025	20,835	1,190
48	235	49,009	45,541	3,469
49	236	19,088	18,528	559
50	154	22,110	19,081	3,029
51	251	33,802	30,860	2,942
52	240	16,543	15,857	686
53	138	25,476	25,123	353
54	171	29,574	26,120	3,454
54 Dwellings	8,990	1,896,142	1,593,435	302,707

Table 2.11 - Residential Housing Energy Improvement Works 2012 – Delivered Energy Savings