Energy Master Plan for Spanish Point SEC, Co. Clare

March 2026

This project is supported by the Sustainable Energy Authority of Ireland.	*Supported by* seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND CLARE COMMUNITY ENERGY AGENCY

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1. Glossary of Terms

Throughout this document a number of abbreviations/terms are used repeatedly. This section serves to define the meaning of such abbreviations/terms.

- **Building Energy Rating (BER)** - BER stands for Building Energy Rating. A BER certificate shows you the energy performance of your home. It is a good indicator of how much you will spend on energy (like heat and light) and how much CO_2 you will release to heat your home to a comfortable level. The BER rating goes from A to G. See the specific SEAI BER webpage for more details.
- **Carbon Dioxide/ CO_2** - Carbon dioxide is a powerful greenhouse gas. It is naturally part of the air we breathe. However, human activities like burning of fossil fuels and deforestation have led to an increase in CO_2 in the air that contributes to climate change.
- **Carbon Footprint** - Carbon footprint measures the carbon emissions linked to a particular activity or product. It includes emissions involved in all stages of making and using a product or carrying out an activity.
- **Climate Action Plan**: The 2023 government strategy for the overall reduction of Ireland's greenhouse gas emissions by 50% in 2030. See gov.ie
- **Energy Efficiency** - It is energy efficient when we use less energy to achieve the same result.
- **Energy Savings** - Energy in whatever format it is being consumed usually costs money (€). By reducing the amount of energy consumed you are also reducing the cost associated with providing that energy.
- **Greenhouse Gas Emissions (GHGs)** - Gases that trap heat from the Earth's surface causing warming in the lower atmosphere and slowing down loss of energy from Earth. The major greenhouse gases that cause climate change are carbon dioxide, methane and nitrous oxide.
- **Kilowatt hours (kWh)** - One kilowatt-hour is equivalent to 1000 watts of energy used for 1 hour. For example, a 100-watt lightbulb switched on for 10 hours uses one kWh of electricity.
- **Megawatt hours (MWh)** - A megawatt hour is equivalent to 1 million watts of electricity being used for an hour. 1 MWh is equivalent to 1,000 kWhs. For example, a megawatt hour could be 2 million watts (2 megawatts) of power being used for half an hour
- **Net zero emissions** - This refers to achieving an overall balance between greenhouse gas emissions produced by human activity and greenhouse gas emissions taken out of the atmosphere
- **Renewable Energy** - Renewable energy comes from renewable resources e.g wind energy, solar energy, biomass. These resources can regenerate naturally and can be used repeatedly without reducing their supply.
- **Renewable Electricity Support Scheme (RESS)** - This Government scheme provides financial support to renewable electricity projects in Ireland to help us achieve our renewable electricity goals. It also aims to increase community participation in, and ownership of, renewable electricity projects. It aims to make sure electricity consumers get value for money and to improve security of our electricity supply
- **Sustainable Energy Community (SEC)** - An SEC is a community in which everyone works together to develop a sustainable energy system. They aim to be energy efficient, to use renewable energy where feasible and to develop decentralized energy supplies. See the specific SEAI SEC webpage for more details.
- **Total Primary Energy Requirement (**TPER) -the total energy demand of a region, including energy used for transformation (e.g., electricity generation), transmission losses, and final consumption. It measures all energy sources—fossil fuels, renewables, nuclear—before they are converted into end-use energy.
- **Units -** Throughout this report we present energy use and energy production, in kilowatt or megawatt hours per annum (kWh/yr) and (MWh/yr). These units of measurement are used regardless of the fuel used. As a reference point, a typical house consumes approximately 22MWh per annum. We also present carbon emissions in tonnes or kg of CO_2/annum. Energy costs are presented in euro spent on energy per annum

2. Executive Summary

This Energy Master Plan has been developed to allow Spanish Point Sustainable Energy Community (SEC) to look at the existing and future energy needs of Spanish Point.

The development of the plan has been led by a steering group that includes representatives from the Spanish Point SEC and initial assistance from the SEAI county mentor, the development of the plan has been funded as part of the SEAI Sustainable Energy Community program.

The objectives of the Energy Master Plan are to:

- Establish an energy baseline for the area through analysis of existing data and energy audits
- Create a Register Of Opportunities (RoO) with twin aims
  - Identify the potential to reduce overall energy usage through increased energy efficiency
  - Identify the potential to increase the use of renewable energy in the most cost-efficient and realistic manner

2.1. Summary of Energy Baseline

The Energy Baseline shows where the energy in the EMP area comes from, the costs to the community and the associated emissions. The figures for the Residential and Transport sectors are based on the population based proportion of national figures provided by SEAI which give the population of Spanish Point as 363. (See Annex 8.1. Annex 1: Population calculation). The figures for the Community sector are derived from energy audits as carried out in the Energy Master Plan. (See section 5.2)

Table 1: Baseline Energy Usage

Sector	Electricity	Fossil Fuel	Renewable	Total
Residential	552.2 MWh	1,476.4 MWh	88.2 MWh	2,116.8 MWh
Community	99.5 MWh	312.5 MWh		412.0 MWh
Transport	30.0 MWh	1,859.0 MWh		1,889.0 MWh
Total Energy	681.7 MWh	3,647.9 MWh	88.2 MWh	4,417.8 MWh

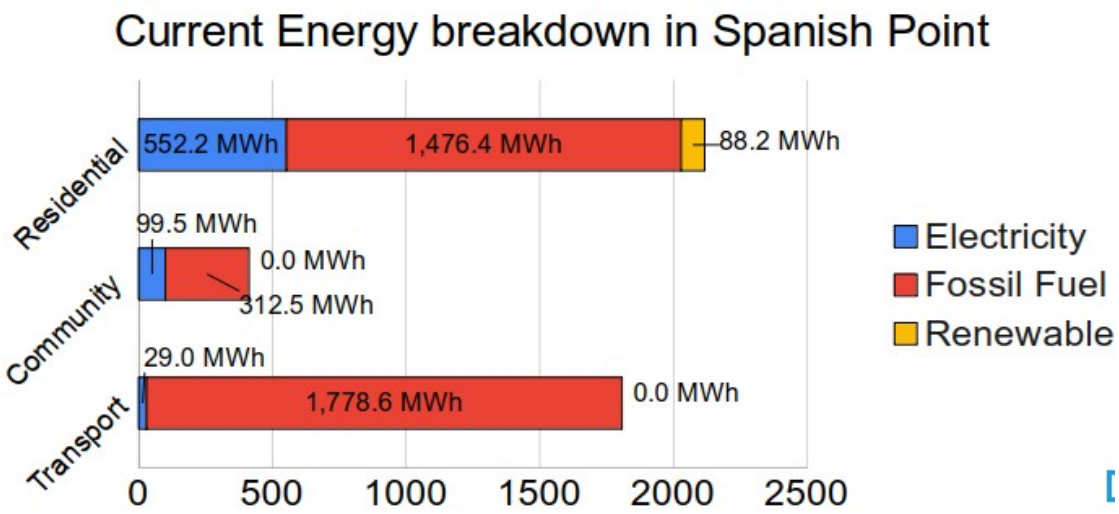


Figure 1: Annual energy usage in Spanish Point by sector and energy source

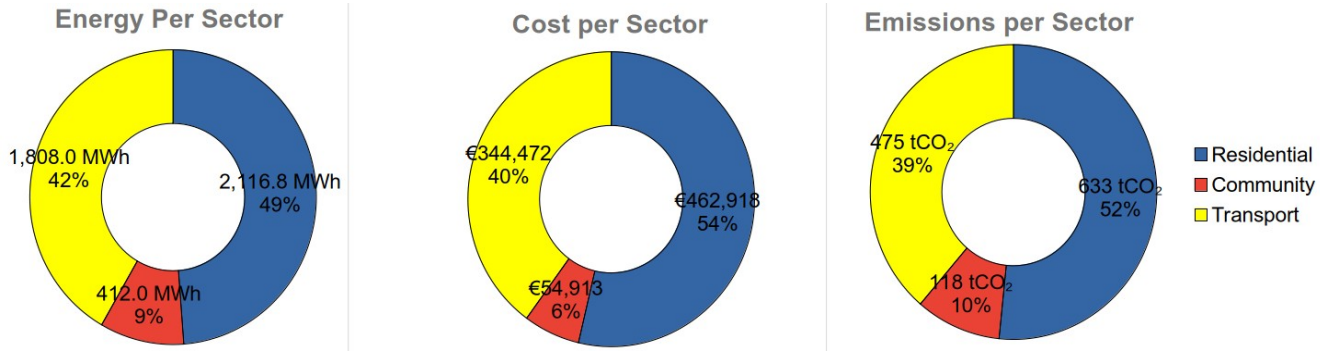


Figure 2: Energy, Cost and Emissions per sector

The figures above show that the residential sector has the highest overall energy usage, energy cost and emissions.

The community sector, which is limited to the school and Golf Club in Spanish Point, is small in relative terms to the other sectors. However, since this represents just two community facilities, the scope for impactful improvement is greater, i.e. easier to implement energy upgrades in 2 facilities than in the equivalent of 23 homes.

Table 2: Baseline Emissions & Cost

	Electricity	**Fossil Fuel**	**Renewable**	**Transport**	**Total**
CO2 Emissions	217 tCO_2	533 tCO_2	3 tCO_2	496 tCO_2	1249 tCO_2
Total Cost	€210,519	€188,549	€4,409	€360,017	€763,494

2.2. Summary of Register of Opportunities

- Residential Sector Actions
  - Specific focus on Fully Funded Energy Upgrades for energy-poor homes (potentially target of 25 homes, i.e. 10% of homes based on national average of qualifying homes (20%). Given the high proportion of holiday homes in Spanish Point, 10% is a more realistic figure.
  - Support energy upgrades of a further 30% of the homes of the EMP area (~75 homes) to bring to them to a B2 standard
  - Support the rollout of Solar PV on 50% of domestic homes/farms
  - Investigate the adoption of Solar PV for caravan parks.

- Community
  - Solar PV installation for School and Golf Club
  - 50 kW Community Solar PV (1st phase)
  - Community woodland/fruit forest
  - Small-scale Anaerobic Digestion

- Transport
  - Promoting EV uptake and increased Public EV charging points in Spanish Point
  - Promote existing public transport services and improvements to them

See **Section 7** for full details

3. Introduction

To assist in achieving the Spanish Point SEC's goals, an Energy Master Plan study has been conducted. This Energy Master Plan (EMP) has been funded by SEAI to assist in the various actions that can realistically be carried out by the Spanish Point Sustainable Energy Community.

The EMP aims to help communities understand their current energy usage and carbon footprint so that they can understand where they currently are, thereby allowing them to set reduction targets for the future. The information gathered and tools developed to review projects will help the SEC strive toward being an exemplar model in the transition to a low carbon community. The EMP is based on a mixture of desktop research utilising publicly available information sets from a range of sources CSO, SEAI, County Council, etc.

The EMP will also capture the energy consumption, emissions and spend within the community. The report begins with a sectoral energy breakdown that will give a broad overview of each sector's (Residential, Community, Transport) energy consumption, energy cost and contribution to CO_2 emissions in the Spanish Point SEC, followed by a brief discussion on how the SEC compares to national averages.

The EMP will identify the potential for the implementation of sustainable transport models such as electric vehicle (EV) charging infrastructure, alongside renewable energy generation possibilities from many varying sources such as wind, solar etc.

Reviewing the natural resources available to the community, high level analysis is provided on various renewable energy technologies that the community could further pursue. A wide range of natural resources are often within a community's grasp, however the understanding of how to progress from a concept through to reality can be an enormous barrier.

Finally, the EMP will conclude with a Register of Opportunities section, which the community can use as a benchmarking tool, as they seek to become more energy efficient and reduce their carbon footprint over the next decade.

3.1. Spanish Point SEC

The Spanish Point SEC was formed in 2023 by the Spanish Point Community Group in order to reduce the reliance on fossil fuels in the area and improve the energy resilience of the community.

The Spanish Point SEC has the following ambitions for the Energy Master Plan:

- Spanish Point SEC wants the community to increase energy efficiency by retrofitting, insulating and producing sustainable energy.
- The community was heavily impacted by Storm Eowyn in January 2025 and it is hoped that the EMP will provide pathways for increased energy resilience in the event of similar weather events in the future.
- By presenting the EMP, the SEC will use local evidence to show residents and owners how to avail of existing government supports to improve the energy efficiency of their homes and to increase the uptake of renewable energy sources.
- The members of the SEC hope to improve their knowledge both of the types of energy upgrades available and the available funding so that they may become individual sources of information for other people in the community.
- The SEC, as part of the Spanish Point Community Group, will also fine-tune their communication channels in the community during the EMP project in order to improve the sharing of information.

The SEC Steering Group's Strengths:

- The group has a genuine passion for the continued wellbeing of the community as evidenced by their involvement in many other community activities and the enthusiasm they bring to the EMP activities.
- The group is well connected to all the other community groups and sectors in the area. When there is local information or support needed, the group will know who to contact.
- The group has experience of dealing with the County Council in terms of success in applying for council funding for various schemes.
- The group is representative of the community with people whose families have been in the area for generations and others who are more recent residents. This mix helps in the transmission of information within the community and avoids the creation on information silos where certain sectors are out of the loop.

The SEC Steering Group's Challenges:

- The community does not have any community owned facilities. This limits the scope for direct action of the SEC to some extent.
- While the EMP has resulted in clear recommendations for the school and Golf Club, the SEC has no direct leverage to progress action on those recommendations.

3.2. Sustainable Energy Communities

The Sustainable Energy Community Programme engages and enables energy citizens with over 750 communities who are working together to achieve their energy goals.

This is an SEAI funded programme that provides the following supports for each SEC

- Assignment of a local SEAI mentor who will work with you and your interests/needs.
- Access to dedicated SEAI funding (€10,000-€25,000) to develop an Energy Master Plan.
- Kept up to date on network activities through the community platforms, e-zine, network only groups.
- Opportunities to attend regional/national training, events and webinars.
- Signposts to further funding opportunities

The expected benefits for the SEC and the Spanish Point community are:

- Achieve financial and energy savings.
- Improve public wellbeing and comfort from energy efficient buildings.
- Boost local knowledge, skills and employment.
- Build capacity and leverage funding.
- Contribute to climate change targets.

- Support an equitable transition to a low carbon society.

Full information, including how to join the SEC network can be found on www.seai.ie/SEC/

3.3. Clare Community Energy Agency

Clare Community Energy Agency is a social enterprise that assists community groups, small businesses and individuals to create, support and manage energy-efficiency and renewable energy projects.

4. Energy Master Plan

4.1. Scope and Outputs

- The Spanish Point SEC indicated in the scoping documents that their current scope is residential and community facilities in Spanish Point.
- The areas covered do not contain any sizeable industrial activity and commercial activity is limited to hotels and restaurants.

4.2. Methodology

The data for the residential sector in EMP area was retrieved from the Central Statistics Office website, the SEAI publications website and the Energy Survey carried out as part of the EMP.

5. SEC Baseline Analysis

5.1. Analysis of Residential Sector

5.1.1. Summary of Residential Sector

- There are 262 homes in the Spanish Point area (see **Annex 1: Population and number of homes calculation**), of which ~126 are permanently occupied
  - The high proportion of vacant/holiday homes in Spanish point is a salient feature of the community
  - 52% of homes in the community are vacant / holiday homes
- Oil is by far the most common residential heating fuel (69%)
- ~24% homes already use at least one form of renewable energy.
- 22.3% of houses in the community were built pre-1971
- The average estimated heating and electricity cost is **€1936 per year**
- The estimated annual CO_2 emissions per house from heating and electricity is **2.4 tCO_2**
- **€403,476** is spent on heating and electricity in homes and community facilities each year

5.1.2. Number, Age and BER rating of the EMP area houses

The area covered by the EMP consists of 262 houses of which ~126 are permanently occupied. We see the impact of the number of vacant home in the available statistics as some data sources will be based on the number of Census forms (i.e. 64) returned and others data sources will use the total number of houses (i.e. 154, see **Annex 1: Population and number of homes calculation**)

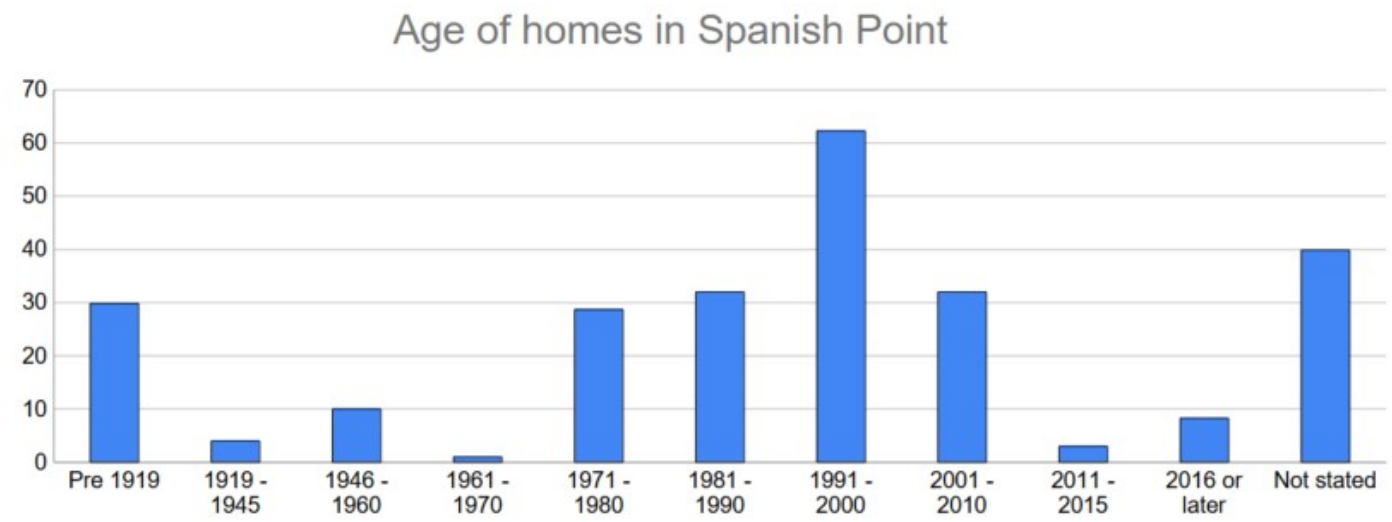


Figure 3: Age of homes in Spanish Point

- In the chart above we see that most of the homes dating from pre-1970 were in fact built before 1919.
- Large numbers of houses were built in the 70's, 80's and 90's.
- The Celtic tiger boom of the 2000's is not as pronounced in Spanish Point as in other communities, probably as a result of the higher than normal level of building in the 90's.

From the perspective of identifying the types of retro-fit actions that will be relevant, it is useful to re-group the houses into larger group. The majority of houses built post 1970 (representing 50% of houses up to 1997) are cavity wall construction and it is also worth noting the introduction of building regulations in 1997.

A high proportion of homes were built after the introduction of building regulations which should mean the average build quality is higher than in other communities.

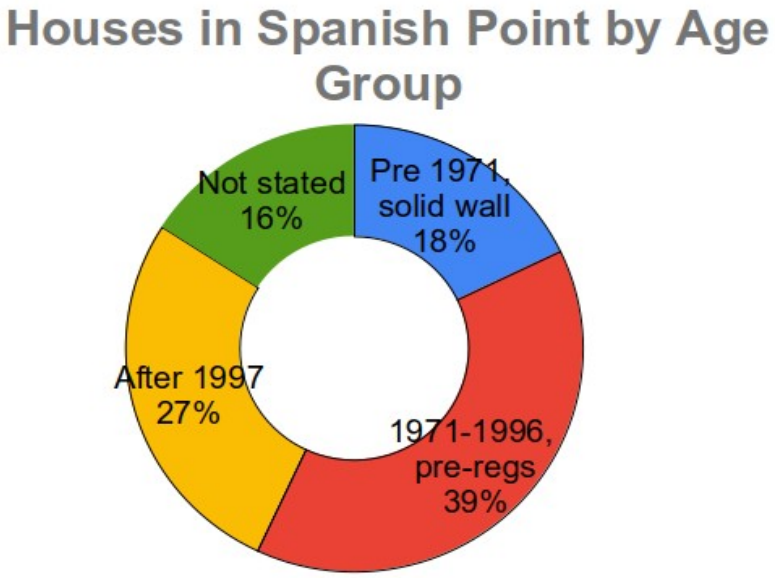


Figure 4: Housing by age group

If we now look at the spread of BER ratings (taken from the SEAI BER Map), which is the yardstick by which progress in the Climate Action Plan is measured, we see that there is huge potential for improvement.

NB: A note of caution is that currently only **49%** of homes in the EMP area have a BER rating so the table below does not necessarily reflect the entire EMP area. This percentage is retrieved from CSO statistics for the Small Area included in the EMP area (154 homes in total). See Annex 8.1 for details. In the absence of other data sources, i is assumed that this percentage can be applied to all homes in the EMP area.

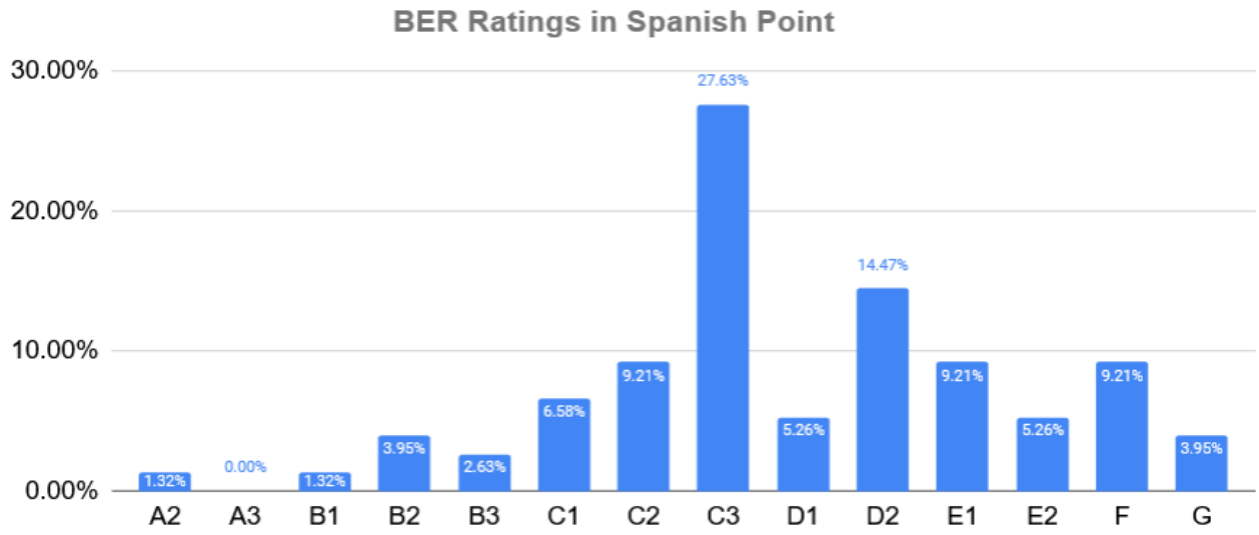


Figure 5: BER ratings in Spanish Point

As a reminder, one of the national goals is to get 500,000 homes (~25%) to a B2 or better by 2030.

If we compare this to figures for Clare and Ireland, we see the following:

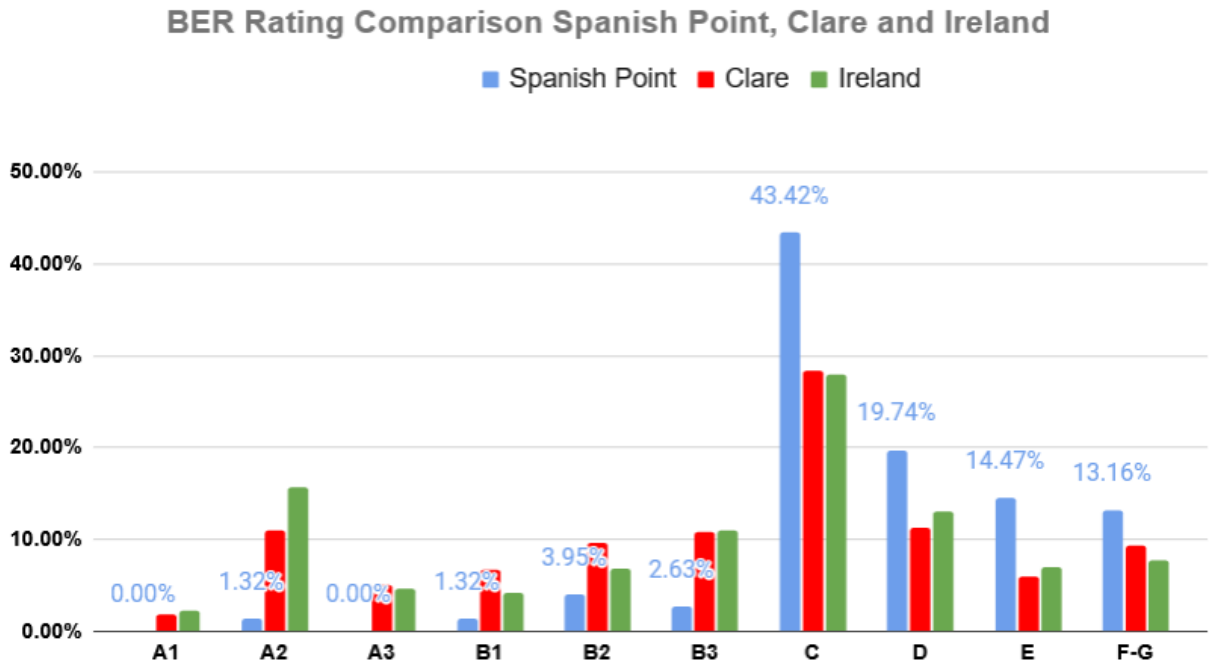


Figure 6: Comparison of BER in Spanish Point, Clare & Ireland

This chart again shows the potential that exists in the EMP area, specifically if the houses with BER in the range D to G are targeted. Such home can be considered the low-hanging fruit and the specific measures to improve these homes will be detailed in a later section.

It also shows that 65% of the homes in Spanish Point are in the BER B3 to D category, meaning that relatively minimal measures would be required to get them to the B2 target.

We see that 27.6% of homes in the EMP area are in the E-G zone. This indicates that the greatest overall energy/cost/emission savings could be made by focussing on this zone.

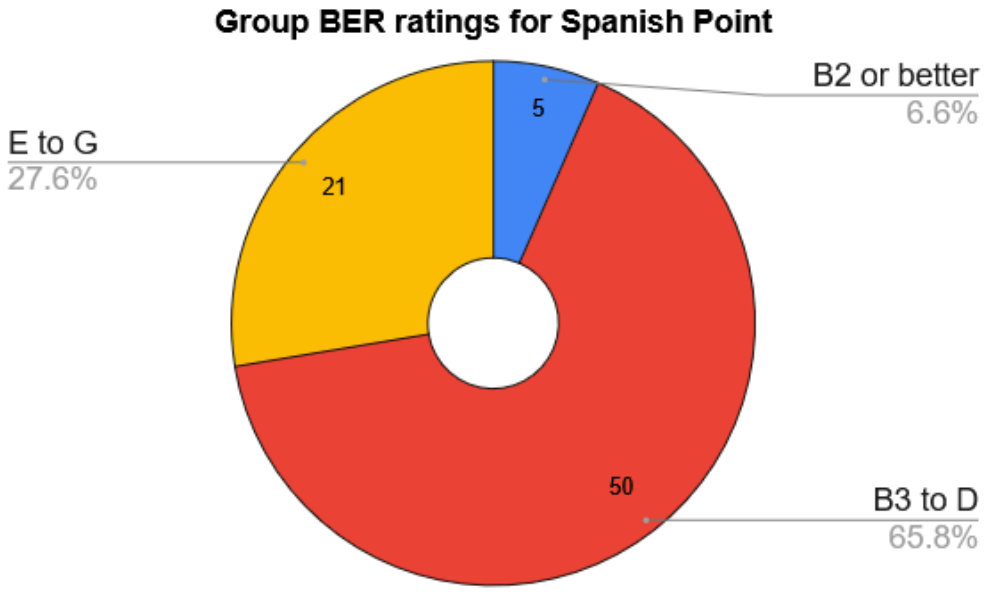


Figure 7: Grouping BER categories in Spanish Point

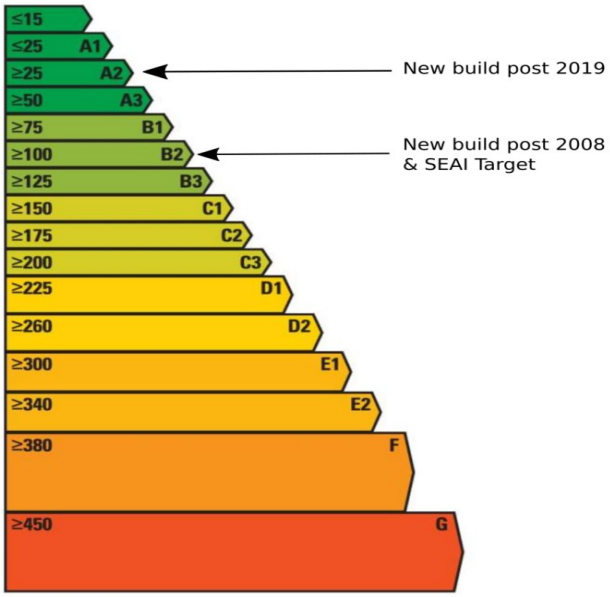


Figure 8: BER Ratings, full scale

5.1.3. Current Heating and Renewable Energy Sources in Spanish Point

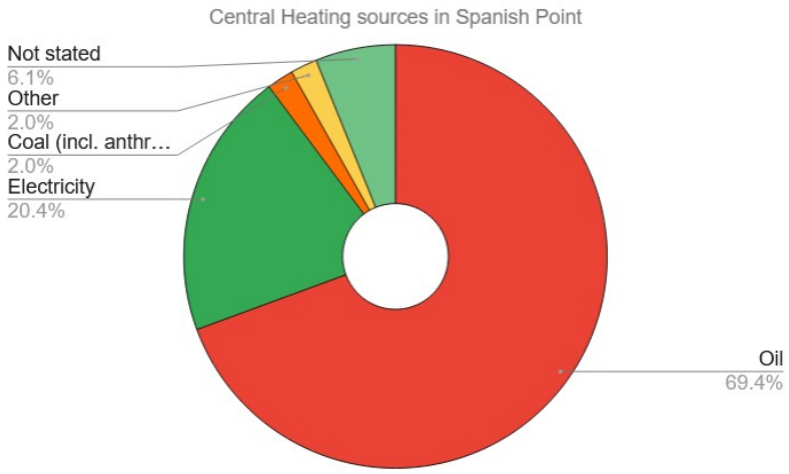


Figure 9: Energy used for central heating in Spanish Point, 2022

- Oil is the predominant source of heating (69.4%) which is a common feature across Ireland. All other heating fuels are relatively insignificant when compared to oil.
- Source : CSO

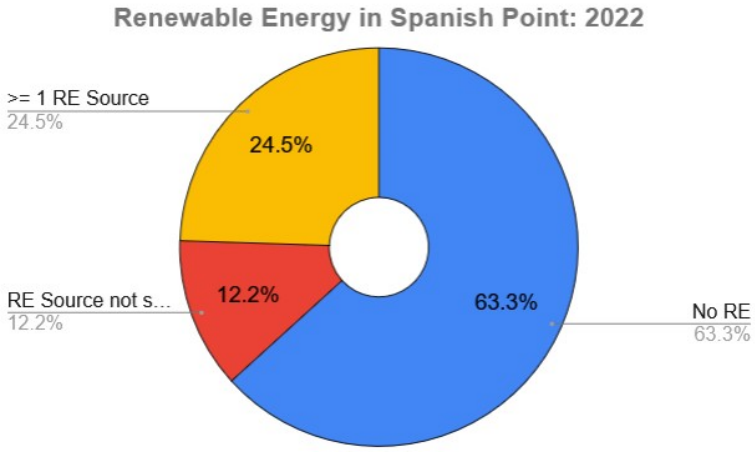


Figure 10: Renewable Energy in EMP area homes, 2022

- At least 24% of homes have some form of renewable energy already installed. Note that this data is from 2022 and does not include the rapid increase in Solar PV installations and/or heat-pumps over the past 3 years.
- Source : CSO

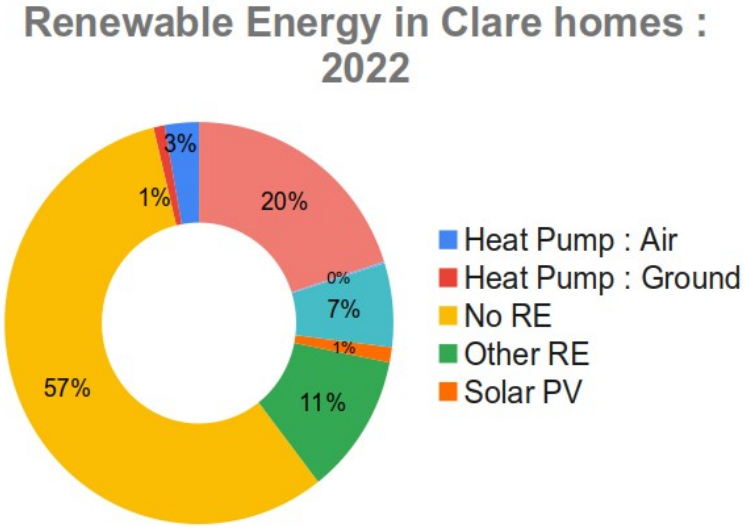


Figure 11: RE in Clare homes

- When compared to the county statistics we see that the EMP area is broadly similar (in terms of homes with/without a Renewable Energy Source)
- Note again that Solar PV and Heat Pumps are both under-represented due to the large take-up since 2022
- Source : CSO

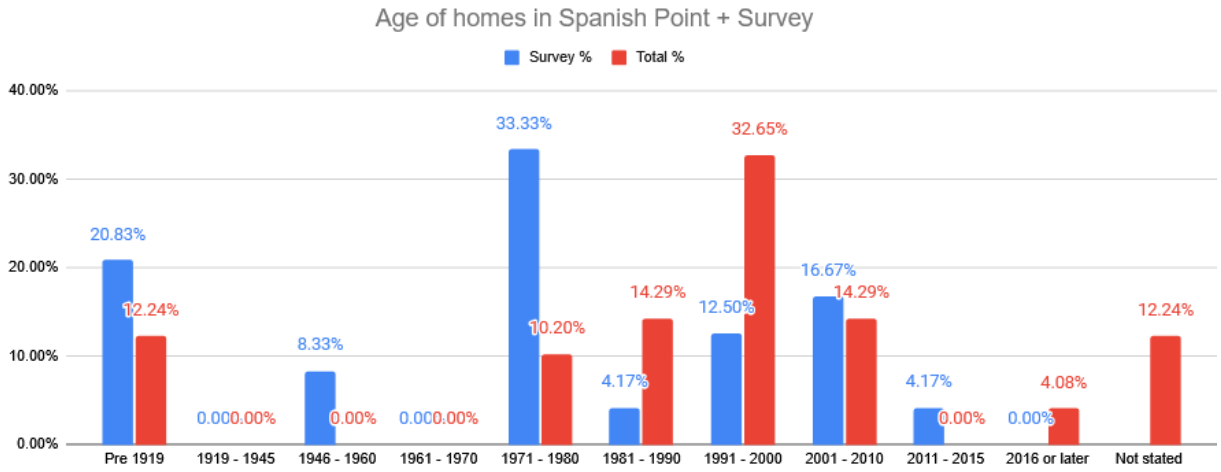
5.1.4. Local Energy Survey Analysis

A survey has been carried out of local homes with the participation of the SEC members.

The survey questionnaire can be seen here.

The main points to be taken from the survey are:

- 25 replies from ~126 occupied homes. This is a reasonable rate of engagement with surveys of this type.
- Of the 25 replies, 100% were homeowners
    - Given that 85% of homes in Spanish Point are owner-occupied this means that ~30% of owner-occupiers answered the survey. (Source : CSO + manual survey)
    - The results of the questions on heating-type & transport usage were broadly similar to the CSO statistics in sections 5.2 and 5.4 and did not provide further useful information.
    - 80% of replies indicated that the homeowner was interested in an energy survey. This indicates that the appetite for further information is out there.



- Note the outlier in the 1946-1960 period where the national statistics show no houses dating from that period but 2 residents gave the age of their house as being from that period.

5.1.5. Local Energy Clinics

In addition to the standard features of the EMP, Clare Community Energy Agency also held energy clinics.

- These clinics allowed individuals or groups to book a 30 minute slot in-person with CCEA. Homeowners were free to ask any energy related questions.
- A total of 10 hours of clinics was allocated for visits to individual houses.
- Of the 10 slots proposed, all were taken up.
- The breakdown of the topics covered were
    - 50% were most concerned about their electricity bills, how to understand them and how to address their energy use. These people all showed high interest in Solar PV.
    - 30% were most concerned about improving the energy efficiency of their homes
        - In these cases, the main support provided were as follows
            - Explain the different energy upgrades routes available
                - Individual home grants

        - One Stop Shop
        - Fully Funded Energy Upgrade (conditions apply)
    - Identify the grants available from SEAI
    - Show where the SEAI approved contractors could be found

- 20 % were concerned equally by both electricity usage and overall energy efficiency.

The good take-up of the energy clinics, and the engagement of the homeowners, shows that there is an unanswered need for personal advice when people are undertaking energy upgrades to their home.

While all information is available on the SEAI website, the website itself can be daunting insofar as it presents too much information. It must also be accepted that not all people are comfortable with the use of websites for gathering information.

Another feedback from the clinics is that people were concerned about information received from salespeople from the various energy contractors and felt that they were being told what the salesperson wanted to sell, not necessarily what was in the best interests of the homeowner. The need for independent advice was expressed repeatedly.

5.2. Analysis of Community Sector

5.2.1. St. Joseph's Secondary School, Spanish Point

- The complete Energy Audit is available online
- The summarised actions/impact and current baseline are included below

Energy & Emissions

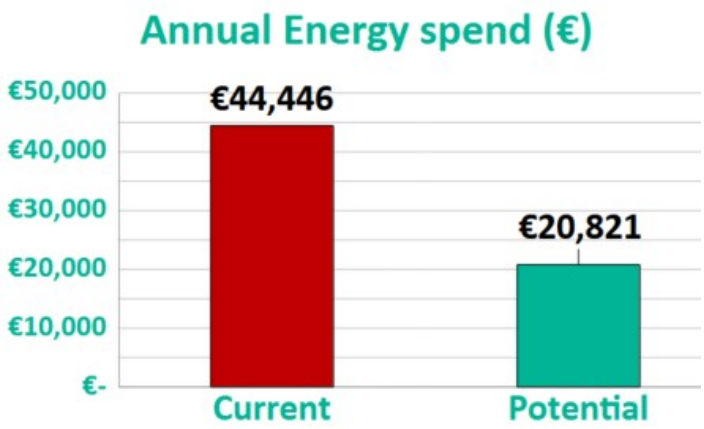


Figure 13: Current and potential energy spend in St. Joseph's

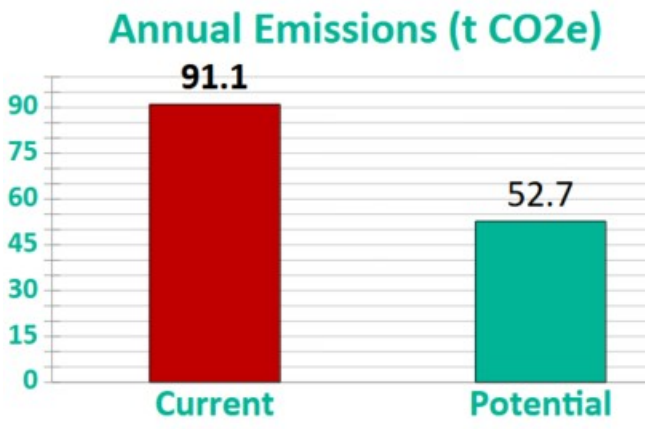


Figure 14: Current and potential emissions in St. Joseph's

Table 3: Recommended actions for St. Joseph's School

Description	Energy saved (€)	Emissions reduction (t CO_2e /y)	Cost of Action (€)	Payback period (years)	First Steps
6 kW Solar PV System	€1,431	1.80	€0	0.0	* Contact Dept of Education
74 kW Solar PV system	€17,166	21.61	€67,600	3.9	* Request Quotes * Apply to SEAI
Cavity pumping of 1978 extension	€1,416	4.09	€7,875	5.6	* Engage with a Project Coordinator
Electricity monitoring	€779	2.67	€500	0.6	* Engage with Clare Energy Agency
Recirculating fans in rooms with high ceilings	€944	2.73	€1,085	1.1	* Engage with a Project Coordinator
Potential for Air To Air heating systems in specific areas	€0	0.00	€0	0.0	* Engage with a Project Coordinator
Dry-lining of all external walls in original school building	€1,888	5.45	€32,000	16.9	* Engage with a Project Coordinator
Total	**€23,625.17**	**38.4 tCO_2e**	**€109,060**	**NA**	

Table 4: Current Energy baseline for St. Joseph's School

Reference Period: 07/2023-06/2024

Energy source	Annual Cost (€)	Annual Use (kWh)	Annual Emissions (t CO_2e)	Information source
Oil - Fuel Oil	€18,884.00	199353 kWh	54.5 tCO_2e	Bill
Electricity – Grid	€22,109.94	82282 kWh	26.7 tCO_2e	Bill
LPG	€3,452.00	42802 kWh	9.8 tCO_2e	Bill
Total	€44,445.94	324437 kWh	91.1 tCO_2e	

5.2.2. Spanish Point Golf Club

- The complete Energy Audit is available online
- The summarised actions/impact and current baseline are included below

Potential actions and impact

Energy & Emissions

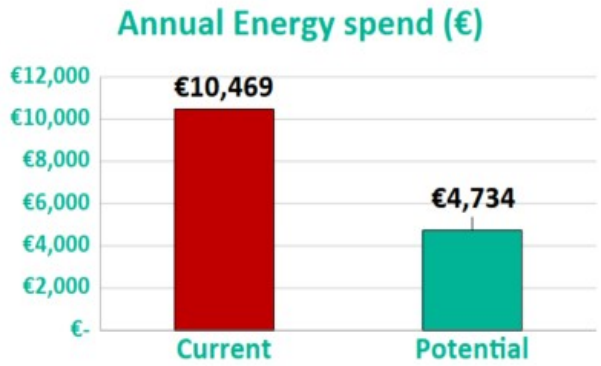


Figure 15: Current and potential energy spend in Golf Club

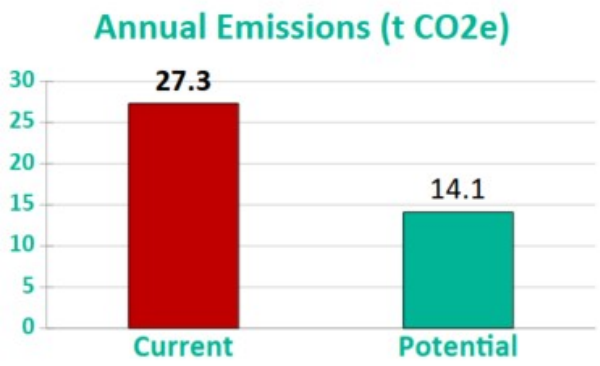


Figure 16: Current and potential emissions in Golf Club

Table 5: Recommended Actions for Golf Club

Description	Energy saved (€)	Emissions reduction	Cost of Action (€)	Payback period (years)	First Steps
18 kW Solar PV system	€4,176	5.26	€19,000	4.6	* Request Quotes * Apply to SEAI
Cavity pumping of all external walls	€325	0.92	€2,100	6.5	* Engage with a Project Coordinator
Improve attic insulation in all areas	€325	0.92	€3,150	9.7	* Engage with a Project Coordinator
Pump the cavity in two internal walls	€162	0.46	€1,085	6.7	* Engage with a Project Coordinator
Coal Stove to replace open fire	€520	6.27	€1,200	2.3	* Engage with a Project Coordinator
Replace inefficient bar equipment	€496	0.56	€1,250	2.5	* Engage with LEO
Improve electricity monitoring	€496	0.56	€375	0.8	* Engage with LEO

Total	**€6,499.27**	**14.9 tCO_2e**	**€28,160**	**NA**	

Table 6: Current Energy baseline for Golf Club

Reference Period: 07/2023-06/2024				
Energy source	Annual Cost (€)	Annual Use (kWh)	Annual Emissions (t CO_2e)	Information source
Oil - Fuel Oil	€3,248.52	33558 kWh	9.2 tCO_2e	Bill
Electricity – Grid	€6,180.87	17168 kWh	5.6 tCO_2e	Bill
Coal	€1,039.50	36798 kWh	12.5 tCO_2e	Bill
Total	**€10,468.89**	**87524 kWh**	**27.3 tCO_2e**	

5.3. Transport

Since the scope of the EMP is limited to the residential and community sector, the analysis in this section will be limited to use of private cars and public transport.

5.3.1. Private Cars

Current CSO figures for the Small Area included in the EMP show the following in terms of car ownership.

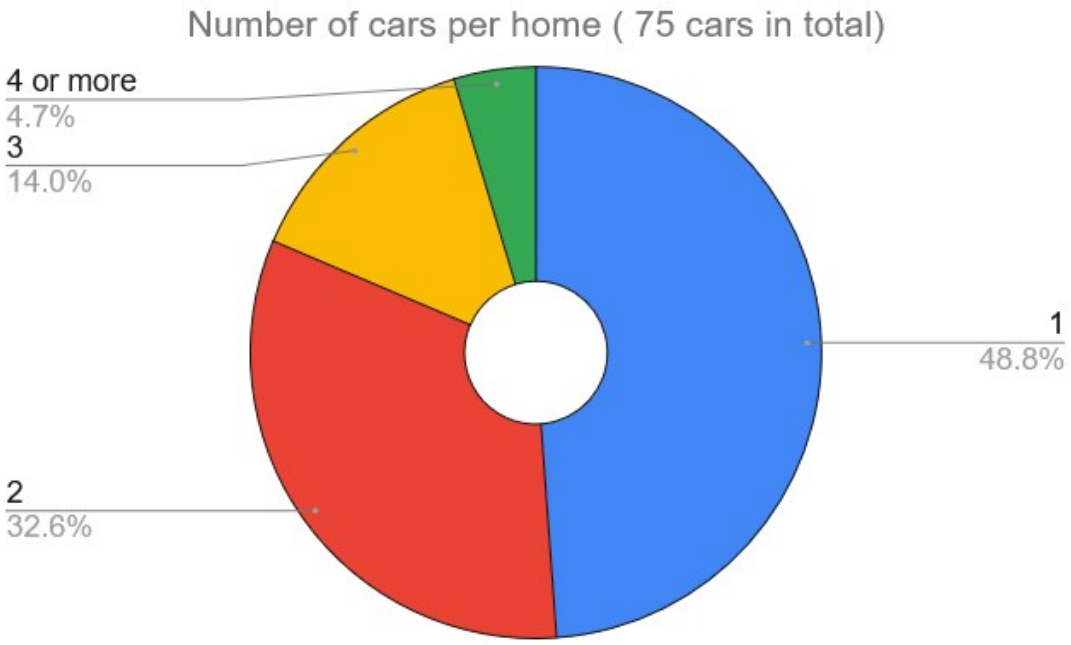


Figure 17: Number of private cars in Spanish Point

We can take the national figures for car usage although, in reality, car usage in the EMP area is probably higher given the rural context. The county specific figures for fuel-type for private cars in 2025 is (58.4% diesel, 35.9% petrol, 5.4% EV). Source : CSO 2025. Note that for simplicity, I consider non-plugin hybrids to be either diesel or petrol and plug-in hybrids to be EV's)

Table 7: Proportion of fuel types in road-vehicles, Clare, 2022 Source CSO

Type of Fuel	Number of cars	%
Petrol	20380	30.1%
Diesel	39206	58.0%
Electric	2015	3.0%
Gas	30	0.0%
Petrol and electric hybrid	3912	5.8%
Diesel and electric hybrid	320	0.5%
Ethanol and petrol	145	0.2%
Other fuel types including unknown	..	
Diesel/plug-in hybrid electric	77	0.1%
Petrol/plug-in hybrid electric	1564	2.3%
All fuel types	67649	100.0%

It should be noted that there are public EV charging points at the Armada Hotel and Bellbridge hotel in the EMP area with further charging points in the filling station on the Spanish Point Road and SuperValu in Miltown Malbay

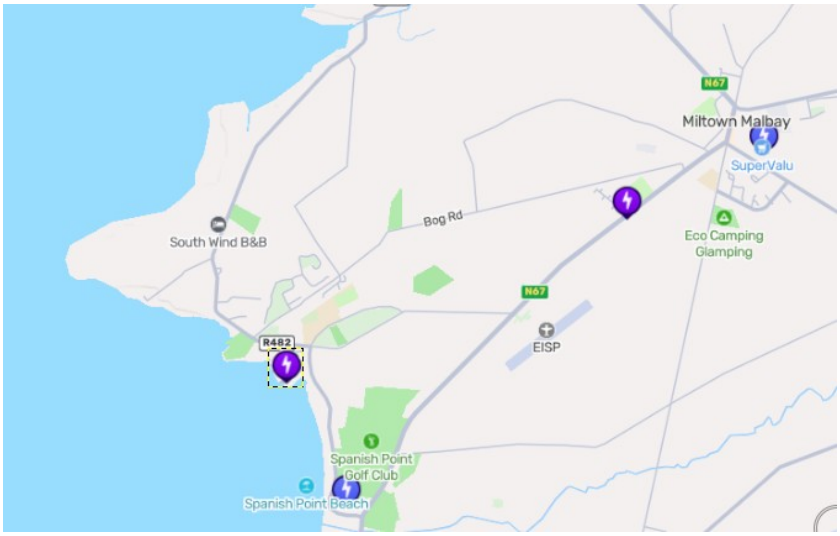


Figure 18: Location of EV charging points in the area

We will use the 2023 CSO figures from the table below to calculate the related emissions and kWh used. Emissions for Bus transport are taken from pg 312 of this UCC research paper ("Enhanced modelling of transport decarbonisation and policy pathways for Ireland" V.O'Riordan 2023). Emission conversion factors are taken from SEAI data.

Table 8: Energy and emissions intensity of various forms of transport

Source :CSO THA17 and TTA02

Car type	National average annual km	kWh/km (TPER)	gCO_2/km
Petrol	11,121	0.53	134.28
Diesel	18,035	0.52	137.37
EV	13,808	0.16	54.18
Bus Éireann		0.17 (per passenger)	45.50
Walk		0.00	0.00
Cycle		0.00	0.00

This gives a current transport baseline as follows

Table 9: Transport Baseline in Energy, emissions and cost

Source :CSO THA17 and TTA02

	Electricity	Fossil Fuel	Renewable	Total
Total Primary Energy (kWh)	30009	1859205	0	1889213 kWh
Total CO2 (tonnes)	10.0	486.1		496 tCO_2
Total Spend (€)	€7,427	€352,590	0	€360,017

5.3.2. Public Transport

- There are two public bus lines that serve Spanish Point and/or Miltown Malbay
- The 333 line from Bus Eireann runs from Ennis to Kilkee via Corofin, Ennistymon, Quilty, Doonbeg
- An abridged form of the full timetable (link) is shown below

Table 10: 333 Bus line timetable

ROUTE	333 M-F	333 SO	333 M-F	333 SO	333 SuO	333 M-F	333 SO	333 M-F	333 SO	333 SuO	333 M-F	333 SO
Kilkee The Square	07:20 P	07:20 P	10:30 P	10:30 P	12:30 P	13:30 P	13:30 P	16:20 P	16:20 P	18:30 P		
Spanish Point (Bellbridge House)	07:49	07:50	11:02	10:58	13:01	14:01	14:01	16:49	16:48	18:59	20:49	20:49
Miltown Malbay (Tom Malones Pub)	07:55	07:56	11:09	11:04	13:07	14:07	14:07	16:55	16:53	19:05	20:54	20:55
Ennistymon (The Square)	08:17	08:16	11:33	11:27	13:29	14:30	14:29	17:17	17:13	19:26	21:18	21:16
Corofin (Spar Shop)	08:44	08:43	12:02	11:55	13:56	14:57	14:56	17:44	17:40	19:53	21:45	21:43
Ennis (Bus Station)	09:07 D	09:03 D	12:24 D	12:19 D	14:20 D	15:21 D	15:20 D	18:07 D	18:01 D	20:16 D	22:06 D	22:03 D

ROUTE	333 M-F	333 SO	333 SuO	333 M-F	333 SO	333 M-F	333 SO	333 SuO	333 M-F	333 M-F	333 SO
Ennis (Bus Station)	08:00 P	08:00 P	10:00 P	11:00 P	11:00 P	14:00 P	14:00 P	16:00 P		17:00 P	17:00 P
Corofin (Daybreak Shop)	08:22	08:24	10:25	11:23	11:25	14:23	14:25	16:23		17:29	17:24
Ennistymon (The Square)	08:48	08:53	10:54	11:52	11:54	14:52	14:54	16:52	16:00 P	17:58	17:55
Miltown Malbay (West Clare Pharmacy)	09:14	09:16	11:17	12:13	12:16	15:13	15:16	17:14	16:19	18:19	18:16
Spanish Point (Bellbridge House Hotel)	09:18	09:23	11:23	12:20	12:22	15:20	15:22	17:21	16:26	18:25	18:22
Kilkee The Square	10:00 D	09:59 D	12:02 D	13:05 D	13:02 D	16:05 D	16:02 D	18:04 D			

- P = Pick-up stop only.
- D = Drop-off stop only.
- M-F = Monday to Fridays, not Public Holidays.
- SO = Saturdays, not Public Holidays.
- SuO = Sundays and Public Holidays.

- There is also the C12 LocalLink bus which goes from nearly Miltown Malbay ↔ Ennis
    - An abridged form of the full timetable (link) is shown below

Departs	Stops	Mon-Fri	Saturday	Mon-Fri	Saturday	Mon-Fri	Saturday
Miltown Malbay	The Malbay Hub	07:42	09:14	13:02	15:02	19:14	19:14
Spanish Point	Opp Bellbridge House Hotel					19:20	19:20
Kilmaley	Kilmaley Inn	08:03	09:35	13:25	15:25	20:02	20:02
Ennis	Bus and Train Station	08:26	09:58	13:48	15:48	20:26	20:26
Ennis	Friars Walk Bus Stop Clare Museum	08:28	09:59	13:50	15:50	20:28	20:28

Returns	Stops	Mon-Fri	Saturday	Mon-Fri	Saturday	Mon-Fri	Saturday
Ennis	Friars Walk Bus Stop Clare Museum	06:30	08:00	11:00	12:30	18:20	18:20
Ennis	Bus and Train Station	06:32	08:02	11:02	12:32	18:22	18:22
Kilmaley	Opposite Kilmaley Inn	06:56	08:26	11:26	12:56	18:46	18:46
Miltown Malbay	Tom Malone's Pub	07:39	09:11	11:51	13:21	19:11	19:11
Spanish Point	Opposite Bellbridge House Hotel	07:37	09:09	11:57	13:27		
Quilty	The Sea Wall			12:05	13:35		
Mullagh	Opposite St. Mary's Church			12:11	13:41		
Miltown Malbay	Tom Malone's Pub			12:38	14:08		

5.3.3. Cycling , Walking infrastructure

- There are no cycle paths in the EMP area.
- A number of cycle routes are signposted in the EMP area but no specific facilities are provided.
- None of the bike parking areas in the EMP area are sheltered.
- There is no e-bike charging point in the EMP area
- Footpaths exist from Medina House to Bellbridge and from Spanish Point to Miltown Malbay

5.4. Overall Energy Figures

Table 11: Residential Sector Performance Indicators

Table XX – Residential Performance Indicators				
Source	**Total number of Dwellings**	**% B rated or better**	**% of Fossil Fuel Heating Systems**	**% with Renewable Energy**
BER + CSO	262 (136 vacant/ holiday homes)	9.2%	71.3%	24%
EMP Survey	25	8%	75%	12%

Table 12: Baseline Energy Usage

Sector	**Electricity**	**Fossil Fuel**	**Renewable**	**Total**
Residential	552.2 MWh	1,476.4 MWh	88.2 MWh	2,116.8 MWh
Community	99.5 MWh	312.5 MWh		412.0 MWh
Transport	30.0 MWh	1,859.0 MWh		1,889.0 MWh
Total Energy	681.7 MWh	3,647.9 MWh	88.2 MWh	4,417.8 MWh

Table 13: Baseline Emissions & Cost

	Electricity	Fossil Fuel	Renewable	Transport	Total
CO2 Emissions	217 tCO_2	533 tCO_2	3 tCO_2	496 tCO_2	1249 tCO_2
Total Cost	€210,519	€188,549	€4,409	€360,017	€763,494

6. Sustainable Energy Roadmap

Table 14: Targets for Domestic Energy Upgrades

Upgrade Type	BER Group	% Total houses	Number of houses	Reduction per house	Energy Reduction overall
WHS	E-G => B2	1.9%	5	70.8%	0.55%
WHS	C-D => B2	0.6%	2	49.2%	0.17%
Non-WHS	E-G => B2	20.0%	52	70.8%	5.88%
Non-WHS	C-D => B2	10.0%	26	49.2%	2.69%
Solar PV	All	30%	79		18.57%
Total					**27.86%**

Table 15: Current Energy & Emissions Scenario per sector

Sector	Electricity	Fossil Fuel	Renewable	Total	Emissions
Residential	552.2 MWh	1,476.4 MWh	88.2 MWh	2,116.8 MWh	633 tCO_2
Community	99.5 MWh	312.5 MWh		412.0 MWh	118 tCO_2
Transport	30.0 MWh	1,859.0 MWh		1,889.0 MWh	496 tCO_2
Total Energy	681.7 MWh	3,647.9 MWh	88.2 MWh	4,417.8 MWh	1247 tCO_2

Table 16: Target Energy & Emissions Scenario per sector in 2032

Sector	Electricity	Fossil Fuel	Renewable	Total	Emissions
Residential	159 MWh	1065 MWh	481 MWh	1705 MWh	347 tCO_2
Community	-1 MWh	241 MWh	88.3	329 MWh	74 tCO_2
Transport	372 MWh	930 MWh		1301 MWh	313 tCO_2
Total Energy	530 MWh	2235 MWh	569 MWh	3335 MWh	735 tCO_2
CO2 Emissions per fuel source	51 tCO_2	666 tCO_2	17 tCO_2	735 tCO_2	

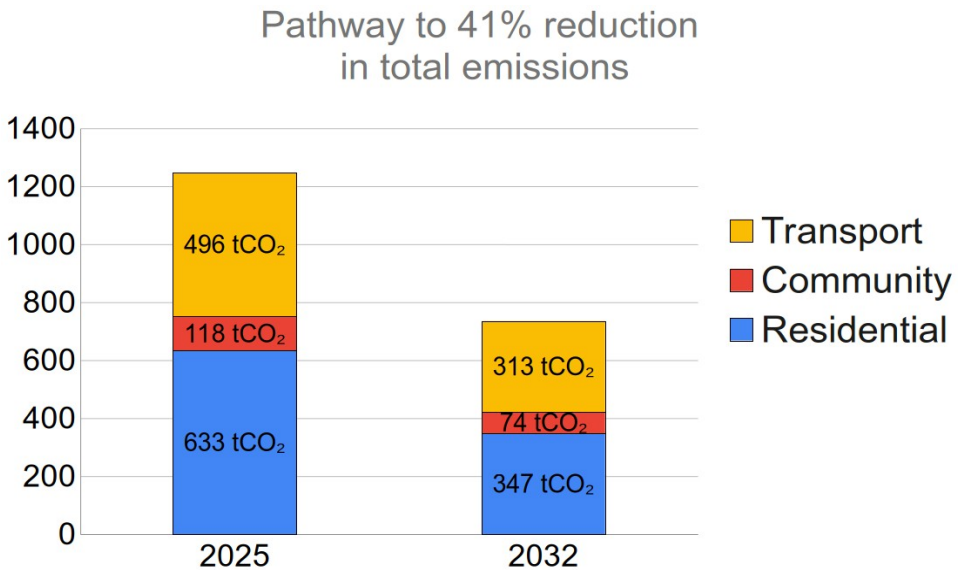


Figure 19: Emissions reduction scenario summary

7. Register of Opportunities

7.1. Summary of Register of Opportunities

Table 17: Summary of Register of Opportunities

Sector	Description	Timespan	Cost after Grants	SEAI Grants	Energy Savings	% Energy Savings / Sector	Cost Savings/year	Emissions reduction
Residential / Fossil Fuel	Specific focus on Fully Funded Energy Upgrades for energy-poor homes (potentially target of 25 homes, i.e. 10% of homes)	Continuous	0	€229,250	15.2 MWh	0.7%	€2,903	5 tCO2
Residential / Fossil Fuel	Support energy upgrades in 30% of other homes in the EMP area	Continuous	€1,617,850	€871,150	450.0 MWh	8.6%	€34,589	134 tCO2
Residential / Electricity	Support the rollout of Solar PV on 30% of domestic homes/farms	Continuous	€533,250	€177,750	393.0 MWh	18.6%	€94,320	119 tCO2
Community / Electricity	Solar PV roof-installation for Golf Club and School	Medium term	~ €1000 / kW installed	~ €250 / kW installed	100.0 MWh	100.0%	€21,611	32 tCO2
Community / Electricity	Community Solar Project	Medium term	See details	See details	TBD	TBD	TBD	TBD
Community / Bio-diversity	Community woodland/fruit forest	Medium term	See details	See details	NA	NA	NA	CO2 sequestration
Community / Agriculture	Farmscale Anaerobic Digestion	Medium term	See details	See details	See details	See details	See details	128 kgCO2 / cow
Transport	Promoting EV uptake and a Public EV charging point in Spanish Point	Medium term	See details	See details	See details	See details	See details	See details
Transport	Promoting Public Transport in Spanish Point	Medium term	See details	See details	See details	See details	See details	See details

7.2. Residential Sector Opportunities

7.2.1. Fully Funded Energy Upgrades (Warmer Homes Scheme)

There is an existing Warmer Homes scheme (WHS) from SEAI that provides fully funded energy upgrades for eligible homes. The scheme is fully managed by SEAI appointed contractors who take care of every aspect of the scheme once a homeowner is deemed eligible.

The upgrades that are available are:

- Attic insulation
- Cavity wall insulation
- External wall insulation
- Internal wall insulation
- Secondary work such as lagging jackets, draught proofing and energy efficient lighting
- Renewable heating systems and windows are occasionally recommended

The criteria for eligibility are shown in Table 18 below.

Table 18: Eligibility Criteria for Fully Funded Energy Upgrades

Criteria	Description
1. Own and live in your own home	This must be your main residence, where you live most days of the week
2. Home is built and occupied before 2006	This means the ESB meter was connected and property lived in prior to 2006
3. Receive one of the following welfare payments	● Fuel Allowance as part of the National Fuel Scheme. ● Job Seekers Allowance for over six months and have a child under seven years of age ● Working Family Payment ● One-Parent Family Payment ● Domiciliary Care Allowance ● Carers Allowance and live with the person you are caring for ● Disability Allowance for over six months and have a child under seven years of age

- There are no specific CSO statistics on the number of homes receiving fuel allowances but recent press releases from the government would indicate that 413,000 households will receive the fuel allowance in 2024/2025.
- With ~ 2 million homes in Ireland, that means ~20% of homes receive fuel allowance and are thus eligible for the fully funded upgrade scheme. Given the high proportion of holiday homes in Spanish Point, 5% of occupied homes is a more realistic figure.
- Applying to the EMP area (126 occupied homes) then it would be expected that ~6 **homes could benefit from this scheme**. Note this only takes into account the receivers of Fuel Allowance so the actual number of eligible homes could be higher.
- The scheme currently takes 18-24 months from start to finish
- There is a further service provided by Clare County Council relating to this scheme for people aged 66 and over
    - The service is part of the Age Friendly programme

- Anyone aged 66 or over can contact **Donal Clancy** who will come to the person's home and help them to make the application for the scheme
- He can be contacted by e-mail at **dclancy@meathcoco.ie** or by phone on **046 924 8899**

7.2.1.1. SEC Actions

- The role of the SEC is firstly to raise awareness of the existence of the WHS scheme and County Council support in the EMP area. Many people are not aware that these schemes exist.
  - There are leaflets available from the SEC mentor which could be distributed in locally in order to raise awareness.
  - Bespoke leaflets have been made and provided to the community.
    - These flyers are available online on https://www.clare-energy.ie/SpanishPointSEC
  - **Senior citizen groups could be specifically targeted.**
  - SEC's will have to take into account the sensitivity required when communicating with people who may not be comfortable with the idea of making it publicly known that they avail of certain welfare payments.
- Another role is for SEC's to assist eligible people in making the application to allow for the fact that many people are not comfortable making applications online, scanning documents etc.
  - The application is available online or in paper/pdf format. See Figure 1 in the Annexes for a screenshot of the initial application form
  - Further guidelines are available
- Following a communication campaign, the SEC could organise an event where people would make the application under the guidance of members of the SEC.
- If a number of applications are made with the knowledge of the SEC, then the SEC could ask people to keep them informed when SEAI contacts them for the different phases of the upgrade.
  - This information could then be shared with other applicants so that everyone knows how things are progressing and to be able to spot any unexplained delays in specific cases

7.2.1.2. Impact of Actions

- Assumptions
  - ~7 qualifying homes in the EMP area are able to avail of it
  - 5 of these homes are in the BER E-G category, 2 are in the C-D category
  - All homes attain a B2 BER after the measures.
  - Total Energy Savings (for residential sector): 0**.72 % or 15.2 MWh**
  - Total Cost Savings: **€3,331/yr**

7.2.2. Support energy upgrades in 30% of other homes in the EMP area

Retrofitting of the homes in the EMP area is a fundamental part of the Energy Master Plan, but not the simplest part.

While the proportion of holiday homes is very high in Spanish Point (52%), these homes can also be targeted for retrofitting even though their usage patterns will be markedly different to fully occupied homes.

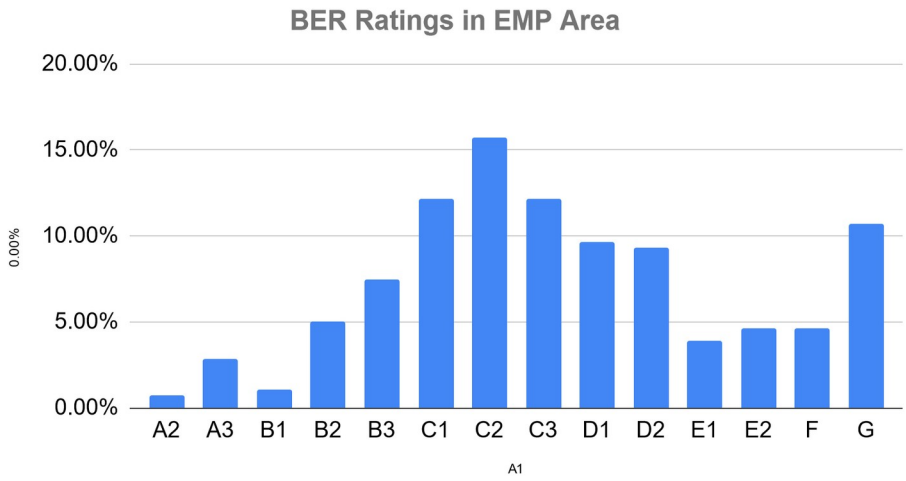
It can be noted that more comfortable holiday homes, with lower running costs can improve the usage of holiday homes.

The benefits of retrofitting are

- Improved comfort
- Reduced cost to the homeowners over the long term

- Reduced energy usage
- Reduced related emissions

Let's look again at the BER distribution in the EMP area



The average BER is a D1, or 243 kWh/m²/yr. To compare, the national average BER is a C2 or 180 kWh/m²/yr.

The potential here is huge, i.e. it is easier and cheaper to bring improvements to the houses with bad BER's (D to G) than to those with already relatively good BER's (C and better).

NOTE: Bringing a house with a G rating to a C3 rating means reducing energy usage by 60%. This is noted as a reminder that the improvement to a B2 at all costs is not the endgame, it is the reduction in energy usage and the associated emissions.

Typically examples of the low-hanging fruit, or shallow upgrades, for these houses with bad BER's are

- Improved attic insulation
- Draught-stripping of doors and windows (and blocking open chimneys)
- Improved timer/temperature control of heating systems
- Efficient wood-stoves
- Replacement of old heating systems by modern heating systems.

Once these initial actions are done, then the bigger ticket actions, or deep upgrades, can be considered.

- Internal insulation
- External insulation
- Solar PV
- Whole house ventilation
- Heat pumps
- Replacement of doors and windows
- Front/rear porches.

7.2.2.1. Different Approaches to Energy Upgrades

There are a number of ways that a community can approach energy upgrades

- The Individual approach
- The One Stop Shop approach

- The Community Energy Grant approach

The Individual Approach (link to SEAI webpage)

- The homeowner makes all decisions and handles everything
- Applies for grant directly with SEAI (see grants available and amounts in Annexes)
- Finds/selects the SEAI registered contractor(s)
- Pays up front and gets grant repaid (Some installers may take grant directly and thus reduce the upfront costs)

The One Stop Shop Approach (link to SEAI webpage)

- Each homeowner works with a registered OSS (One Stop Shop)
- OSS handles everything (choosing contractors, grant applications, quality control etc.)
- Homeowner pays amount less grant
- OSS is paid a project management fee (specific grant to cover this fee)
- Suitable for extensive upgrades affecting multiple elements
- Includes upgrades not available in individual grants (see grants available and amounts in Annexes)
- Typically higher cost for work but guaranteed and totally managed

The Community Energy Grant Approach (link to SEAI webpage)

- A Project Co-ordinator handles everything (choosing contractors, grant applications, quality control etc.)
- The Project Co-ordinator is paid a project management fee (specific grant to cover this fee)
- Homeowner pays up front and gets grant repaid
- Result must be B2 or minimum 100 kWh uplift on BER
- Must include multiple sectors (home / private / public / community / fuel poor)
- Includes upgrades not available in individual grants (see grants available and amounts in Annexes)
    - Taken from the Community Grant Guidelines document, specifically pages 47/48/49
- The main advantages from the community perspective are:
    - Groups of local homes managed together (mutual support)
    - Potential for Energy Credits (income for the community)

7.2.2.2. SEC Actions

The SEC has a number of potential roles

- Organising the distribution of information via leaflets and/or social media to improve the awareness of the different support paths available.
    - Again , bespoke leaflets have been made and provided to the community.
    - These flyers are available online on https://www.clare-energy.ie/SpanishPointSEC
- Organising information events to explain the different approaches
    - These can be either general information evenings or focussed evenings with specific One Stops shops, project co-ordinators and contractors presenting their services
    - The model of a small-scale regular “Energy Fairs” has already been used successfully and could be repeated at yearly intervals for example.
    - These events could also incorporate feedback from homeowners in the EMP area who have already carried out energy upgrades to give some first hand experience.

- The events can be adapted for different public types and perhaps integrated in other events (festivals / parades) that are organised in the EMP area

- Creating a publicly available register of feedback from homeowners on what has worked well for them
  - a register of SEAI contractors who have done good work in the EMP area
  - a filtered version of the SEAI Registered Contractors database showing only local/regional contractors.
  - a register of typical costs for different upgrade types, the costs, the "good" suppliers and sharing that with the community
- Ensure that local SEAI registered contractors are "flagged" for involvement in any OSS / Community Grant projects, on the assumption that there is no impact on cost/quality.
  - Typically OSS and Project Co-ordinators are happy to use local contractors

7.2.2.3. Impact of Actions

- Assumptions
  - 78 homes in the EMP (~30%) are upgraded in the period to 2032
  - 52 of these homes are in the BER E-G category, 26 are in the C-D category
  - All homes attain a B2 BER after the measures.
  - Total Energy Savings (for residential sector): 8.6 **% or 181.3 MWh**
  - **Total Cost Savings: €39,685/yr**
  - **Total Final Cost to homeowners: €1,617,850**
  - **Total SEAI grants: €871,150**

7.2.3. Support the rollout of Solar PV on 30% of domestic homes/farms

Solar PV is becoming more prevalent in Irish homes, with the number of installation practically doubling in the period June-2023 to Jan-2026, reaching ~8.5% of Irish homes.

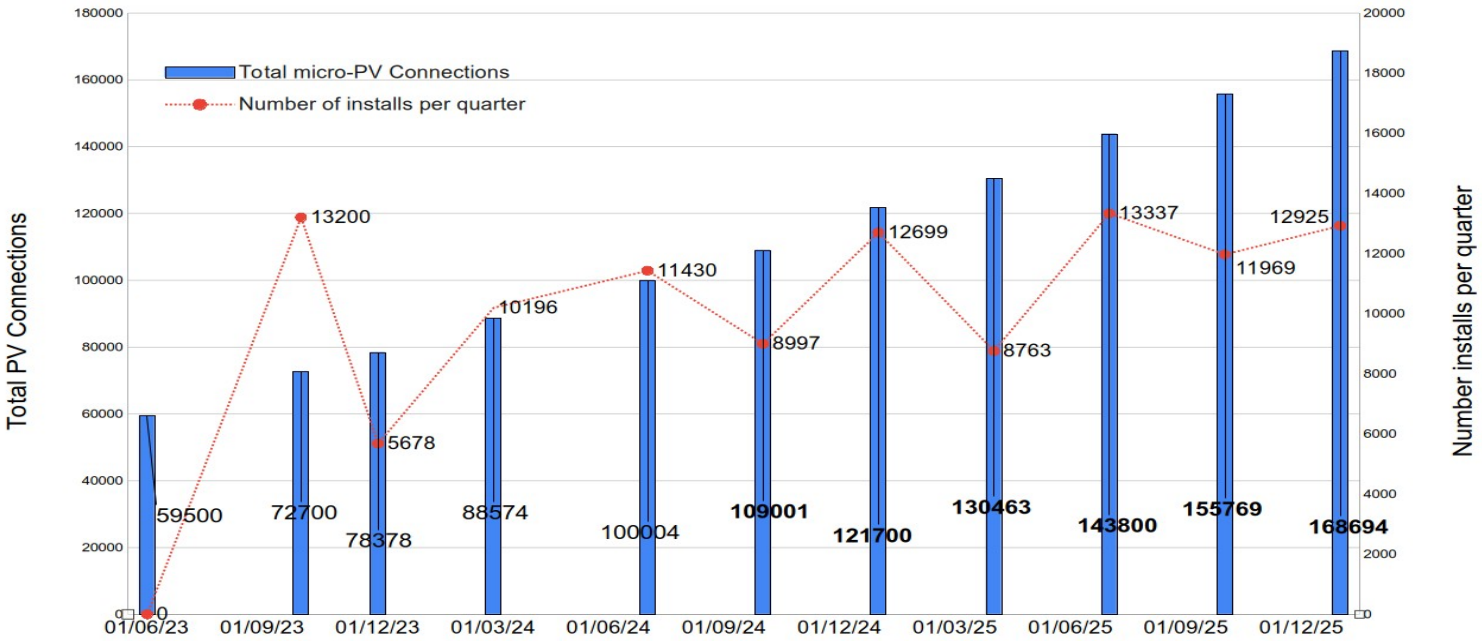


Figure 20: Growth in domestic Solar PV installations 2023-2025

Domestic Solar PV installations provide multiple advantages:

- With a payback of ~7 years, and a lifespan of 20 years, it is a real money-saver for homeowners
- Increase the % of clean renewable electricity provided to the electricity grid
- Provide resilience to both the grid and directly to homeowners at times of grid outages, when a battery has been included in the Solar PV installation

7.2.3.1. SEC Actions

The SEC has a clear role in promoting the rollout of Solar PV installations in the area

- Organising home/farm visits where locals can see installations that are already working in the area
  - Since the installations sizes and grants differ for farm and home installations, one event should be organised for each case, each year
- Arrange visits to the Spanish Point of Solar PV installers
  - This could be done in the context of a local annual mini energy event in the hall where a number of installers present their solutions and take bookings for site visits/estimates.

7.2.3.2. Impact / Cost of Actions

- Assumptions
  - 5% of homes in the area get Solar PV panels installed each year for the next 6 years
  - Average install size will be 5 kW of panels and a 5 kWh battery
    - As prices continue to drop these average sizes will tend to increase over time
  - Average install cost: €9000
  - Average SEAI grant: €1800
  - Total Energy saving from Solar PV production: 393 MWh (262 homes * 30% * 5MWh/year)

7.2.4. Overall Retrofit Targets

The following targets should be realistic in the time period 2025 to 2033.

Retrofit Targets

Table 19: Overall Retrofit Targets

Upgrade Type	BER Group	% Total houses	Number of houses	Reduction per house	Energy Reduction overall
WHS	E-G => B2	1.9%	5	70.8%	0.55%
WHS	C-D => B2	0.6%	2	49.2%	0.17%
Non-WHS	E-G => B2	20.0%	52	70.8%	5.88%
Non-WHS	C-D => B2	10.0%	26	49.2%	2.69%
Solar PV	All	30%	79		18.57%
Total					27.86%

Estimated Costs

Table 20: Estimated costs of Retrofit actions

Upgrade Type	BER Group	% Total houses	Number of houses	Initial Cost per home	Grant amount
WHS	E-G => B2	0.01875	4.9125	45000	100%
WHS	C-D => B2	0.00625	1.6375	5000	100%
Non-WHS	E-G => B2	0.2	52.4	45000	35%
Non-WHS	C-D => B2	0.1	26.2	5000	35%
Solar PV	All	0.3	79	9000	25%
Total	0	0	0	0	0%

7.3. Community Sector Opportunities

7.3.1. Solar PV roof-installation for Golf Club and School

- As evidenced by both Energy Audits, the Golf Club and schoolwould be ideal candidates for Solar PV installation.
- The audits show that both projects would have a rapid payback time even if we assume that the projects proceed with the existing SEAI non-domestic Solar PV grants. i.e. assuming no further grants such the Sports Capital Funds are available
- The school could do an initial 6 kW Solar PV system, completely free via Dept of Education grants, while a larger project is developed.

7.3.1.1. SEC Actions

- Ensure that the Energy Audits are shared with the management of both the Golf Club and the School
- Keep an eye out for funding opportunities that would make the project even more financially attractive
- Liaise with the school to check that the Green Schools committee are aware of the impact that the Solar PV system is having in terms of meeting electricity demand and reducing bills.
    - It may be relevant to increase the system size depending on the results. i.e. if there is roof space available, additional panels could be added to improve the impact of the system.

7.3.2. Community Solar Project

A Solar PV project owned by the community can provide a number of advantages

- A potential regular money-earner for the community
- Potential for part public funding as a community project
- Community crowd-funding can build community engagement and even provide an investment opportunity for residents

Note that community energy projects are well supported by SEAI in terms of technical support.

When we speak of community solar farms there are a number of sizes that each provide different advantages and challenges

- Micro (less than 50 kW)
    - Better to be co-located with existing electricity account in order to avoid the cost of a new connection e.g. school, sports club or existing high-load premises e.g. hotel
    - To get to full 50 kW, it will be necessary to upgrade to a 3-phase supply if that is not already the case.
        - The added cost of this will depend on the distance to the nearest 3-phase connection point. See the ESB Network Capacity Map for a map of 3-phase connections in Spanish Point
    - Expected cost: €55k for PV installation + €7.5k for grid connection
    - Existing funding: SEAI Non-domestic grant scheme (a 50 kW system would qualify for €12,600)

- Expected annual earnings: 47500 kWh annual production sold at 13.5c/kWh = €6041/yr
- A 50 kW ground-mounted solar farm would require ~1000m² of ground.

- Small-scale (50kW to 1MW) (export-only)
  - This will be supported under the Small-Scale Renewable Electricity Support Scheme (SRESS)
  - The details of this scheme were published in Jan 2025
  - This would require a separate 3-phase grid connection meaning additional costs.
  - Expected cost: Indicative costs would be ~€100k / 100 kW but specific costing for the grid connection would be needed.
  - Projects are made financially viable by a guaranteed tariff
  - **SRESS Renewable Energy Communities Tariff Rates**

Small Scale Solar PV (1 MW or under)	Small Scale Solar PV (greater than 1 and up to 6MW)	Wind (<6 MW)
€150/MWh	€140/MWh	€90/MWh

  - Taken from SRESS website
  - The tariff is guaranteed for 15 years and is reviewed annually according to the Index of Consumer Prices.
  - The chart below shows the potential cumulative earnings for the community on a 50 kW system over 15 years
    - The assumptions here are 100% financing at 2% loan rate and a 2% increase in the tariff per annum

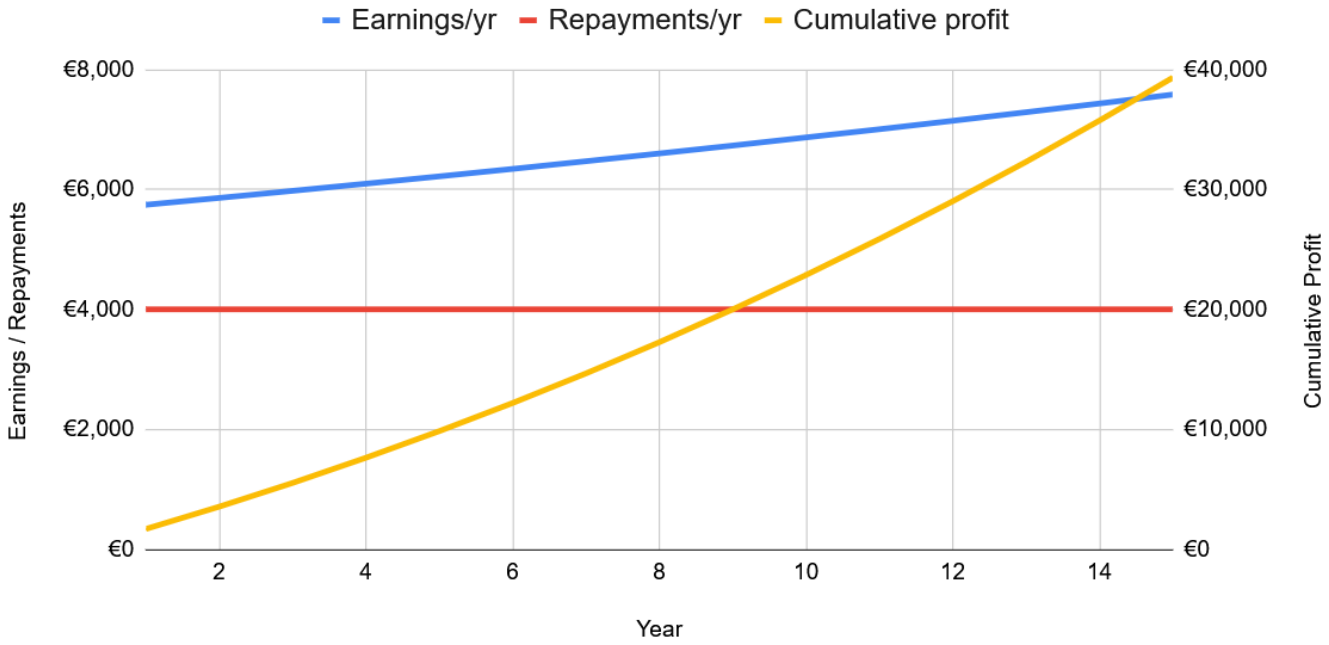


Figure 21: Finances of a 50 kW Community Solar PV scheme under SRESS

◦

7.3.2.1. ESB Network Capacity Map for 3-phase Connections

The map below has been copied from the [ESB Networks capacity map] which allows a quick pre-assessment of the capacity available on the grid to connect micro or small-scale generating systems.

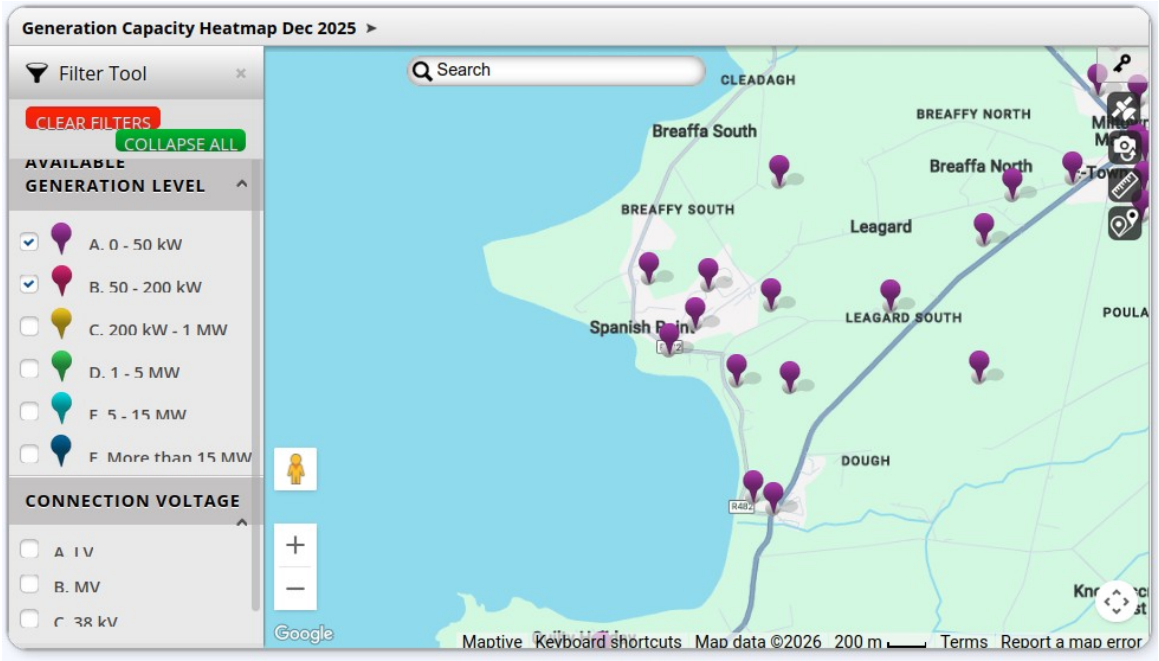


Figure 22: ESB Network Capacity for 3-phase connections

7.3.2.2. SEC Actions

- Identify the location of the 3-phase transformers using the map above
- Identify potential vacant plots or roofs close to the transformers that could potentially have a Solar PV farm installed
    - Note that for every 50 kW of a Solar PV farm, roughly 1000m^2 of unshaded land would be required
- Identify existing facilities that would be suitable for a Solar PV installation, either roof or ground-mounted
- Note that a community funded Solar PV installation on an existing facility would give better payback for the community.
    - The electricity from the installation could be sold to the facility owner at a higher rate that the 15c/kWh tariff
    - Installation costs would be lower since there is an existing connection.
    - This could be an option for members of the community to provide a short-term loan to a local dairy-farmer or business. Given the level of grant aid available, such a loan would be repaid in less than 5 years
    - It is worth noting that the 15 year guaranteed rate makes an export-only project a lower risk option.
    - No financial projections can be made for this proposed action given the number of unknowns at the moooment.

7.3.3. Community woodland/fruit forest

- As well as addressing the energy usage, the overall sustainability and bio-diversity of the EMP area can be improved by the creation of a community woodland.
- There is a government scheme, Neighbourwoods, which provides financial assistance to create woodland amenities for local people. Funding is available to help establish woodland on greenfield sites and to support the development of existing sites.
- Neighbourwoods can be used by the community for strolling, family visits and picnics, exercising and a host of other outdoor activities.
- As well as finance for the establishment of the community forest, an annual premium, of €1142 per hectare, is payable to the community. When a community has some available land this can provide a regular, albeit small, income stream for the community to offset other costs
- See this document for full details of the scheme and this further document for details of grant and premium rates.

7.3.3.1. SEC Actions

- Identify suitable plots of land that could be bought/leased
    - The minimum site area for the Neighbourwoods scheme is 1000m^2, a quarter of an acre.

7.3.4. Farmscale Anaerobic Digestion

- This section has been included for information purposes even though it may no apply to the restricted farming sector in Spanish Point.
- Both dairy and suckler farms produce significant quantities of manure which could be used as feedstock for an anaerobic digestion system
- An **anaerobic digestion (AD) system** on a dairy farm is a process that breaks down organic materials, like cow manure and crop waste, in the absence of oxygen.
- This produces **biogas**, a renewable energy source that can generate heat, electricity, or fuel.

- The system also creates **digestate**, a nutrient-rich by-product used as a natural fertilizer.
- It can provide an additional income stream, helps reduce farm waste and lower greenhouse gas emissions.

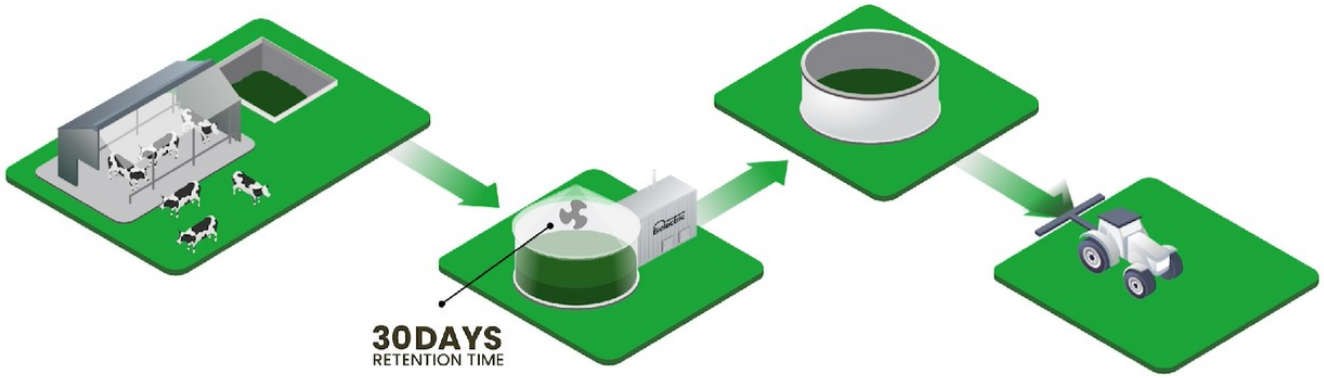


Figure 23: Anaerobic Digestion process: Store slurry, produce gas, store digestate, spread digestate

- In order to assess the viability of anaerobic digestion as a solution for farms in Spanish Point we need to establish a few baseline figures:

7.3.4.1. Key Figures for Anaerobic Digestion

- Slurry production: Teagasc sources indicate that each cow will produce 0.33m^3 of slurry per week
  - a recent Farmers Journal article from Nov 2024 indicates that this will be revised upwards to ~0.4m^3
- Each m3 of slurry can potentially produce ~20m^3 of biogas (source Teagasc see Table 3 or Annexe 8.5)
- Each m3 of biogas contains ~23 MJ of 6.4 kWh of potential energy (source Teagasc)
- Before this biogas can be used in an electricity generator, it needs to be "cleaned" to reduce the level of
  - water vapour
  - CO_2 (carbon dioxide)
  - H_2S (hydrogen sulphide)
- Teagasc estimate that the "usable" energy from biogas is
  - 1.7 kWh of electricity only
  - 2.5 kWh of heat only
  - 1,7 kWh electricity and 2 kWh of heat in a combine heat and power plant (CHP)
  - source: Teagasc see Table 4 , or Annexe 8.5

To give a worked example using these figures:

- Assume a herd of 50 cattle and that they are indoors for the equivalent of 20 weeks per year (Teagasc national average is 18 weeks)
- Slurry production is: 50 * 0.33 * 20 = 330 m^3 / year
- Biogas production = 330 * 20 = 6600 m^3 / year
- Potential energy: 42,240 kWh / year

- Realistic energy from CHP plant: **11,220 kWh electricity and 13,200 kWh of heat**
- **Potential value of energy = 11,220 * €0.25 (equivalent grid electricity price) + 13,200 * €0.10**
  - **€4125 / year**
- Other values derived from an AD plant are
  - Reduced cost of slurry management
  - Use of digestate to replace bought-in fertiliser
  - **Avoided emissions: 6.4 tCO_2 or 128 $kgCO_2$/cow**
    - Electricity: @300gCO_2e/kWh, 3.4tCO_2 avoided
    - Heat: @229g/kWh, 3.0tCO_2 avoided

7.3.4.2. Costs of AD systems and National Strategy

- The current National strategy suports the production of bio-methane from large anaerobic digestion plants for direct injection into the national gas grid

Vision of Ireland's Biomethane Sector	
Scale of AD facilities	While the majority of AD plants are likely to be 40 GWh or similar scale, there will be a role for smaller farm scale plants.
Feedstock mix	In the initial development of a biomethane sector it is likely that waste products will be utilised in the first instance, closely followed by agricultural feedstocks such as slurries and grass silage.
Regulations and policy	The majority of AD plants in Ireland will be directly connected to the gas network. Supporting policies implemented through the National Biomethane Strategy will aid the development of a successful biomethane sector in Ireland.
Financial supports	Biomethane will be supported through the implementation of the Renewable Heat Obligation and Capital Grants.
End uses of biomethane	Biomethane will be utilised in the heat (RHO), transport (RTFO) and electricity generation (Gas Purchase Agreements) sectors in Ireland.
Sustainability	Through the development of the Biomethane Sustainability Charter, sustainability will be central to the development of biomethane in Ireland.

Table 21: Summary of National Strategy for Anaerobic Digestion

- The scale of such plants, 40 GWh, are effectively 1000 times bigger than the worked example for 50 cows done above.

- A Dutch company BioElectric have a turnkey Combined Heat and Power (CHP) system which they claim is suitable for farms of 60 cows
  - The cost is €100k but requires cows to be housed year-round to ensure a regular supply
  - Their figures , as shown in the diagram below, seem optimistic compared to my calculations

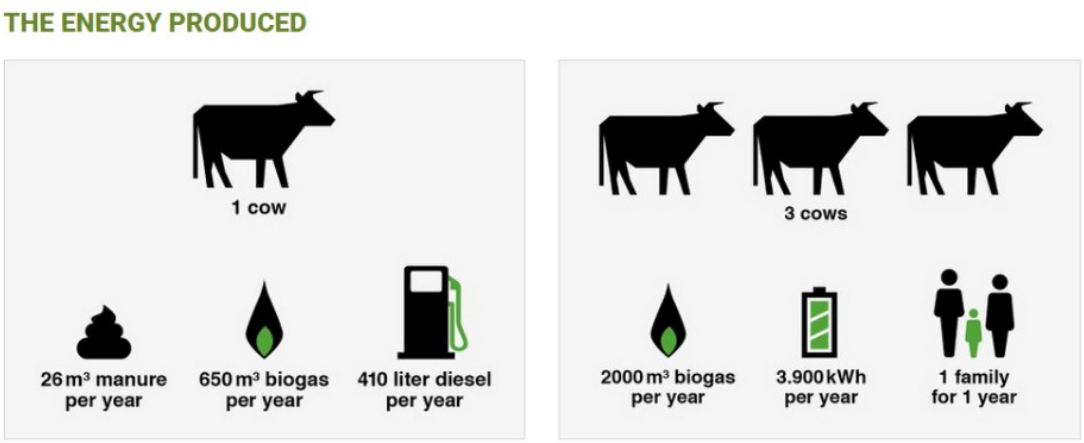


Table 22: Figures for energy production from BioElectric

- Another company CycleØ, propose AD plants in Ireland for farms of 400 cows or more.

7.3.4.3. SEC Actions

- Developing an anaerobic digestion plant in Spanish Point is far from a simple affair
- If there is interest to raise the profile of AD in advance of a larger system, then the SEC could consider a pilot program of a domestic scale anaerobic digester.
  - This might be suitable for a local homeowner, the school or a local business if there is a regular supply of food waste from the local hotels, restaurants and the school.
- The kind of systems that would be suitable are the following:

● MyGug Biogas system: produced in Ireland	● Home BioGas: Produced in the US/Israel
	

Both systems produce biogas that can then be used in a cooking ring.

- Each kg of food waste can be converted to the equivalent of 2.2 kWh of equivalent energy in the biogas produced.
- If we assume that this then displaces the use of 2.2 kWh of bottled gas (LPG) this gives a reduction in emissions terms of 0.51 kg CO_2. See Annexe 8.2 for full figures on energy production from food waste
- LPG costs the equivalent of 20c/kWh. Each kg of food waste can then save 44c in LPG costs. (See SEAI figures)

If we take an average of 5 kg of food waste per day (typical for a small café/restaurant) for 4 months of the year and 2.5 kg of food waste per day for the other 8 months we have the following annual figures.

- Total food waste processed to biogas 1212 kg
- Total energy produced 2644 kWh
- Total CO_2 savings/year 612 kgCO_2
- Total savings on LPG equivalent €533

7.4. Transport Sector Opportunities

7.4.1. Promoting EV uptake and a Public EV charging point in Spanish Point.

- Government policy already strongly favours the uptake of EV's.
- The installation of one or more public EV charging points in Spanish Point is a recommended action.
- Spanish Point currently has publicly accessible charging points at both hotels and nearby in Miltown Malbay (see map).
- There is scope for a further charging point (or points) in the public car-park at Spanish Point beach and the golf club.
- The increased availability of EV chargers would serve to attract more people to visit Spanish Point and could also be used by the local community.
- A person who uses the EV charger will be staying in the vicinity of the charger in the short-term and this can lead to increased footfall to other businesses in the area.
- SEAI have created a register of Charge Point Operators who are licensed to install and operate EV charging points.
- If the community engages with a Charge Point Operator, the charge point is installed, operated and owned by the Charge Point Operator. Typically, a revenue-split model will be agreed in advance with the community.

7.4.1.1. SEC Actions

- Contact one of the existing Charge Point Operators who are registered with SEAI.
  - The full list is available on this SEAI webpage.
- Realistically, this should only be undertaken if the charging point is 100% grant funded.
  - Charging points are not money-earners for communities in the current market.

7.4.2. Promoting Public Transport in Spanish Point.

- Recent government policy has increased the bus services going through Spanish Point. See Section 5.3.2 for full details of timetables.

- Government support has not yet extended to providing specific timetable info per village, preferring to provide info for the entire route which may not be the most accessible approaches
- The signage for bus stops is often lacking and people in communities may simply not be aware where the bus actually stops.

7.4.2.1. SEC Actions

- Create and print timetables of specific relevance to Spanish Point
    - These could be made available in the public areas such as the hotels, restaurants
- Ensure that the bus stops in Spanish Point are well indicated
    - Create a bench/shelter to make the bus-stops more appealing

8. Annexes

8.1. Annex 1: Population and number of homes calculation

- The area "officially" covered by the EMP is included in 1 Small Area
  - 037118006/037118008 in the Small Area covering a large part of Spanish Point
- CSO data from table SAP2022T1T1ASA gives the population per Small area
- CSO data from table SAP2022T6T8SA gives the number of homes per Small Area
-

Table 23: Population of Spanish Point

Unit	Population
037118006/037118008	261
Population of area in manual survey	102
Total Population	**363**

Table 24: Number of homes in Spanish Point

Unit	Number
037118006/037118008	154
Number of homes in manual survey	108
Total Population	**262**

Table 25: Number of Occupied homes

Unit	Number
037118006/037118008	64
Number of homes in manual survey	62
Total Population	**126**

- Given that Spanish Point is not completely covered by the SA, manual surveying was done of the other houses that were considered to be within the EMP context.
- The map below shows the additional area
- The addition of this area means that extrapolation had to be done, based on local knowledge of the age, number of occupants and occupancy of the homes in the additional area.

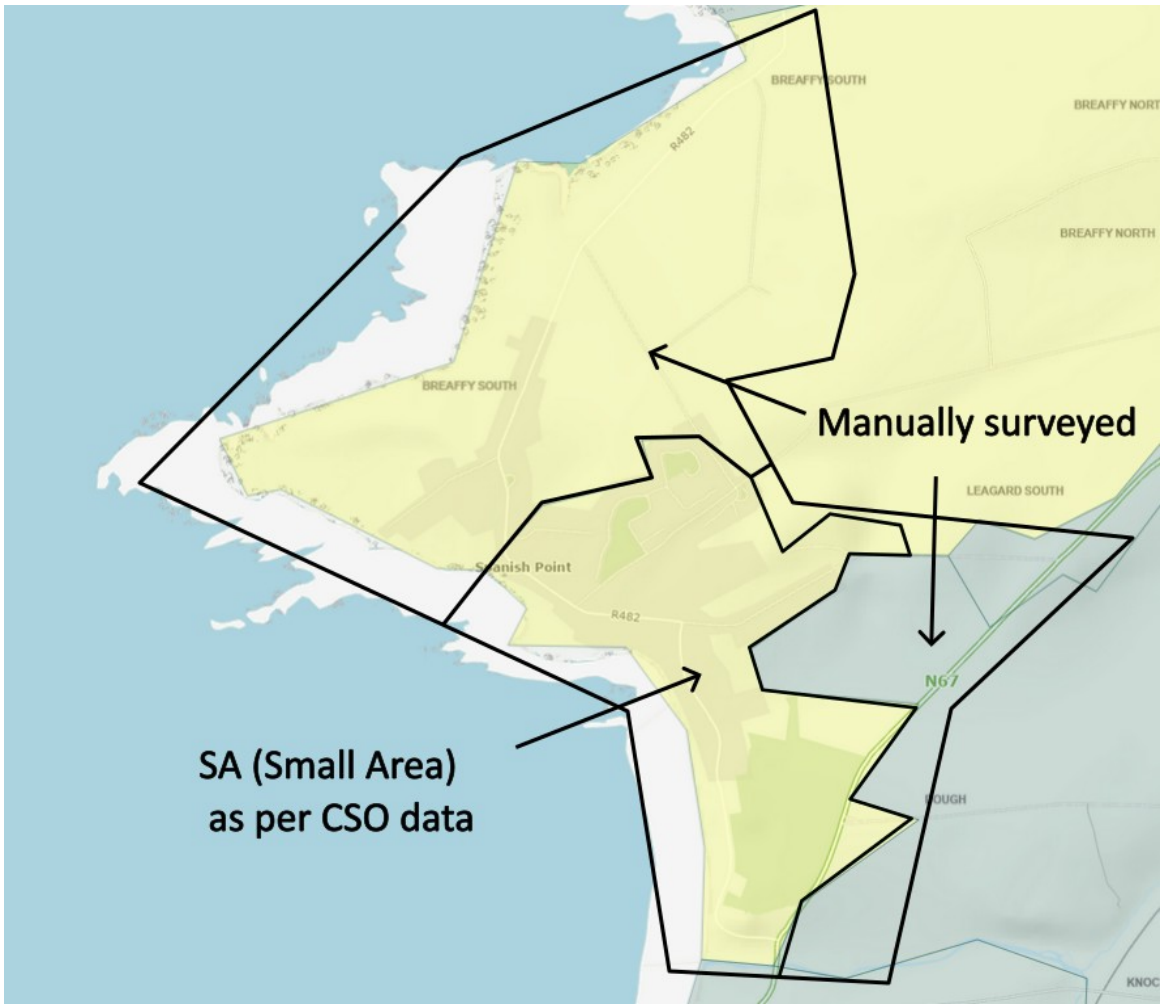


Figure 24: Areas covered by the EMP

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8.2. Annex 2: Calculation of energy produced by anaerobic digestion of food waste

The biogas yield and its energy content from 1 kg of kitchen (food) waste through anaerobic digestion can vary based on several factors, such as the composition of the waste, digestion conditions, and the efficiency of the process. However, we can provide a general estimate.

Typically, 1 kg of kitchen waste can produce between 0.2 to 0.5 m^3 of biogas under optimal conditions. Taking a generalized average, let's say 1 kg of kitchen waste yields about 0.35 m^3 of biogas.

The energy content of biogas depends primarily on its methane (CH4) concentration. On average, biogas derived from kitchen waste contains about 50-70% methane. The energy content of methane-rich biogas is around 21-24 MJ/m^3. Using an average value of 22.5 MJ/m^3:

- Energy content from 1 kg of kitchen waste = 0.35 m^3 × 22.5 MJ/m^3 = 7.875 MJ.
- Now, to convert this to kWh, given that 1 kWh is equivalent to 3.6 MJ:
- Energy content in kWh = 7.875 MJ ÷ 3.6 = **2.19 kWh**.

So, approximately, the biogas produced from the anaerobic digestion of 1 kg of kitchen waste contains around 2.19 kWh of energy. Keep in mind that these values are general averages, and actual yields and energy content can vary based on specific circumstances and factors related to the digestion process and the nature of the waste.

The CO_2 that would have been generated from the burning of an equivalent amount of LPG (bottled gas) can be calculated as follows:

To determine how much CO_2 is released from the combustion of LPG (liquefied petroleum gas), we need to consider the composition of LPG and the CO_2 emissions for the combustion of its main components, which are primarily propane (C3H8) and butane (C4H10).

1. **Combustion Equations and CO_2 Emissions**:
    - **Propane**: $C_3H_8+5O_2 \rightarrow 3CO_2+4H_2O$ + heat: Propane has an emission factor of about 3.0 kg CO_2 per kg of propane combusted.
    - **Butane**: $2C_4H_{10}+13O_2 \rightarrow 8CO_2+10H_2O$ + heat: Butane has an emission factor of about 3.3 kg CO_2 per kg of butane combusted.
2. **Energy Content of LPG**:

LPG has an average energy content of around 13.6 kWh/kg, given a typical mixture of propane and butane. This is a generalized value; actual energy content might vary slightly.

3. **Determining the mass of LPG for 2.19 kWh**:

Energy required =2.19 kWh

Energy content of LPG per kg = 13.6 kWh/kg

Mass of LPG required for 2.19 kWh = 2.19/13.6 = **0.16 kg LPG**

4. **CO_2 Emissions**:

Assuming a typical mix of 60% propane and 40% butane in the LPG:

Propane content = 0.162 kg × 0.6 = 0.0972 kg Butane content = 0.162 kg × 0.4 = 0.0648 kg

CO_2 from propane = 0.0972 kg × 3.0 kg CO_2/kg = 0.2916 kg CO_2 CO_2 from butane = 0.0648 kg × 3.3 kg CO_2/kg = 0.2138 kg CO_2

Total CO_2 = 0.2916 kg + 0.2138 kg = **0.5054 kg** or 505.4 g

So, approximately 505.4 grams (or 0.5054 kg) of CO_2 is released from the combustion of 2.2 kWh of LPG. Keep in mind that this is a general estimate based on typical LPG compositions and might vary slightly depending on the exact mixture and other factors.

Final Result

- 1 kg of food waste generates **2.2 kWh** equivalent of biogas.
- Assuming this replaces the use of LPG, this avoids the emissions of **0.51 kg of CO_2**

8.3. Annex 3: SEAI Grants

8.3.1. Grant Types

Type of Action	Better Energy Homes Individual Grants	National Home Energy Upgrade Scheme One Stop Stop	Warmer Homes Scheme Fully Funded Energy Upgrade
Home Energy Assessment	X		
Project Management		X	
Wall and Roof Insulation	X	X	X
Floor Insulation		X	
Windows	X	X	X
Doors	X	X	X
Heating Controls	X	X	X
Heat Pump	X	X	X
Heat Pump bonus payment	X	X	
Solar Water Heating	X	X	
Solar PV (electricity)	X	X	
Ventilation		X	X
BER assessment	X	X	X

Figure 25: Upgrade types and SEAI Grant Schemes

8.3.2. Individual Grant Amounts

The table below is taken from this SEAI webpage which remains the final reference

Table 26: Grant amounts for individual actions

Grant name	Types of home	New Grant Value
Heat Pump Systems *Homes built and occupied before 2021*	• All Houses • Apartments	• €6500 • €4500
Heat Pump Air to Air *Homes built and occupied before 2021*		• €3500
Bonus for upgrading to Heat Pump	• All	• €4000
Upgrade to radiators and or underfloor heating	• All	• €2000
Windows upgrades	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €1500 • €1800 • €3000 • €4000
External Doors (max. 2)	• All	• €800/ door
Heating Controls		• €700
Solar Hot Water *Homes built and occupied before 2021*		• €1200
Attic insulation *Homes built and occupied before 2011*	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house • In receipt of welfare payments	• €1100 • €1400 • €1500 • €2000 • €2500
Cavity wall insulation *Homes built and occupied before 2011*	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house • In receipt of welfare payments	• €700 • €850 • €1300 • €1800 • €2300
Internal Insulation (Dry Lining) *Homes built and occupied before 2011*	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €1,500 • €2,000 • €3,500 • €4,500
External Wall Insulation (The Wrap) *Homes built and occupied before 2011*	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €3,000 • €3,500 • €6,000 • €8,000
Solar PV	• €700 per kWp up to 2kWp • €200 for every additional kWp up to	€1400 for 2kWp

	4kWp ● Total Solar PV grant capped at €1800	€1600 for 3kWp €1800 for 4kWp
BER		€50
Technical Assessment (required for Heat pump)		€200

8.3.3. One Stop Shop Grants Amounts

The table below is taken from this SEAI webpage which remains the final reference

Table 27: Grant amounts for One Stop Shop homes

Grant name	Types of home	Grant Value
Heat Pump Systems	• All Houses • Apartments	• €6500 • €4500
Central Heating System for Heat Pump	• All Houses • Apartments	• €2000 • €1000
Heat Pump Air to Air		• €3500
Heating Controls		• €700
Heat Pump bonus		• €4000
Solar Hot Water		• €1200
Attic insulation	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €1100 • €1400 • €1500 • €2000
Rafter insulation	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €1,500 • €2,000 • €3,000 • €3,000
Cavity wall insulation	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €700 • €850 • €1300 • €1800
Internal Insulation (Dry Lining)	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €1,500 • €2,000 • €3,500 • €4,500
External Wall Insulation (The Wrap)	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €3,000 • €3,500 • €6,000 • €8,000
Windows (Complete Upgrade)	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €1500 • €1,800 • €3,000 • €4,000

External Doors (max. 2)		€800 per door
Floor Insulation		€3,500
Solar PV	• €700 per kWp up to 2kWp • €200 for every additional kWp up to 4kWp • Total Solar PV grant capped at €1800	• €1400 for 2kWp • €1600 for 3kWp • €1800 for 4kWp
Mechanical Ventilation		• €1,500
Air Tightness		• €1,000
Home Energy Assessment		• €350
Project Management	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €800 • €1,200 • €1,600 • €2,000

8.3.4. Community Grants Amounts

The tables below are taken from this SEAI guidelines document (pages 47/48/49) which remains the final reference. Note that some of the figures in this document have not yet been updated to reflect recent changes ot grant amounts.

Private Homes

	Private Homes			
Measure	Detached	Semi-Detached / End Terrace	Mid Terrace	Apartment
Heat Pump	€6,500			€4,500
Central Heating System for Heat Pump	€2,000			€1,000
Heat Pump Air-to-Air	€3,500			
Heating Controls only	€700			
Launch bonus for reaching B2 with a Heat Pump	€2,000			
Ceiling Insulation	€1,500	€1,300	€1,200	€800
Rafter Insulation	€3,000	€3,000	€2,000	€1,500
Cavity Wall Insulation	€1,700	€1,200	€800	€700
External Wall Insulation	€8,000	€6,000	€3,500	€3,000
Internal Wall Insulation	€4,500	€3,500	€2,000	€1,500
Windows (Complete Upgrade)	€4,000	€3,000	€1,800	€1,500
External Doors (max. 2)	€800 per door			
Floor Insulation	€3,500			
Solar PV	0 to 2 kWp €800/kWp 2 to 4 kWp €250/kWp Total Solar PV grant capped at €2,100			
Mechanical Ventilation	€1,500			
Air Tightness	€1,000			
Home Energy Assessment	€350			
Project Management	€2,000	€1,600	€1,200	€800

Approved Housing Body Homes

	Approved Housing Body			
Measure	Detached	Semi-Detached / End Terrace	Mid Terrace	Apartment
Heat Pump	€6,500			€5,500
Central Heating System for Heat Pump	€2,000			€1,000
Heat Pump Air-to-Air	€4,000			
Heating Controls only	€700			
Launch bonus for reaching B2 with a Heat Pump	€2,000			
Ceiling Insulation	€1,500	€1,300	€1,200	€800
Rafter Insulation	€3,500	€3,500	€3,000	€2,000
Cavity Wall Insulation	€1,700	€1,200	€800	€700
External Wall Insulation	€10,000	€8,000	€4,500	€3,500
Internal Wall Insulation	€5,500	€4,250	€2,500	€2,000
Windows (Complete Upgrade)	€5,000	€3,700	€2,200	€1,900
External Doors (max. 2)	€1,000 per door			
Floor Insulation	€4,500			
Solar PV	0 to 2 kWp €800/kWp 2 to 4 kWp €250/kWp Total Solar PV grant capped at €2,100			
Mechanical Ventilation	€2,000			
Air Tightness	€1,000			
Home Energy Assessment	€350			
Project Management	€2,000	€1,600	€1,200	€800

Energy Poor Homes (CEG)

	Energy Poor Homes			
Measure	Detached	Semi-Detached / End Terrace	Mid Terrace	Apartment
Heat Pump	€6,500			€5,500
Central Heating System for Heat Pump	€2,000			€1,000
Heat Pump Air-to-Air	€4,000			
Heating Controls only	€700			
Launch bonus for reaching B2 with a Heat Pump	€2,000			
Ceiling Insulation	€1,500	€1,300	€1,200	€800
Rafter Insulation	€3,500	€3,500	€3,000	€2,000
Cavity Wall Insulation	€1,700	€1,200	€800	€700
External Wall Insulation	€14,000	€11,000	€6,500	€4,500
Internal Wall Insulation	€9,500	€7,000	€4,500	€3,000
Windows (Complete Upgrade)	€5,000	€3,700	€2,200	€1,900
External Doors (max. 2)	€1,000 per door			
Floor Insulation	€4,500			
Solar PV	0 to 2 kWp €800/kWp 2 to 4 kWp €250/kWp Total Solar PV grant capped at €2,100			
Mechanical Ventilation	€2,000			
Air Tightness	€1,000			
Home Energy Assessment	€350			
Project Management	€2,000	€1,600	€1,200	€800

8.4. Annex 4: Online application from for Fully Funded Energy Upgrades

Are you eligible?

Before you start your application, take a few moments to read through what you will need:

- ☑ Your PPSN
- ☑ Your MPRN – the 11-digit number located on your electricity bill
- ☑ Proof of owning your home dated within last 12 months

Provide any one of the following documents:
Mortgage statement
Home Insurance Policy
Local Property Tax Letter + utility bill with name and address of the applicant within last 6 months
Title deeds
Solicitors letter

- ☑ A qualifying Social Welfare payment

Receiving any one of the following payments:
Fuel Allowance
Job Seekers Allowance with a child under 7 years of age + child's birth certificate
Working Family Payment
One-Parent Family Payment
Domiciliary Carers Allowance
Carers Allowance + a completed Carers Allowance Form + living with the person you are caring for
Disability Allowance with a child under 7 years of age + copy of the child's birth certificate

Make sure all your documentation is clear to read. If we cannot read or validate your documents, your application will not move forward, and you will have to start again.

Do you have all your documentation ready? Let's begin your application.

Apply Online

Figure 1Figure 1 Screenshot of Online Application form for Fully Funded Energy Upgrades

8.5. Annex 5: Figures for Anaerobic digestion from Teagasc

- All figures are taken from this Teagasc report from 2020

Table 3: Energy content of farm feedstocks.

Feedstock	Biogas potential m^3 per tonne	DM content
Cattle	19.69	8%
Pig	14.28	4%
Poultry	50-250	14-70%
Farmyard manure (FYM)	49-66	20-27%
Grass	98-189 (fresh silage)	19-37%
Maize silage	155	30%
Barley straw	383	80%
Chopped molasses	363	75%

Table 4: Energy in biogas.

	Energy value
1m^3 biogas	23MJ
Electricity only	1.7kWh
Heat only	2.5kWh
CHP of biogas	1.7kWh and 2kWh