Sustainable Energy Communities Programme

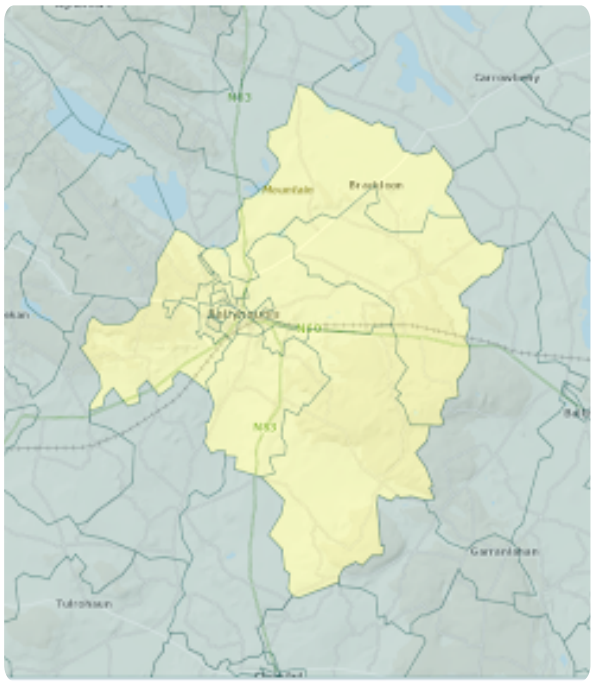
CELTIC DYNAMICS

Energy Master Plan for Sustainable Energy Community (SEC) of Ballyhaunis

Overall Aim

Provide a roadmap for the transition of Ballyhaunis to sustainable energy, by and for the community.

This Energy Master Plan provides a summary of the findings made by Celtic Dynamics during the assessments of the site. The energy master plan is intended to be a document that will assist with the development of projects in the community. Celtic Dynamics advises that the community maintains this document to assist with the community's improvement in the future.



As part of the Energy Master Plan, energy audits were carried out on 10 sample homes out of a total of 1364 homes in the SEC area and 6 community buildings. The 10 homes assessed received Home Energy Assessments (HEAs) operated through the SEAI One Stop Shop scheme and the results were used to estimate the cost and savings of upgrading all applicable dwellings. The home energy assessments were completed by Churchfield Home Services on behalf of Celtic Dynamics Engineering Ltd. in January 2026. Celtic Dynamics completed energy audits for the community buildings and issued the full energy reports outlining solutions for reducing energy consumption.

Baseline energy analysis

Total energy expenditure per year:

€14,585,159

	Residential	Non-Residential	Agriculture	Transport	Total
Energy use [kWh/year]	39,839,473	52,978,328	2,896,443	22,108,417	117,822,661
CO2 emission [tonnes/year]	7,384	8,852	683	4,786	21,705
Cost (€/yr)	5,581,417	6,087,524	385,234	2,530,984	€14,585,159

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RESIDENTIAL SECTOR

Housing stock summary:

In total 1364 homes

House/Bungalow	Flat/Apartment	Mobile Home
1252	111	1

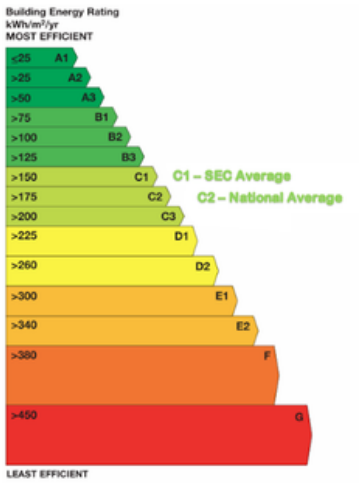
91.7%
Individual Houses

31.2%
Constructed in the years 2001 – 2010

44.4%
Constructed before Building Standards for energy conservation were introduced

65.2%
Houses using oil as a heating source

Average Energy Performance



Average BER: D2 (National: C2)

Average energy use:

21,879 kWh/dwelling/year
(National: 17,150 kWh/dwelling/year)

Average emissions:

6.63 tonnes CO2/dwelling/year

Average energy bill:

€3,864.25 /dwelling/year

Home Energy Assessments of the 10 representative houses in SEC:

House No.	Year of Build	Current BER Rating	Energy Value (kWh/m2)	Carbon Dioxide (kgCO2/m2)	Area (m2)	Primary Energy Consumption (kWh/yr)	Emissions (kgCO2)	Potential BER Rating	Potential Energy Uplift (kWh/m2)	Potential CO2 Reduction (kgCO2/m2)
1	1980	D2	285.7	63.42	183.71	52,486	11,651	A2	245.36	59.45
2	2006	C1	171.06	41.85	86.78	14,845	3,632	A1	161.86	34.69
3	2009	C2	177.75	42.58	103.58	18,411	4,410	A1	156.96	35.7
4	1999	B3	143.49	35.58	159.14	22,835	5,662	A1	119.34	29.64
5	1990	C1	163.81	36.57	198.2	32,467	7,248	A3	102.69	16.23
6	1985	C2	186.81	45.91	185.41	34,636	8,512	B1	110.32	21.47
7	1998	C3	203.22	50.66	168.53	34,249	8,538	A2	159.69	42.21
8	1977	C2	187.47	48.83	321.48	60,268	15,698	A2	156.41	44.86
9	1970	D1	235.45	59.07	145.28	34,206	8,582	A3	184.01	48.97
10	2005	B3	142.29	34.1	193.56	27,542	6,600	A1	127.41	30.13

Solution for a sample house (house no.7)

Starting BER rating C3 203.22 kWh/m2/yr:

Upgrade Measure	Rating Improvement	kWh/m2/yr	Cost Savings	Cost of Measure (excl. grant)	Grant Amount	Cost to Client
Roof Insulation	C2	199.09	€67.82	€6,753.19	€2,000.00	€4,753.19
Doors	C2	197.66	€23.48	€11,355.33	€1,600.00	€9,755.33
Windows	C2	177.31	€334.20	€17,177.44	€4,000.00	€13,177.44
Ventilation	C2	177.31	€0.00	€2,214.98	n/a	€2,214.98
Heat Pump	A3	62.11	€1,953.02	€32,159.60	€12,500.00	€19,659.60
Solar Panels	A2	43.53	€583.31	€5,235.63	€1,800.00	€3,435.63
BER Assessment	n/a	n/a	n/a	€363.20	n/a	€363.20
Project Management	n/a	n/a	n/a	n/a	€2,000.00	-€2,000.00
Waste Disposal	n/a	n/a	n/a	€428.70	n/a	€428.70
FINAL FIGURES	**A2**	**43.53**	**€2,961.84**	**€75,688.07**	**€23,900.00**	**€51,788.07**

Residential Sustainable Energy Roadmap

Scenario: Upgrade all homes within the SEC, with a rating of C1 or worse, equal 80% of homes, to a B2 or better. Average cost to reach a B2 or better: €78,843 per house (before grants). Average grant amount: €20,411 per house

	Before	After	% Savings
Total energy use (kWh/yr)	39,839,473	10,734,386	**73.1%**
CO2 emissions (tonnes/yr)	7,384	1,244	**83.2%**
Cost €/yr	€5,581,417	€2,438,110	**56.3%**

Potential renewable energy solutions

Solar: High potential; up to 4kWp per residential (typically produces 3-4 MWh of electricity per year).

Average cost to install 4kWp	€6,569
Grant amount	€1,800
Final cost to homeowner	**€4,769**

Scenario: A home within the SEC to install solar panels of 4kWp (no other upgrade measures included in this scenario).

Outcome	Before	After	Savings	% Savings
Energy kWh/year	18,411	13,119	5,292	28.74%
Cost€/year	€2,073	€1,087	**€986**	**47.57%**

One Stop Shop
National Home Energy Upgrade Scheme

https://www.seai.ie/find-grants-and-contractors/find-contractors/registered-one-stop-shops

Transport Sector

- Cars are the most used means of transport in SEC
- Total annual emission 4,786 Tonnes CO2
- 69.6% of journey time for daily commuting is less than 45 min
- This makes SEC suitable for switching to electric cars

Scenario 50% of cars within SEC (687 cars) are electric cars

	Before	After	Savings
CO2 emissions (tonnes/yr)	4,786	3,529	**1,257**
Cost €/yr	€2,530,984	€930,492	**€1,600,492**

Report by Celtic Dynamics

Save Energy. Save Money. Save the Planet.

www.celticdynamics.com