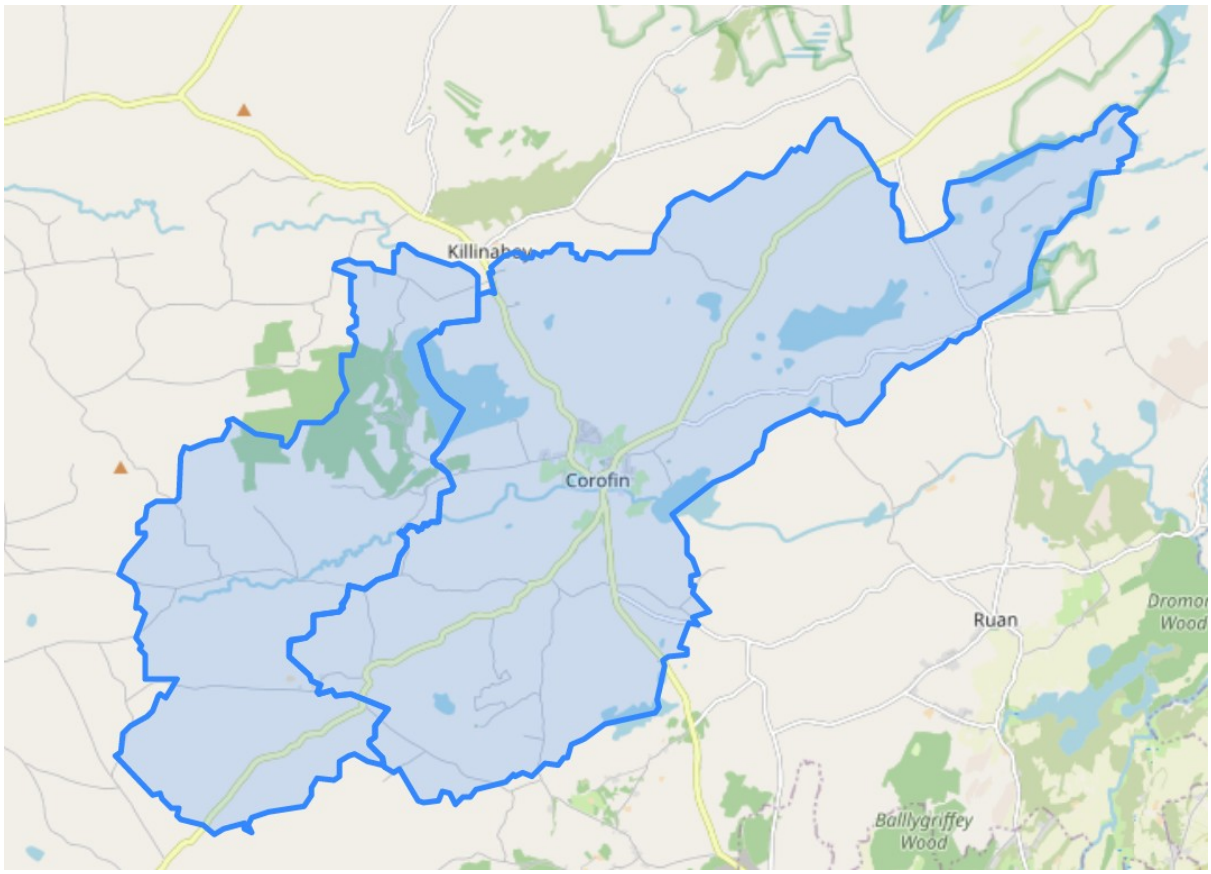
Energy Master Plan for Corofin SEC , Co. Clare



January 2025

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 sectins 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 CO2 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/ CO2** - 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 CO2 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 like wind energy, solar energy, or biomass. These resources can regenerate naturally, and we can use them 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. To do so, they aim as far as possible 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.
- **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 CO2/annum. Energy costs are presented in euro spent on energy per annum

2. Executive Summary

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

The development of the plan has been led by a steering group that includes representatives from the Corofin 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 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. It is based on the population based proportion of national figures provided by SEAI[1] which give the population of the EMP area as 1630. (See Annex 9.1. Annex 1 : Population calculation)

Table 1: Baseline Energy Usage

Sector	Electricity	Fossil Fuel	Renewable	Total
Residential	2707 MWh	7238 MWh	432 MWh	10377 MWh
Community	24 MWh	29 MWh		53 MWh
Transport	70 MWh	10213 MWh		10282 MWh
Total Energy	2801 MWh	17479 MWh	432 MWh	20712 MWh

Table 2: Baseline Emissions & Cost

	Electricity	Fossil Fuel	Renewable	Transport	Total
CO2 Emissions	933 tCO2	2166 tCO2	13 tCO2	2402 tCO2	5514 tCO2
Total Cost	€924,179	€1,209,077	€21,611	€1,650,754	€3,805,621

1SEAI National Energy Balance Summary 2022 and Energy Balance Full Data

2.2. Summary of Register of Opportunities

- Residential Sector Actions
    - Specific focus on Fully Funded Energy Upgrades for energy-poor homes (potentially target of 128 home or more, i.e. 20% of homes)
    - Support energy upgrades of a further 30% of the homes of the EMP area (~320 homes) to bring to them to a B2 standard
    - Provide Energy Saving Kits
- Community
    - 50 kW Community Solar PV (1st phase)
    - Solar PV installation for Hall and GAA
    - Energy Monitoring in Hall and GAA
    - Community woodland/fruit forest
- Transport
    - Promote Public Transport
    - Promote Public EV charging point in Corofin.
    - Sheltered bike parking with e-bike charging
    - Promote future West Clare Greenway

3. Introduction

To assist in achieving the Corofin 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 Corofin 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 CO2 emissions in the Corofin 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. Corofin SEC

The Corofin SEC Steering Group formed in late 2021 in order to reduce the reliance on fossil fuels in the area.

The Corofin SEC Steering Group has the following ambitions for the Energy Master Plan:

- Corofin SEC wants the community to increase energy efficiency by retrofitting, insulating and producing sustainable energy.
- By doing the EMP, we will use local evidence to show people how to reduce their fuel costs. We hope that local evidence and community learning will increase people's desire and ability to implement changes.
- We will use the EMP to help people understand where the best opportunities for reducing fossil fuel use are and where there are grants to help them reduce energy use and increase sustainable energy production. We may identify an agricultural renewable energy initiative to use as a local pilot project.
- Having established current energy use, we will use the EMP process to establish a system where people will inform the SEC of actions they have taken to reduce energy consumption and/or produce sustainable energy
- These outputs will benefit our SEC's future ambitions by increasing local knowledge about greenhouse gasses and, in turn, increase ideas for actions to reduce emissions. We hope our SEC's future ambitions will come from the community itself.

The SEC Steering Group's Strengths:

- The group brings together people with knowledge and/or experience of new, more sustainable energy options for heat / electricity production, passive house construction, carbon sequestration, anaerobic digesters.

- The SEC also has practical skills that will be useful; engineering, project management, developing and delivering community projects.
- The group represents many of the interests in the area, e.g., residential, community, tourism business, agriculture.
- 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 SEC Steering Group is a subgroup of the local development group – there is no need to form a new legal entity or open a new bank account.
- The community may be more interested in reducing fossil fuel use in light of recent increase in fuel prices.
- The Master Plan process will coincide with increasing government grants to reduce the use of fossil fuel – this should help to increase local interest.

The SEC Steering Group's Challenges:

- The group is newly formed and hasn't experience of implementing community projects. (BUT several of the members have extensive experience of implementing and managing community projects and facilities.)
- While the group has started enthusiastically, its commitment hasn't been tested over an extended period of time.

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 their 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 Corofin SEC indicated in the scoping documents that their current scope is residential and community facilities in the Electoral Districts of Corofin and Rath.
- These electoral districts will be referred to as “the EMP area” for the remainder of the document.
- The areas covered do not contain any sizeable industrial activity and commercial activity is limited.

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 777 homes in the EMP area, of which ~640 are permanently occupied
- Oil is by far the most common residential heating fuel (64%)
- 43.6% homes already use at least one form of renewable energy
- 27.4% of houses in the community were built pre-1970
- The average estimated heating and electricity cost is €3387 per year
- The estimated annual household CO_2 emissions from heating and electricity is 9.7 tons
- €2,167,581 is spent on heating and electricity in houses in the community each year

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

The area covered by the EMP consists of ~777 houses of which ~75 are vacant and a further ~36 are semi-vacant i.e. used periodically as holiday homes. 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. 640) returned and others data sources will use the total number of houses (i.e. 777)

In the chart below we see that apart from the boom of the 2000’s and a substantial number of houses built pre-1919, the houses are spread relatively evenly across the different age groups.

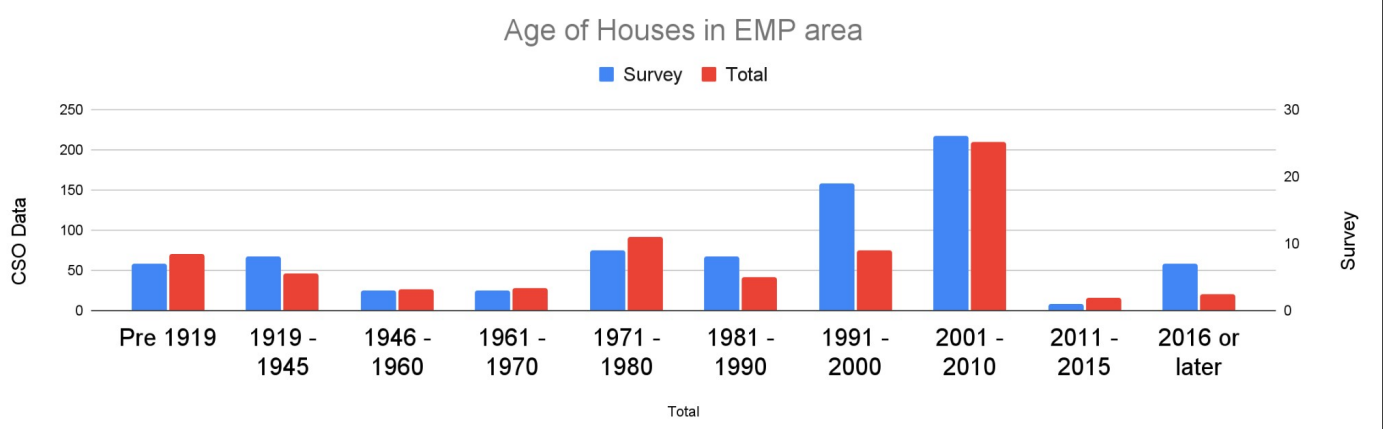


Figure 1: Age of Houses in EMP Area

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 vast majority of houses built pre-1970 are either of stone, solid concrete or hollow block construction. The majority of houses built post 1970 are cavity wall construction and it is also worth noting the introduction of building regulations in 1997.

In the chart below we see an almost even split between pre-1970 and post-1970 construction.

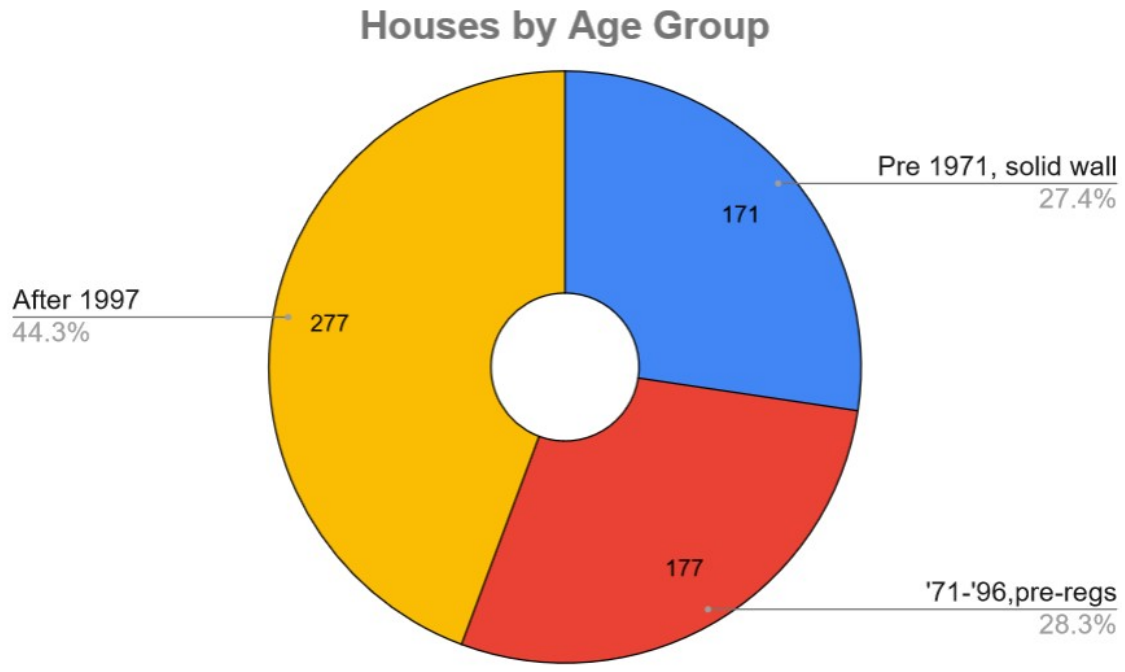


Figure 2: Houses by Age Group

If we now look at the spread of BER ratings, 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 36% of homes in the EMP area (280 homes out of 777) have a BER rating so the table below does not necessarily reflect the entire EMP area.

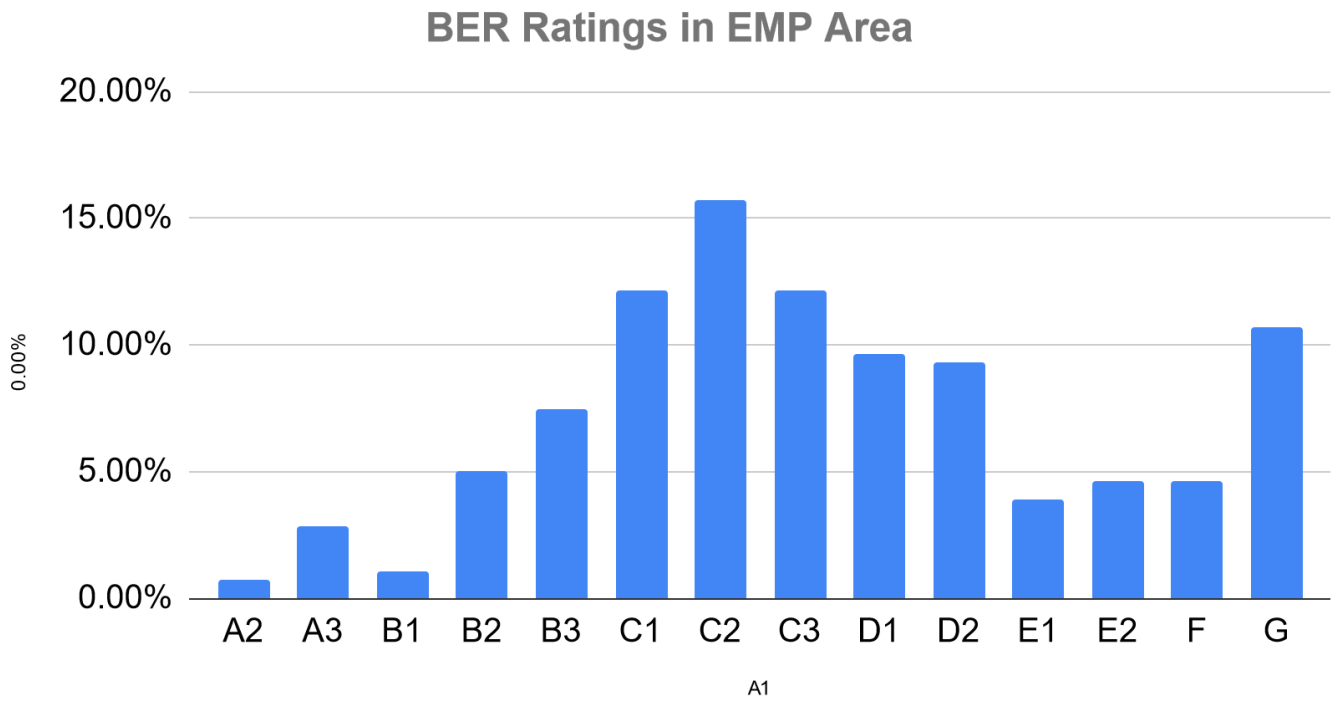


Figure 3: BER Ratings in EMP Area

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

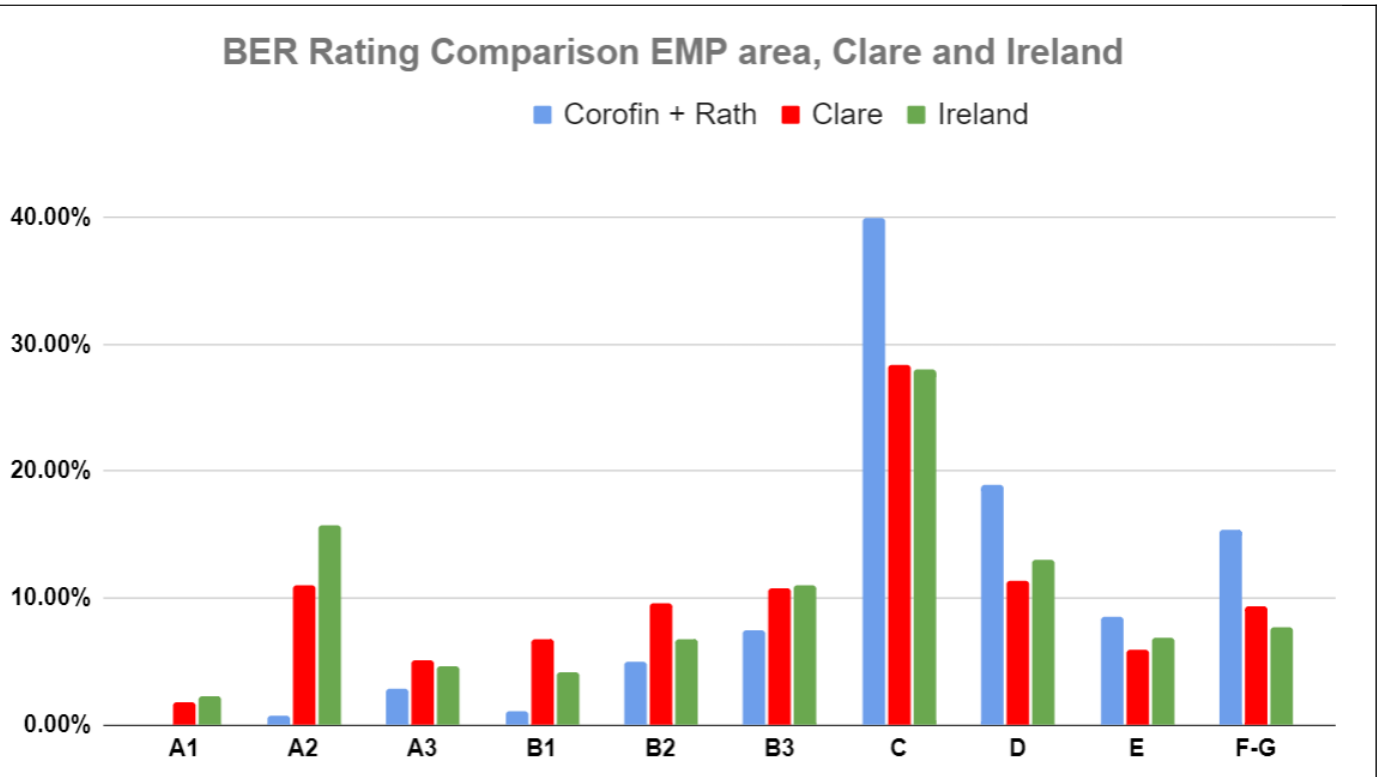


Figure 4: BER Comparison of EMP area, Clare and Ireland

This chart again shows the potential that exists in the EMP area, specifically if the houses with BER in the range E 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.

We see that 24% of homes in the EMP area are in the E-G zone and the greatest overall energy/cost/emission savings can be made by focussing on this zone.

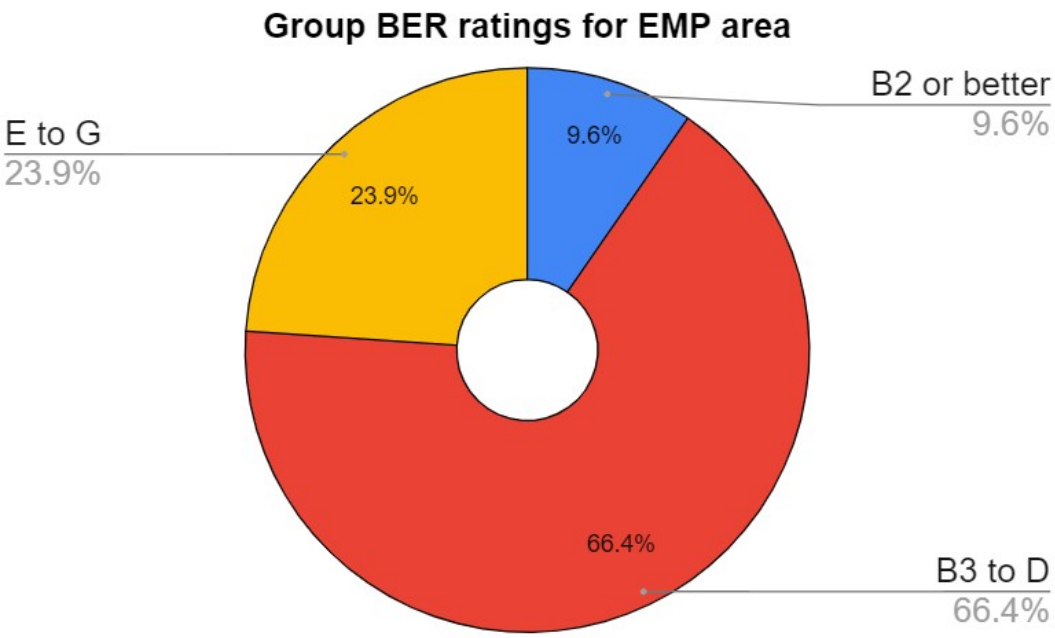


Figure 5: Group BER ratings for EMP Area

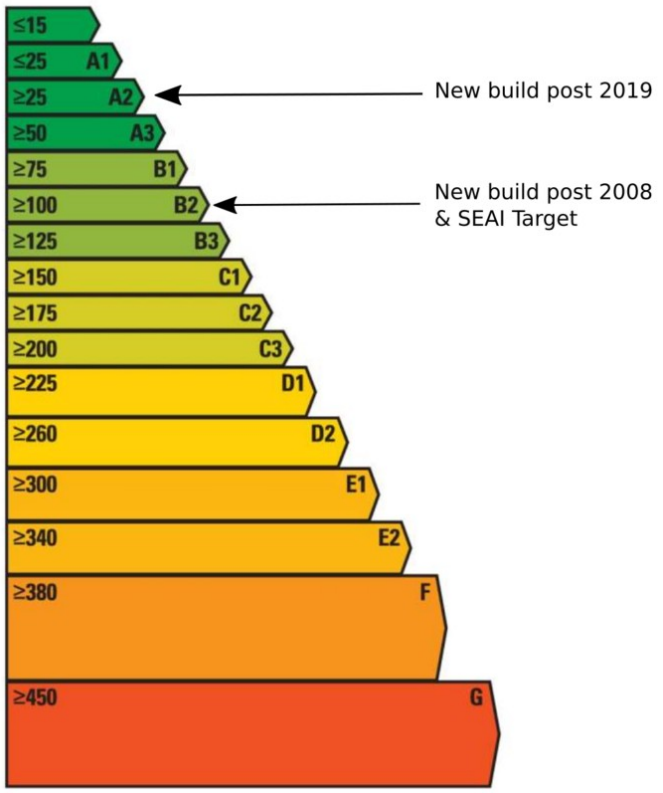


Figure 6: BER Ratings, full scale

5.1.3. Current Heating and Renewable Energy Sources in the EMP area

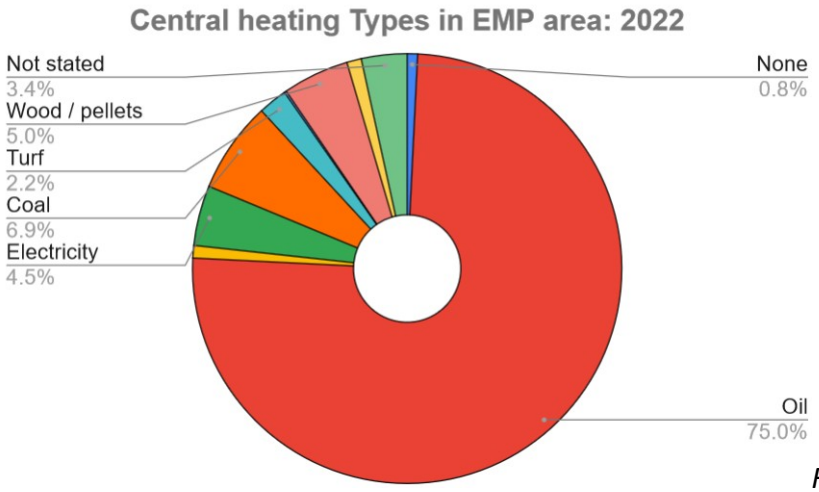


Figure 7: Central Heating types in EMP area

- Oil is the predominant source of heating which is a common feature across Ireland. All other heating fuels are relatively insignificant when compared to oil.
-

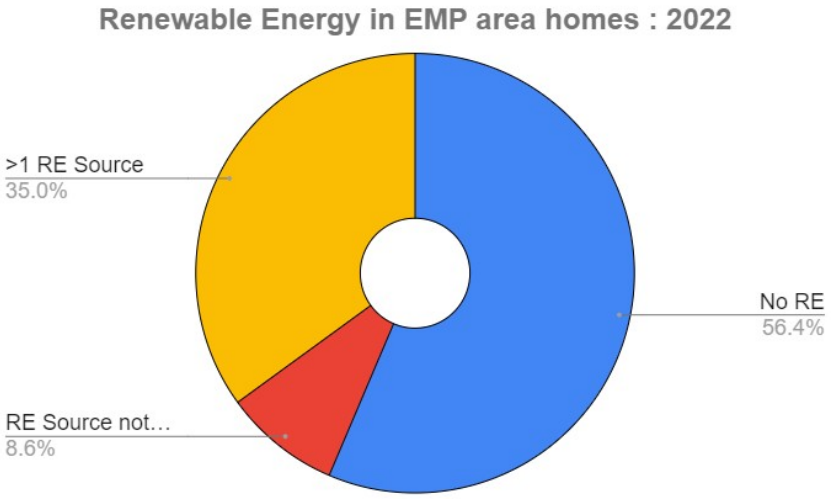


Figure 8: Renewable Energy in EMP area homes, 2022, Source, Table SAP2022T6T10SA, CSO

- Over 40% 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 over the past 18 months.

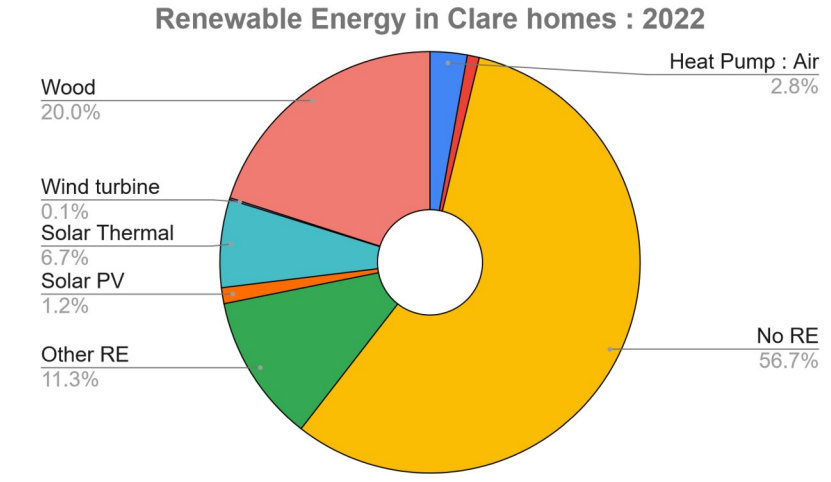


Figure 9: Renewable Energy in Clare homes, 2022

- 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)

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 can be seen here.

The main points to be taken from the survey are :

- 92 replies from 650 occupied homes. This is a constant issue with surveys of this type.
- Of the 92 replies, 89% were homeowners, the remaining 11% were renters
    - Given that 69% of homes in the EMP area are owner-occupied this means that 19% of owner-occupiers answered the 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.

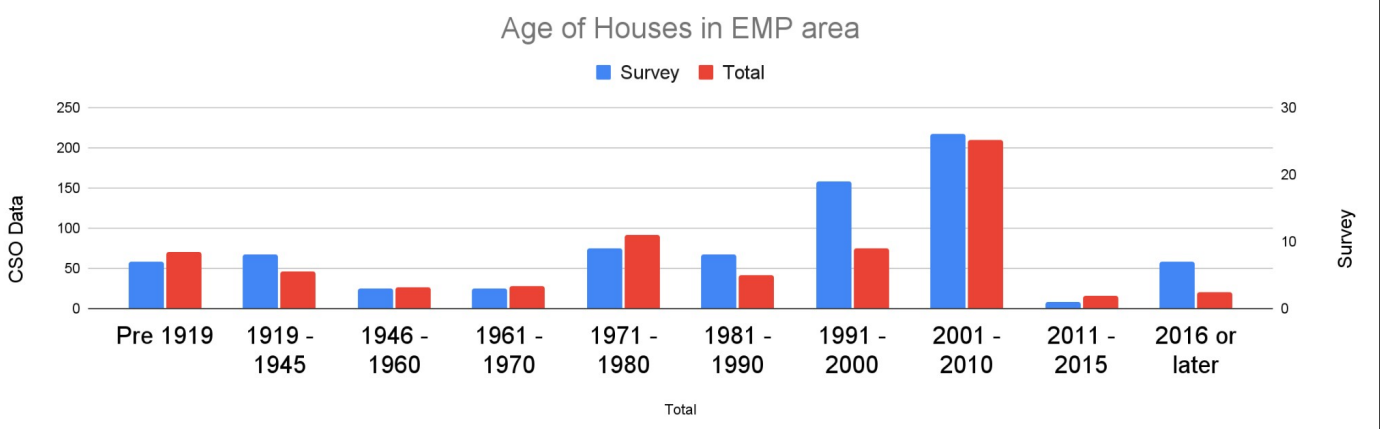


Figure 10: Age of Houses in EMP area

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 people to book a 30 minute slot in-person with CCEA in the Hall. Homeowners were free to ask any energy related questions.
- Different time slots were proposed and in total 24 slots were proposed during the months of May and June.
- Of the 24 slots proposed, 14 were taken up. It was noted that interest was very strong at first and then lapsed, potentially due to the need for further communication. This pattern has also been seen in other communities.
- 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. Overall Energy Figures

Table XX – Residential Performance Indicators				
Source	**Total number of Dwellings**	**% B2 rated or better**	**% of Fossil Fuel Heating Systems**	**% with Renewable Energy**
BER + CSO	640	9.6%	74%	41%

Table 3: Energy source by Sector

Sector	Electricity	Fossil Fuel	Renewable	Total
Residential	2707 MWh	7238 MWh	432 MWh	10377 MWh
Community	24 MWh	29 MWh		53 MWh
Transport	70 MWh	10213 MWh		10282 MWh
Total Energy	2801 MWh	17479 MWh	432 MWh	20712 MWh

Table 4: Energy related Cost and Emissions by source

	Electricity	Fossil Fuel	Renewable	Transport	Total
CO2 Emissions	933 tCO2	2166 tCO2	13 tCO2	2402 tCO2	5514 tCO2
Total Cost	€924,179	€1,209,077	€21,611	€1,650,754	€3,805,621

5.3. Analysis of Community Sector

5.3.1. The Community Hall

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

Potential actions and impact

Energy & Emissions

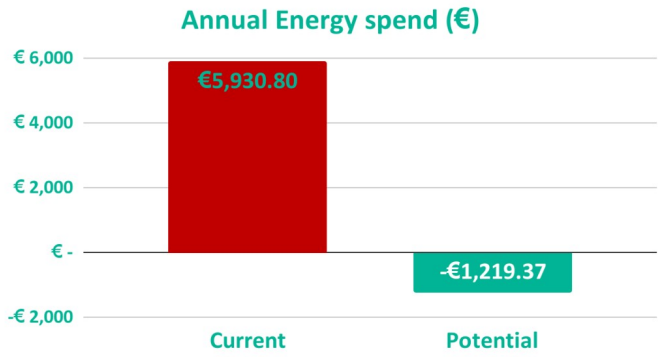


Figure 11: Current and Potential Energy spend in Community Hall

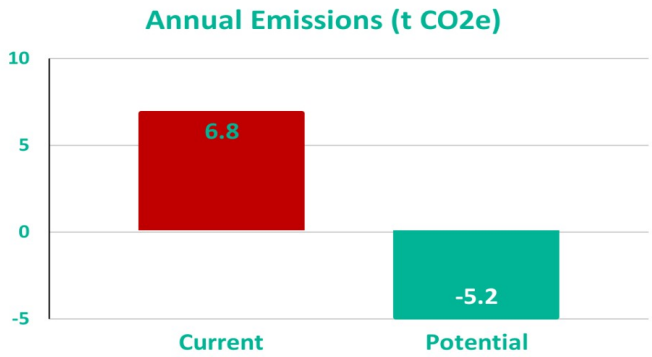


Figure 12: Current and Potential Emissions in Community Hall

Table 5: Recommended actions for Community Hall

Description	Energy saved (€)	Emissions reduction (t CO2e per year)	Cost of Action (€)	Payback period (years)	First Steps
Solar PV : Roof mounted	€5,046.42	7.2 tCO2e	€ 29,000	5.7 years	* Request Quotes * Apply on https://mgen.seai.ie
Replace Gas boilers by Air to Water heat pumps	€1,703.99	4.2 tCO2e	€ 15,000	8.8 years	* Engage with a Project Coordinator
Monitoring of electricity usage	€89.94	0.1 tCO2e	€ 300	3.3 years	* Engage with a Project Coordinator
Upgrade attic insulation & airtightness over office/meeting rooms	€309.82	0.5 tCO2e	€ 3,000	9.7 years	* Engage with a Project Coordinator
Total	**€7,150.17**	**12.0 tCO2e**	**€ 47,300**	**NA**	

Table 6: Current Energy baseline for Community Hall

Reference Period: 07/2023-06/2024				
Energy source	Annual Cost (€)	Annual Use (kWh)	Annual Emissions (t CO2e)	Information source
LPG	€ 2,581.80	16,355 kWh	3.8 tCO2e	Bill
Electricity - imported	€ 3,349.00	9,543 kWh	3.1 tCO2e	Bill
Total	€ 5,930.80	25,898 kWh	6.8 tCO2e	

Table 2a: Energy consumption on-site



Figure 13: Cost / Energy / Emission Breakdown for Community Hall

5.3.2. Corofin GAA Club

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

Potential actions and impact

Energy & Emissions

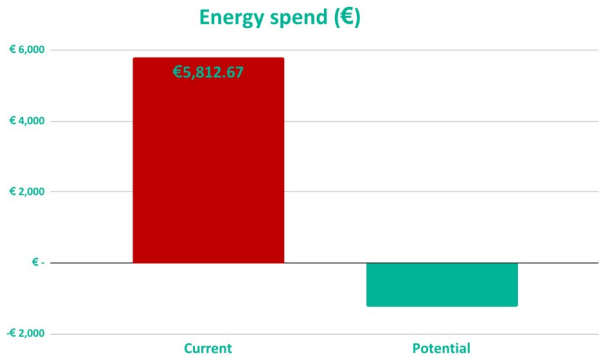


Figure 14: Current and Potential Energy spend in GAA Club

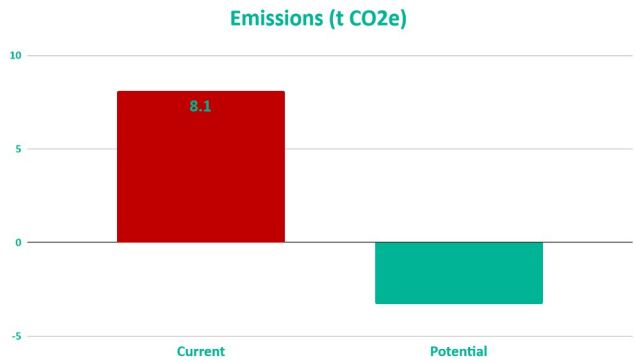


Figure 15: Current and Potential Energy spend in GAA Club

Recommended actions

Table 7: Recommended actions for GAA Club

Action	Energy saving per yr (€)	Emissions reduction per yr (t CO2e)	Cost of action (€)	Payback period (years)	First step
Solar PV : Roof mounted	€5,886	7.63	€29,000	4.9	* Request Quotes * Apply to SEAI
Replace Oil boilers by Air to Water heat pumps	€1,039	3.68	€15,000	14.4	* Engage with a Project Coordinator
Monitoring of electricity usage	€134	0.12	€500	3.7	* Engage with a Project Coordinator
Total	**€ 7,058**	**11.4**	**€ 44,500**		

Table 8: Current Energy Baseline for GAA Club

Reference Period: 07/2023-06/2024				
Energy source	Annual Cost (€)	Annual Use (kWh)	Annual Emissions (t CO2e)	Information source
Oil - Fuel Oil	€ 1,574.00	12,800 kWh	3.5 tCO2e	Bill
Electricity - imported	€ 4,238.67	14,206 kWh	4.6 tCO2e	Bill
Total	€ 5,812.67	27,006 kWh	8.1 tCO2e	

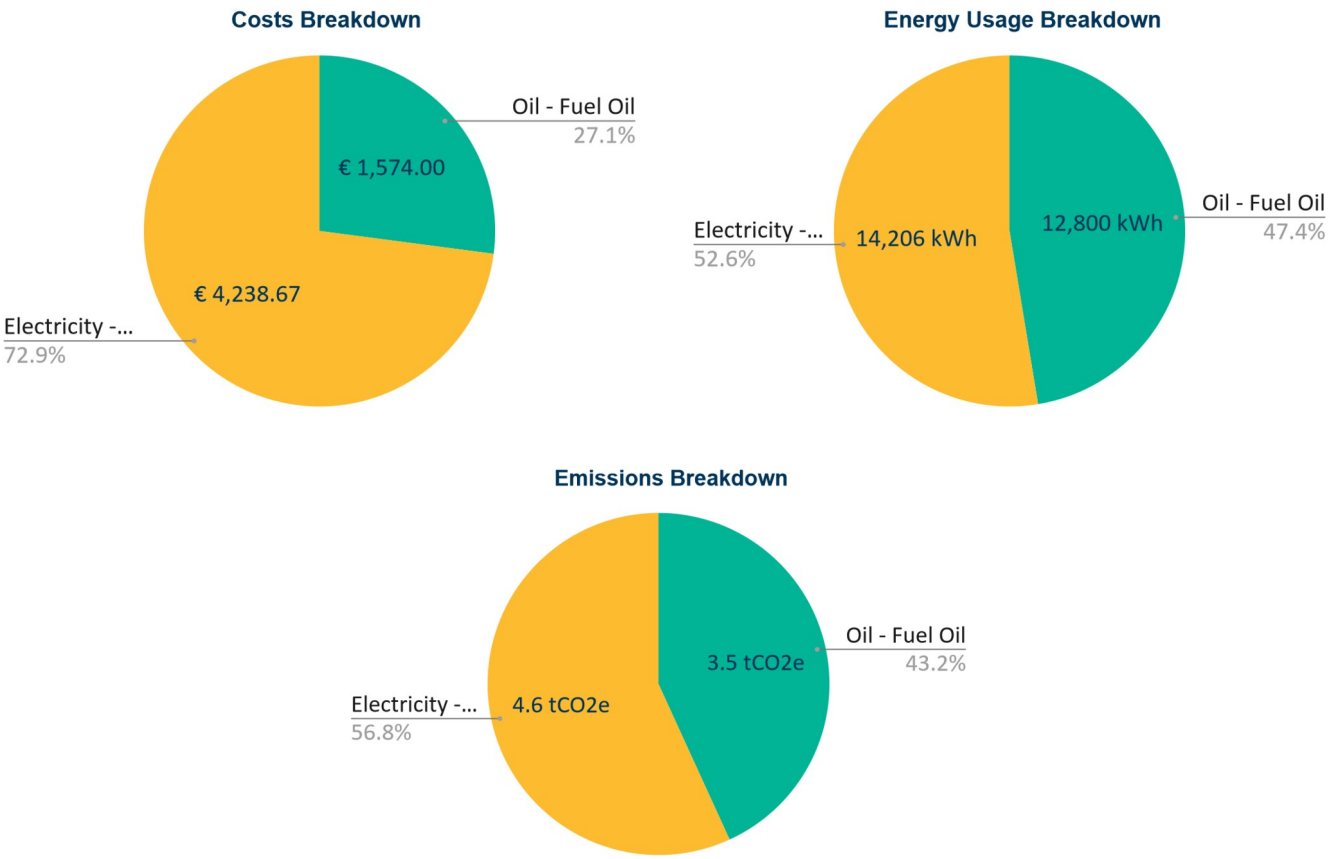


Figure 16: Costs, Energy and Emissions breakdown for GAA Club

5.4. 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.

5.4.1. Private Cars

Current CSO figures for the EMP area show the following in terms of car usage/ownership.

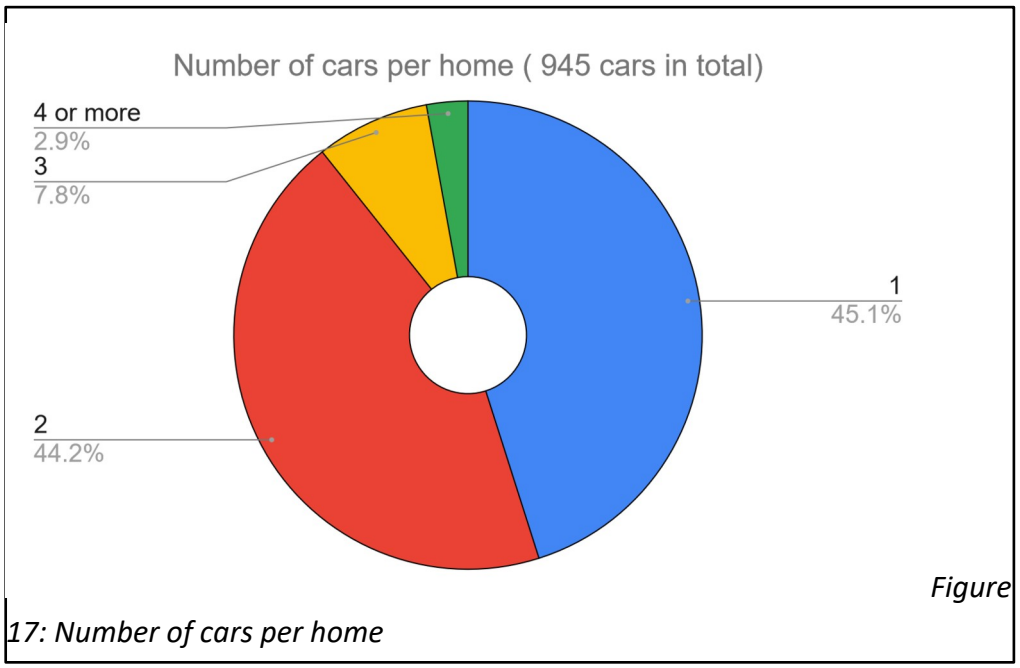


Figure 17: Number of cars per home

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. We will also assume the national breakdown of car-type (56.9% diesel, 42.7% petrol, 0.4% EV).

The local survey showed xxxxx EV's already in the parish so we will increase the EV share to 1.5% and decrease the others accordingly. It should be noted that there are no public EV charging points in the EMP area at the moment.

We will use the SEAI figures from the table below to calculate the related emissions and kWh used.

Table 9: Energy and emissions intensity of various forms of transport

Car type	National average annual km	kWh/km (TPER)	gCO2/km
Petrol	12,113	0.73	167
Diesel	19,681	0.70	167
EV	12,958	0.38 (Grid) or 0.15 (renewables)	65 (Grid) or 30 (renewables)
Bus Éireann		0.129	31
E-bike		0.009	2
Walk		0	0
Cycle		0	0

This gives a current transport baseline as follows

Table 10: Transport Baseline in Energy, emissions and cost

	Electricity	Fossil Fuel	Renewable	Total
Total Primary Energy (kWh)	69798	10212513	0	10282311 kWh
Total CO2 (tonnes)	11.9	2390.5		2402.5 tCO2
Total Spend (€)	€16,752	€1,634,002	0	€1,650,754

5.4.2. Public Transport

- There are a public bus lines, the 333, that serves Corofin on the Ennis-Kilkee route.
  - Full details are available on the Bus Eireann website.
- No data is available to indicate the level of usage on the line but it is noted that the timetable, as shown below, corresponds well with the work/school day, i.e. buses in the morning and evening.

Table 11: Partial Timetable for 333 bus route

ROUTE	333 SuO	333 SuX	333 SuX	333 M-F	333 SuO	333 SuX
Ennis (Bus Station)	10:00 P	11:00 P	14:00 P		16:00 P	17:00 P
Corofin (Clare)	10:20	11:22	14:22		16:20	17:24
Ennistymon (The Square) (Conways)	10:50	11:50	14:50	16:00 P	16:50	17:52
Lahinch	10:56	11:57	14:57	16:05	16:56	17:58
ARR.	11:00	12:00	15:00	16:05	17:00	18:00
DEP.						
Miltown Malbay (West Clare Pharmacy)	11:15	12:16	15:16	16:25	17:15	18:16
Doonbeg (Opposite Church)	11:44	12:47	15:47	17:05	17:44	18:48
ARR.	11:45	12:50	15:50	17:05 D	17:45	18:48 D
DEP.						
Kilkee (Clare) The Square	12:00 D	13:05 D	16:05 D		18:00 D	

LEGEND

P = Pick-up stop only.

D = Drop-off stop only.

SuX = Monday to Saturdays, not Public Holidays.

M-F = Monday to Fridays, not Public Holidays.

SuO = Sundays and Public Holidays.

- There are also Local Link lines, the C5 and the C11, that serve Corofin.
- Further details are available on the Local Link Website.

5.4.3. 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 facilites are provided.
- There are no secure or sheltered bike parking areas in the EMP area.
- There is no e-bike charging point in the EMP area

6. Sustainable Energy Roadmap

Table 12: Targets for Domestic Energy Upgrades

Type	Group	% houses to be upgraded	Num houses to be upgraded	Overall Energy Reduction per house	Reduction overall
Shallow	E-G	35.00%	54	40%	5.83%
Deep	E-G	55.00%	84	75%	17.16%
Shallow	C-D	35.00%	132	20%	3.55%
Deep	C-D	35.00%	132	50%	8.87%
Solar PV	All	50.00%	320		12.98%
Total Reduction in Emissions					**48.39%**

Table 13: Estimated costs of energy upgrades

Type of action	Current BER house type	% houses involved	Number of houses involved	Cost per Action type	% grant
Shallow	E-G	35.00%	30	€5000	75%
Deep	E-G	55.00%	48	€45000	35%
Shallow	C-D	35.00%	42	€5000	75%
Deep	C-D	35.00%	42	€25000	35%
Solar PV	All	50.00%	120	€9000	25%

Table 14: Current Energy & Emissions Scenario per sector

Sector	Electricity	Fossil Fuel	Renewable	Total	Emissions
Residential	2707 MWh	7238 MWh	432 MWh	10377 MWh	3101 tCO2
Community	24 MWh	29 MWh		53 MWh	17 tCO2
Transport	70 MWh	10213 MWh		10282 MWh	2402 tCO2
Total Energy	2801 MWh	17479 MWh	432 MWh	20712 MWh	5520 tCO2

Table 15: Target Energy & Emissions Scenario per sector in 2030

Sector	Electricity	Fossil Fuel	Renewable	Total	Emissions
Residential	1107 MWh	3736 MWh	2032 MWh	6875 MWh	1282 tCO2
Community	0	0	54.34	54 MWh	2 tCO2
Transport	2043 MWh	5106 MWh		7149 MWh	1719 tCO2
Total Energy	3150 MWh	8842 MWh	2087 MWh	14078 MWh	3003 tCO2
CO2 Emissions per fuel source	304 tCO2	2636 tCO2	63 tCO2	3003 tCO2	

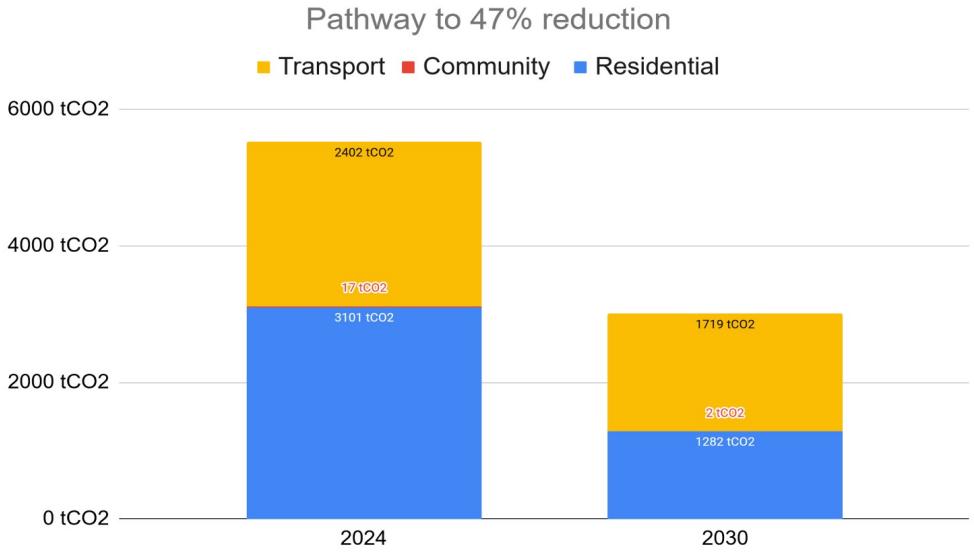


Figure 18: Changes per sector

7. Register of Opportunities

7.1. Summary of Register of Opportunities

- Residential Sector Actions
  - Specific focus on Fully Funded Energy Upgrades for energy-poor homes (potentially target of 128 home or more, i.e. 20% of homes)
  - Support energy upgrades of a further 30% of the homes of the EMP area (~320 homes) to bring to them to a B2 standard
  - Provide Energy Saving Kits
- Community
  - 50 kW Community Solar PV (1st phase)
  - Solar PV installation for Hall and GAA
  - Energy Monitoring in Hall and GAA
  - Community woodland/fruit forest
- Transport
  - Promote Public Transport
  - Promote Public EV charging point in Corofin.
  - Sheltered bike parking with e-bike charging
  - Promote future West Clare Greenway

7.2. Residential Sector Opportunities

7.2.1. Fully Funded Energy Upgrades (Warmer Homes Scheme)

There is an existing Warmer Homes scheme 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 16 below.

Table 16: 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 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.
- If we presume the same proportion applies to the EMP area (640 homes) then it would be expected that **128 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 **Dena McGrath** (managed by Meath County Council) who will come to the person's home and help them to make the application for the scheme
    - She can be contacted by e-mail at **healthyagefriendlyhomes@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 this scheme in the EMP area. Many people are not aware that the scheme exists.
    - There are leaflets available from the SEC mentor which could be distributed in local shops/pubs/garages etc. in order to raise awareness.
    - Alternatively, bespoke leaflets can be made using existing online resources such as these
    - **Senior citizen groups could be specifically targeted.**
    - SEC's will have to take into account the sensitivity required when communicating 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

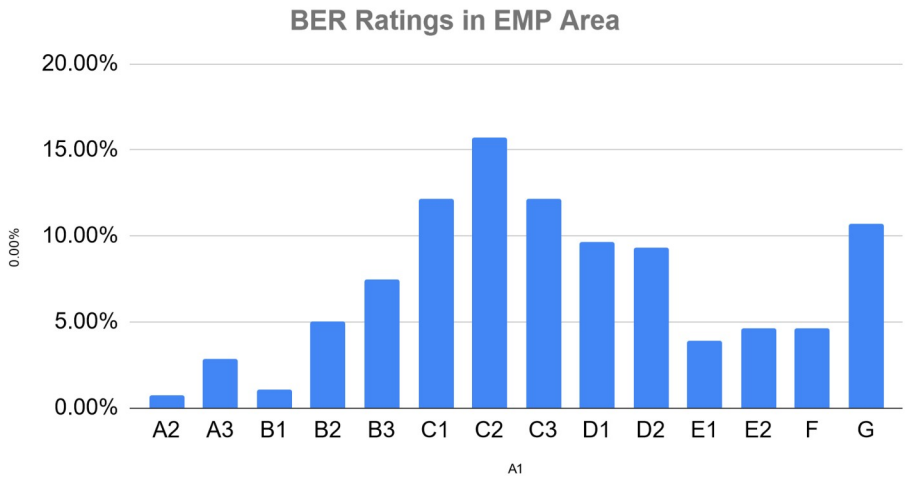
7.2.2. Support energy upgrades in 30% of other homes in the EMP area

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

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 , there are leaflets available through the SEC mentor or bespoke documents can be created.
- 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

7.2.3. Provide Energy Saving Kits

As part of the Energy Master Plan, Clare Community Energy Agency has made available two Energy Saving Kits to the SEC.

- The kit will be available free on loan via the Corofin National School.
- Homeowners will be asked to keep the kit for no more than 1 week so that others in the community can benefit from it.
- The SEC should keep track of feedback from homeowners and see over time if other equipment could be added to the kit.
- Note that a kit similar to these items is available via the Clare County Libraries

The Kit consist of two useful energy management tools

Table 17: Energy Saving Kit components

Thermal Loss Detector Tool	Electricity Monitor
	
The Thermal Loss Detector tool allows a homeowner to quickly identify where heat is being lost in the home. The "gun" shows the temperature of the object it is pointed at and can be quickly used to scan for cold spots on walls, windows, doors, electricity sockets etc.	The electricity monitor allows the homeowner to monitor the electricity usage of a specific appliance. Once the monitor is plugged into a socket, and the appliance is plugged intot he monitor, it will then record the electricity usage of the appliance until it is unplugged.

7.3. Community Sector Opportunities

7.3.1. Solar PV roof-installation for Hall and GAA and School

- As evidenced by both Energy Audits, the Hall and the GAA club would 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 as Community Centres Investment Fund or any Sports Capital Funds are available
- While the National School got a Solar PV installation in 2024, the system was limited in size to 6 kW. Potentially the system could be added to to provide further savings to the school.

7.3.1.1. SEC Actions

- Ensure that the Energy Audits are shared with the management of both the Hall and GAA Club
- Keep an eye out for funding opportunities that would make the project even more financially attractive
- Request pricing for the systems as specified in the Energy Audits from local/regional contractors in order to keep abreast of any price changes in the market
- 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.

https://www.seai.ie/publications/Community-Toolkit-Grid-Connection.pdf

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. Community Hall, GAA facilities or existing high-load premises e.g. dairy farm
    - 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/Tool for a map of 3-phase connections in Corofin village
    - 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 upcoming Small-Scale Renewable Electricity Support Scheme (SRESS) which is expected to come into operation 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

Figure 19: Feed In tariff for Community Solar

- 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

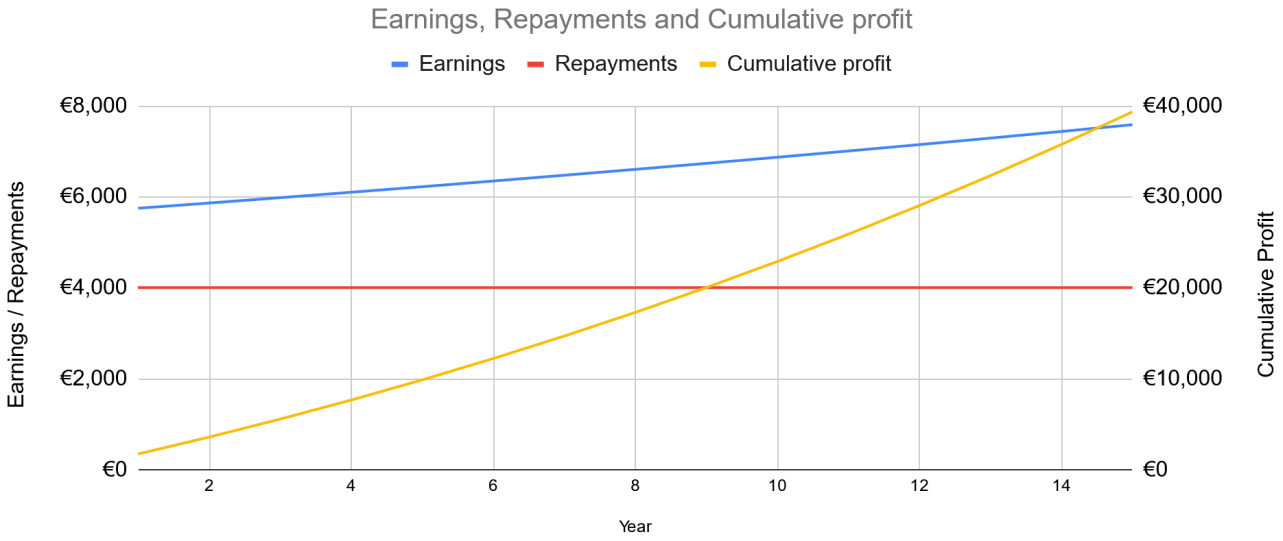


Figure 20: Estimated payback on 50 kW Community Solar project

7.3.2.1. ESB Network Capacity Map/Tool

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.

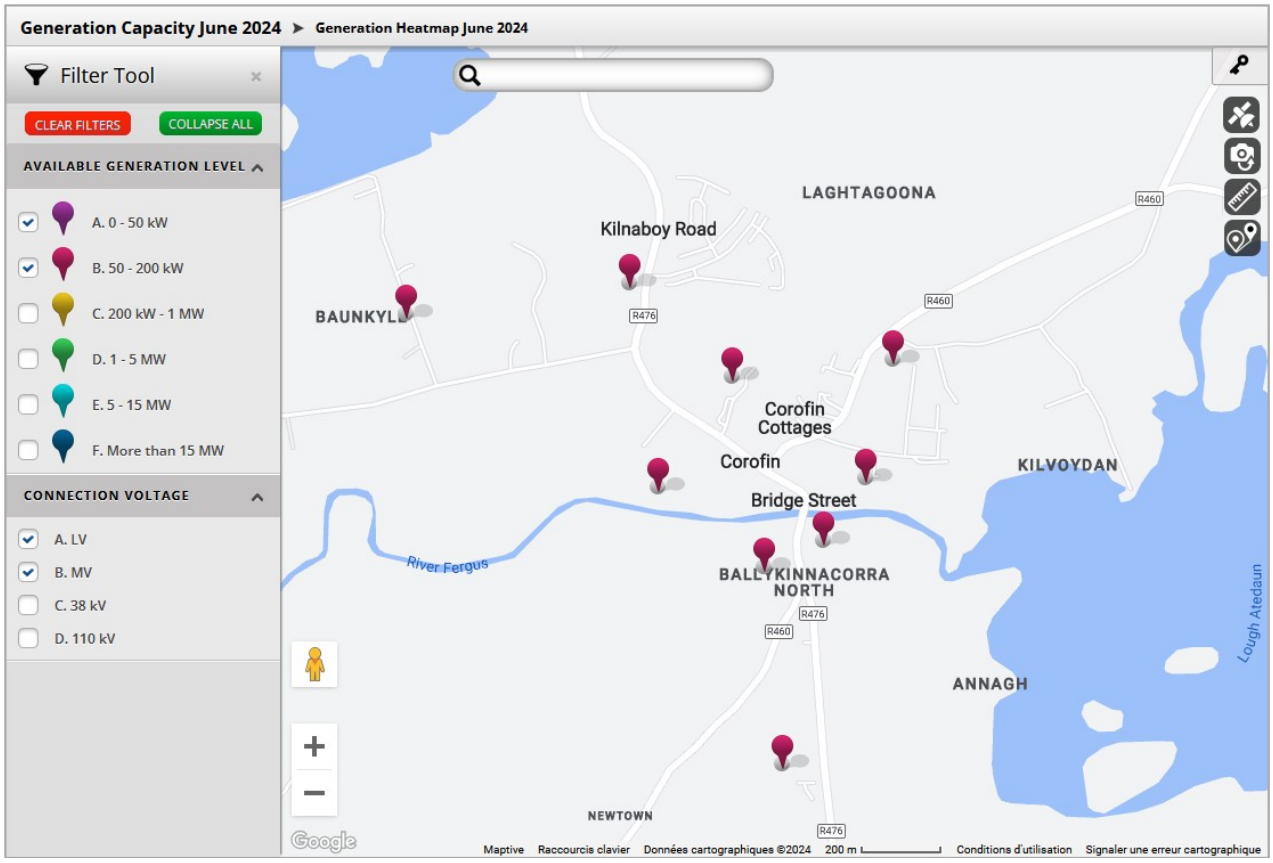


Figure 21: ESB Network capacity near Corifin

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 1000m2 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.
    - It is worth noting that the 15 year guaranteed rate makes an export-only project a lower risk option.

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 1000m2, a quarter of an acre.

7.4. Transport Sector Opportunities

7.4.1. Promote Public Transport

- As detailed in section 5.3.2, there are currently two bus lines serving Corofin, the 333 (see details on Bus Eireann website)
- The are no public timetables available in Corofin and there is no visible bus-stop

7.4.1.1. SEC Actions

- Create bespoke timetables from the Bus Eireann and Local Link websites listed about and make them available in locations in Corofin, e.g. the shops, bars, community groups
- Engage with your local politician to get a bus-stop in the village

7.4.2. Promoting EV uptake and a Public EV charging point in Corofin

- Government policy already strongly favours the uptake of EV's.
- The installation of one or more public EV charging points in Corofin is a recommended action.
- Corofin currently has no publicly accessible charging point and with the increase in EV's, used by both residents of the community and visitors, this lack of facilities should be remedied.
- The preferred location for EV chargers would be either at the community hall or the GAA club.
- The availability of EV chargers would serve to attract more people to visit Corofin and could also be used by the local community (e.g. during matches/training).
- 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 town.
- 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.

7.4.2.1. SEC Actions

- Contact one of the existing Charge Point Operators who are registered with SEAI.
    - The full list is available on this SEAI webpage.

7.4.3. Promote cycling and cycling tourism

- Corofin is located on a number of cycling routes and the popularity of e-bikes is growing.
- For shorter journey's, bicycles and e-bike are viable transport options and will become even more viable when the West Clare Greenway is completed.
- The growing popularity of e-bikes means that the availability of e-bike chargers will be come a factor in attracting e-bike tourists

7.4.3.1. SEC Actions

- Identify community funding to create sheltered bike parking
  - Ideally this would include e-bike charging
- Identify the various cycle routes that pass through Corofin and promote this information in local B&B's , café's, restaurants, shops etc.

7.4.4. Promote future West Clare Greenway

- Clare County Council has received funding to build a West Clare Greenway which largely follows the path of the historical West Clare Railway
- Details of the current state of the project can be seen on https://www.westclarerailwaygreenway.ie/
- At the moment the final decision on the route options concerning Corofin have not yet been taken. The Ennis to Ennistymon section is referred to as Section 2

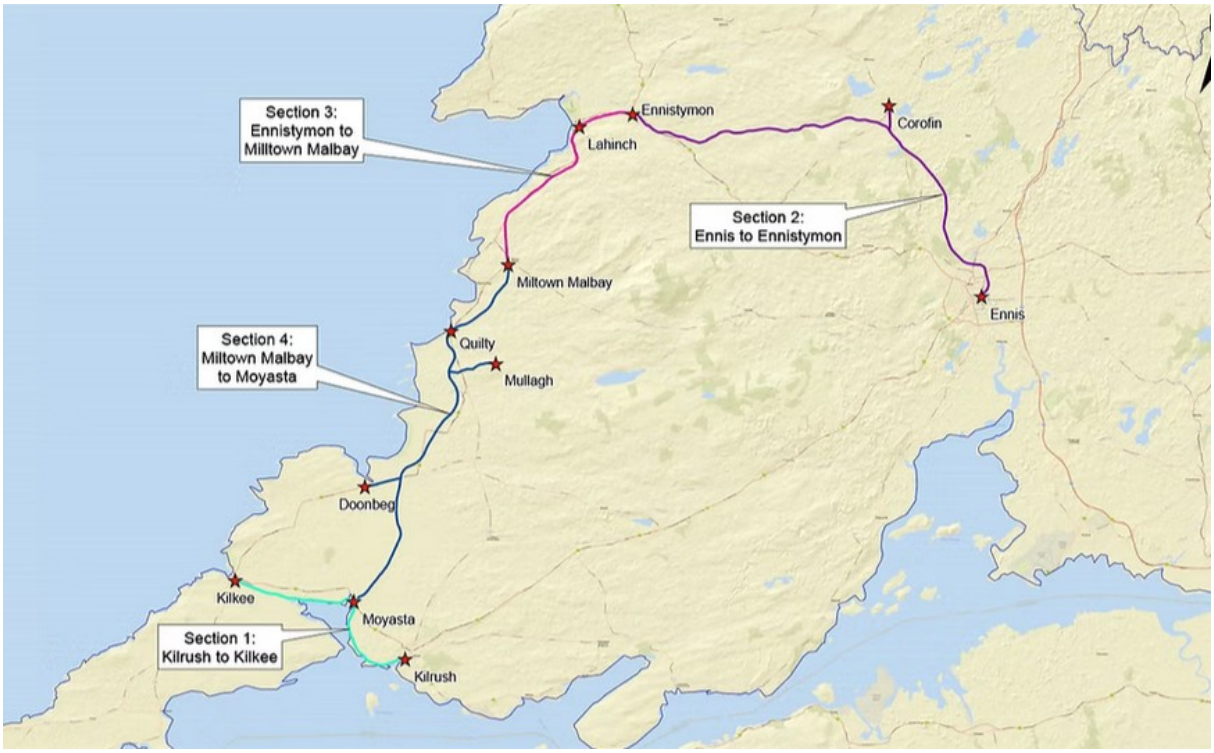


Figure 22: Different Sections of West Clare Greenway

- In the image below you can see there are a number of proposed options near Corofin and not all of them go through the town. (Extracted from this Clare County Council document)
- For the development of Corofin, it is imperative that the route passes through the town

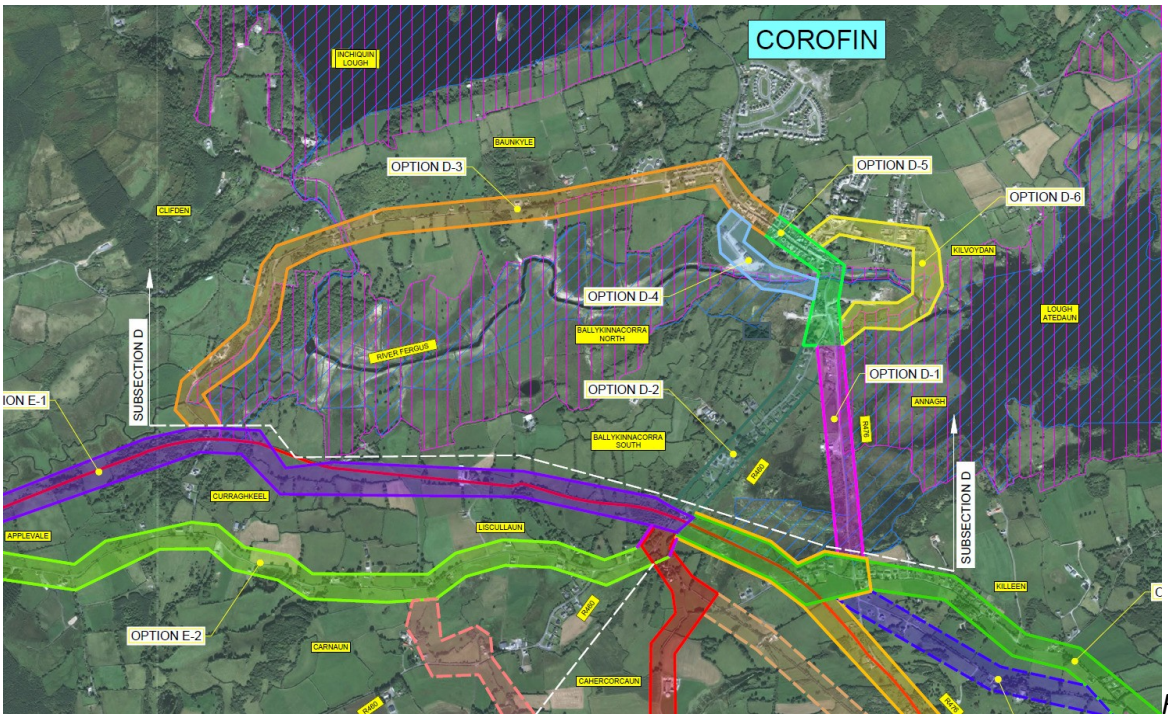


Figure 23: Options for routes of Greenway near Corofin

7.4.4.1. SEC Actions

- Contact Clare County Council to clarify the current state of the project
  - The website referenced above has not been updated since 2023 regarding the Corofin section.

8. Annexes

8.1. Annex 1 : Population calculation

- The area covered by the EMP is the two Electoral Districts of Corofin and Rath
- CSO data from table F1011 gives the population per Electoral Districts

Table 18: Population of EMP area

Statistic	Census Year	Electoral Divisions	Unit	Value
Population - 2022	2022	Corofin	Number	1362
Population - 2022	2022	Rath	Number	268
			Total	**1630**

8.2. Annex 2 : SEAI Grants

8.2.1. Grant Types

	Individual Energy Upgrade Grants	One Stop Shop Service	Fully Funded Energy Upgrade
Home energy assessment		✓	✓
Project management		✓	
Wall and roof insulation	✓	✓	✓
Floor insulation		✓	
Windows		✓	✓
Heating controls	✓	✓	✓
Heat pump	✓	✓	✓
Solar water heating	✓	✓	
Solar electricity	✓	✓	
Ventilation		✓	✓
BER assessment	✓	✓	✓

8.2.2. Individual Grant Amounts

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

Table 19: SEAI Grants for Individual energy upgrades

Grant name	Types of home	New Grant Value
Heat Pump Systems *Homes built and occupied before 2021*	• All Houses • Apartments	• €6,500 • €4,500
Heat Pump Air to Air *Homes built and occupied before 2021*		€3,500
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	• €800 • €1,200 • €1,300 • €1,500
Cavity wall insulation *Homes built and occupied before 2011*	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €700 • €800 • €1,200 • €1,700
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 4kWp • Total Solar PV grant capped at €1800	€1400 for 2kWp €1600 for 3kWp €1800 for 4kWp
BER		€50
Technical Assessment		€200

8.2.3. One Stop Shop Grants Amounts

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

Table 20: SEAI Grants for energy upgrades via One Stop Shop

Grant name	Types of home	Grant Value
Heat Pump Systems	• All Houses • Apartments	• €6,500 • €4,500
Central Heating System for Heat Pump	• All Houses • Apartments	• €2,000 • €1,000
Heat Pump Air to Air		€3,500
Heating Controls		€700
Heat Pump bonus		€2,000
Solar Hot Water		€1200
Attic insulation	• Apartment (any) • Mid-Terrace • Semi-detached or end of terrace • Detached house	• €800 • €1,200 • €1,300 • €1,500
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 • €800 • €1,200 • €1,700
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

8.2.4. Community Grants Amounts

The tables below are taken from this SEAI guidelines document (pages 47/48/49) which remains the final reference

Private Homes

Private Homes				
Measure	Detached	Semi-Detached / End Terrace	Mid Terrace	Apartm
Heat Pump	€6,500			€4,5
Central Heating System for Heat Pump	€2,000			€1,0
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	€80
Rafter Insulation	€3,000	€3,000	€2,000	€1,5
Cavity Wall Insulation	€1,700	€1,200	€800	€70
External Wall Insulation	€8,000	€6,000	€3,500	€3,0
Internal Wall Insulation	€4,500	€3,500	€2,000	€1,5
Windows (Complete Upgrade)	€4,000	€3,000	€1,800	€1,5
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			

Approved Housing Body Homes

	Approved Housing Body			
Measure	Detached	Semi-Detached / End Terrace	Mid Terrace	Apartme
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

Table 22: SEAI Grants for energy upgrades via Community Grants : AHB homes

Energy Poor Homes (CEG)

	Energy Poor Homes			
Measure	Detached	Semi-Detached / End Terrace	Mid Terrace	Apartr
Heat Pump	€6,500			€5,5
Central Heating System for Heat Pump	€2,000			€1,0
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	€80
Rafter Insulation	€3,500	€3,500	€3,000	€2,0
Cavity Wall Insulation	€1,700	€1,200	€800	€70
External Wall Insulation	€14,000	€11,000	€6,500	€4,5
Internal Wall Insulation	€9,500	€7,000	€4,500	€3,0
Windows (Complete Upgrade)	€5,000	€3,700	€2,200	€1,9
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			

8.3. Annex 3 : Online application form 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

8.4. Annex 4 : 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 CO2 that would have been generated from the burnign of an equivalent amoutn of LPG (bottled gas) can be calculated as follows :

To determine how much CO2 is released from the combustion of LPG (liquefied petroleum gas), we need to consider the composition of LPG and the CO2 emissions for the combustion of its main components, which are primarily propane (C3H8) and butane (C4H10).

1. **Combustion Equations and CO2 Emissions**:
    - **Propane**: C3H8+5O2→3CO2+4H2OC3H8+5O2→3CO2+4H2O Propane has an emission factor of about 3.0 kg CO2 per kg of propane combusted.
    - **Butane**: C4H10+6.5O2→4CO2+5H2OC4H10+6.5O2→4CO2+5H2O Butane has an emission factor of about 3.3 kg CO2 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 2.2 kWh**:

Mass of LPG=Energy requiredEnergy content of LPG per kgMass of LPG=Energy content of LPG per kgEnergy required

Mass of LPG=2.2 kWh13.6 kWh/kgMass of LPG=13.6 kWh/kg2.2 kWh Mass of LPG≈0.162 kgMass of LPG≈0.162 kg

4. **CO2 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

CO2 from propane = 0.0972 kg × 3.0 kg CO2/kg = 0.2916 kg CO2 CO2 from butane = 0.0648 kg × 3.3 kg CO2/kg = 0.2138 kg CO2

Total CO2 = 0.2916 kg + 0.2138 kg = **0.5054 kg** or 505.4 g

So, approximately 505.4 grams (or 0.5054 kg) of CO2 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 CO2**