2. Executive Summary

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

The development of the plan has been led by a steering group that includes representatives from the Connolly 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 Connolly parish as 778. (See Annex 9.1. Annex 1 : Population calculation)

Table 1: Baseline Energy Usage

Sector	Electricity	Fossil Fuel	Renewable	Total
Residential	1260 MWh	3369 MWh	201 MWh	4830 MWh
Community	0 MWh	0 MWh		0 MWh
Transport	34 MWh	5081 MWh		5116 MWh
Total Energy	1295 MWh	8450 MWh	201 MWh	9946 MWh

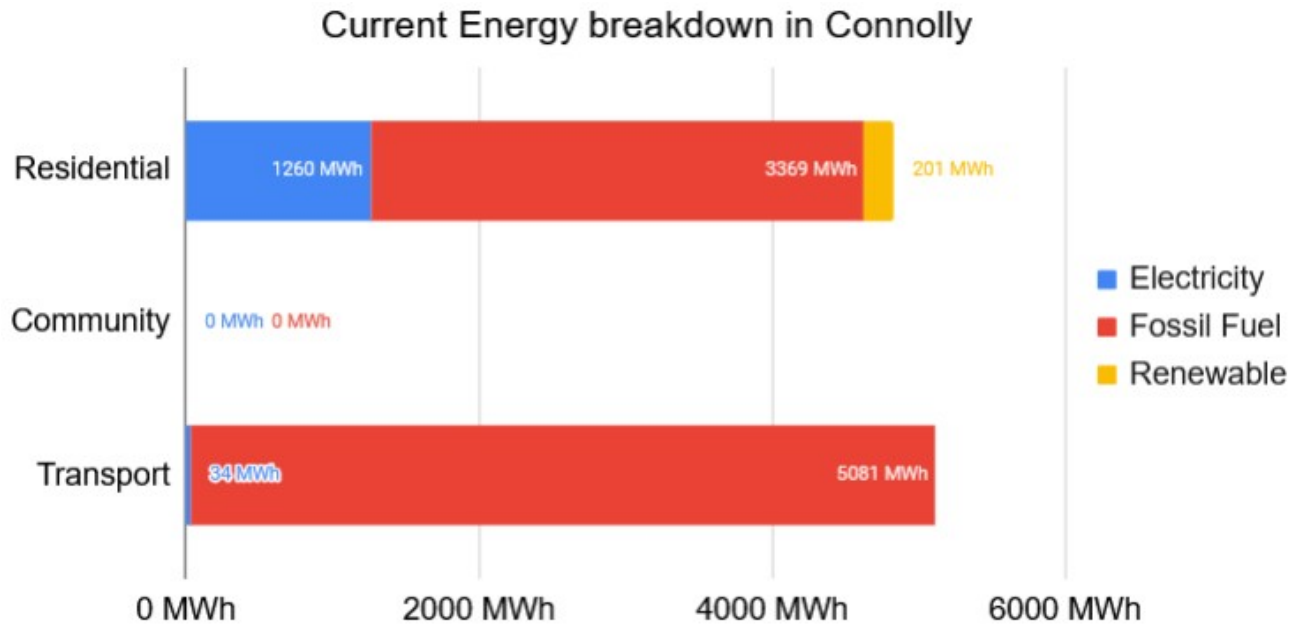


Figure 1: Annual energy usage in Connolly by sector and energy source

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

From the chart above we see that the residential sector and the transport sector are broadly equal in terms of energy usage.

The community sector, which is limited to the school in Connolly, is negligible by comparison.

Table 2: Baseline Emissions & Cost

	Electricity	Fossil Fuel	Renewable	Transport	Total
CO2 Emissions	431 tCO2	1004 tCO2	6 tCO2	1193 tCO2	2635 tCO2
Total Cost	€427,205	€570,205	€10,059	€821,288	€1,828,758

The following charts show the breakdown in emissions sources and total energy cost for Connolly.

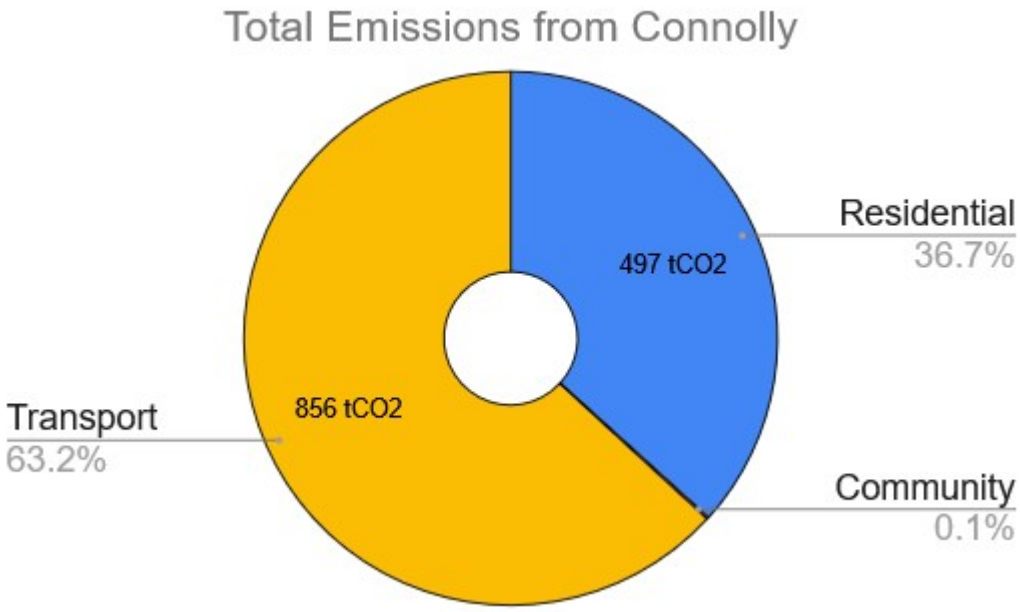


Figure 2: Total emissions breakdown for Connolly

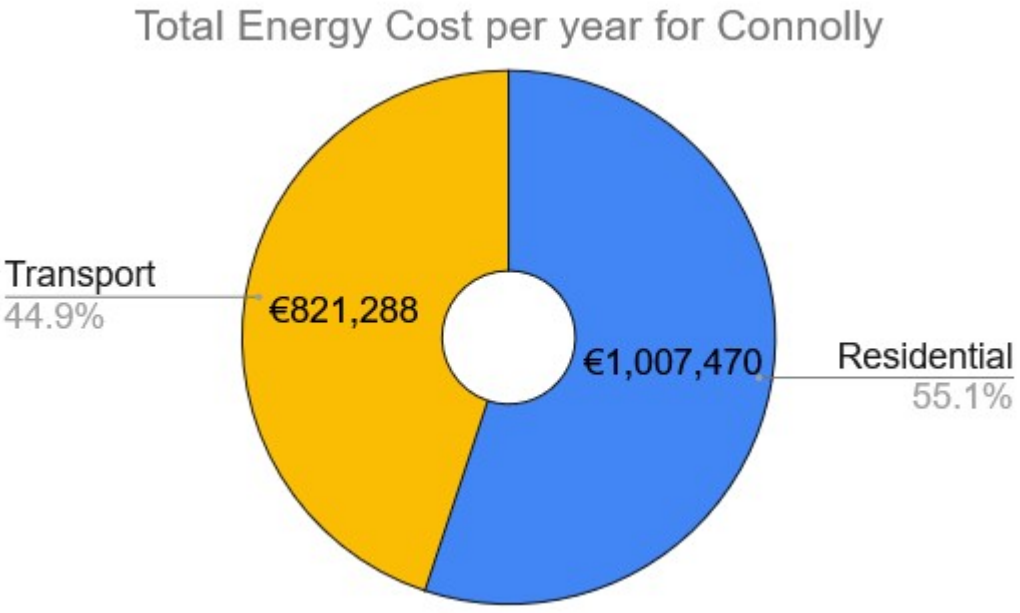


Figure 3: Total energy cost per year for Connolly

5. SEC Baseline Analysis

5.1. Analysis of Residential Sector

5.1.1. Summary of Residential Sector

- There are 360 homes in the Connolly parish, of which 289 are permanently occupied
- Oil is by far the most common residential heating fuel (71.1%)
- 40% homes already use at least one form of renewable energy
- 36% of houses in the community were built pre-1971
- The average estimated heating and electricity cost is €3613 per year
- The estimated annual household CO_2 emissions from heating and electricity is 5.1 tons
- €984,397 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 360 houses of which 62 are vacant and a further 9 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. 287) returned and others data sources will use the total number of houses (i.e. 360)

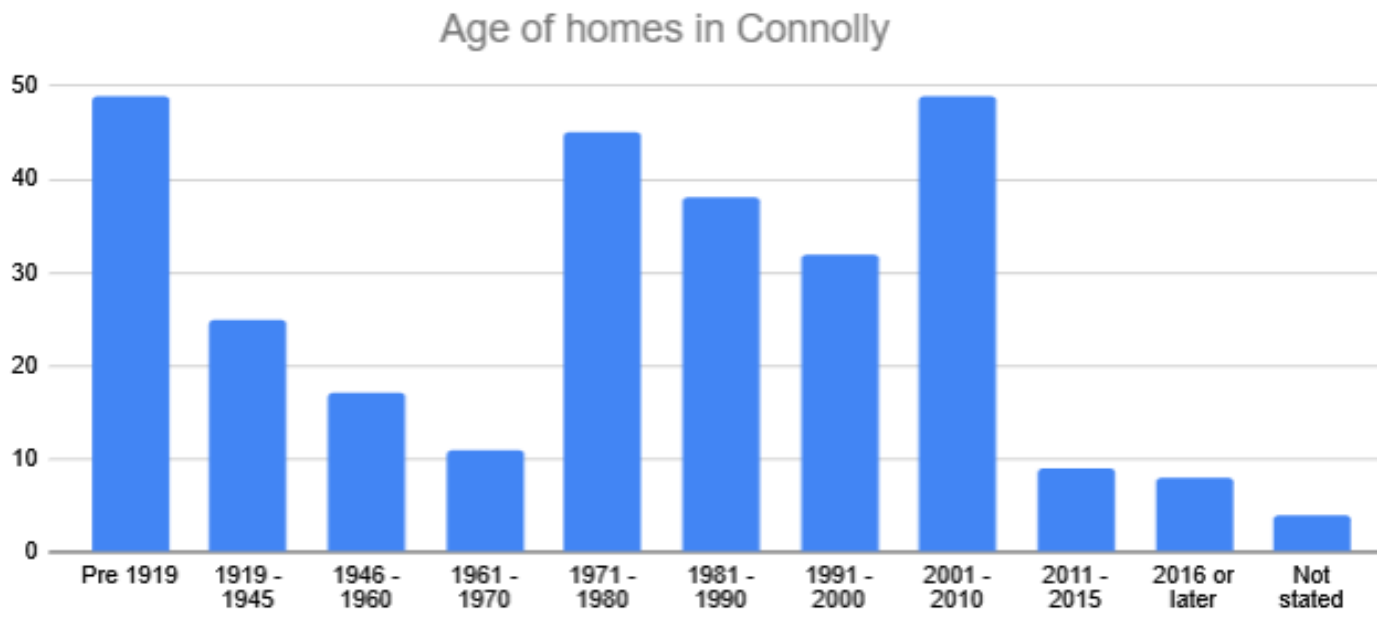
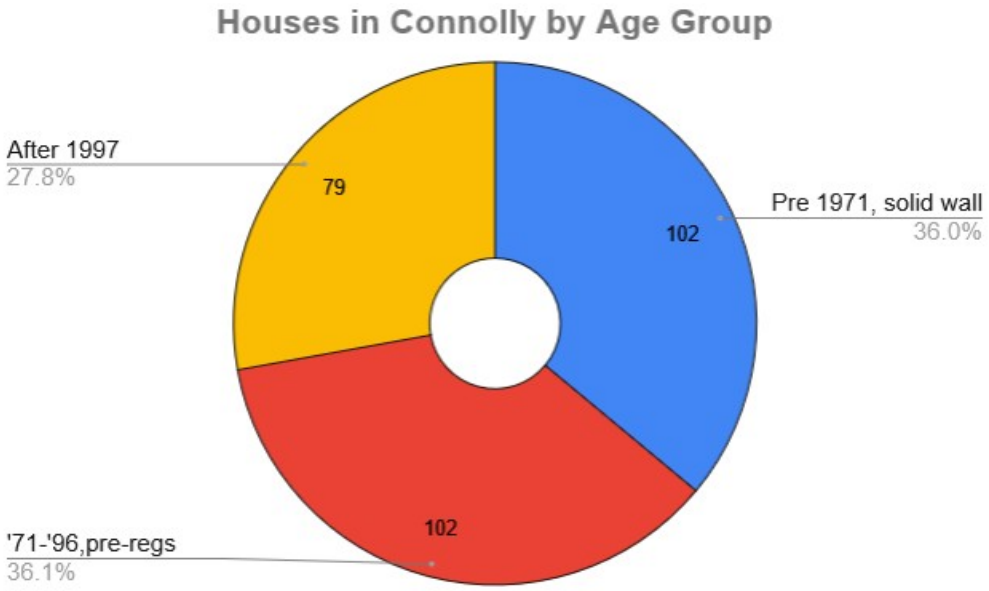


Figure 4: Age of homes in Connolly

In the chart below we see that a large number of houses were built during the Celtic Tiger era but it is also worth noting the relatively high number of houses that were built pre-1945.

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 that roughly equal number of houses were built in the periods pre-1971 and pre 1997 (before building regulations were introduced).



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 33% of homes in the EMP area have a BER rating so the table below does not necessarily reflect the entire EMP area.

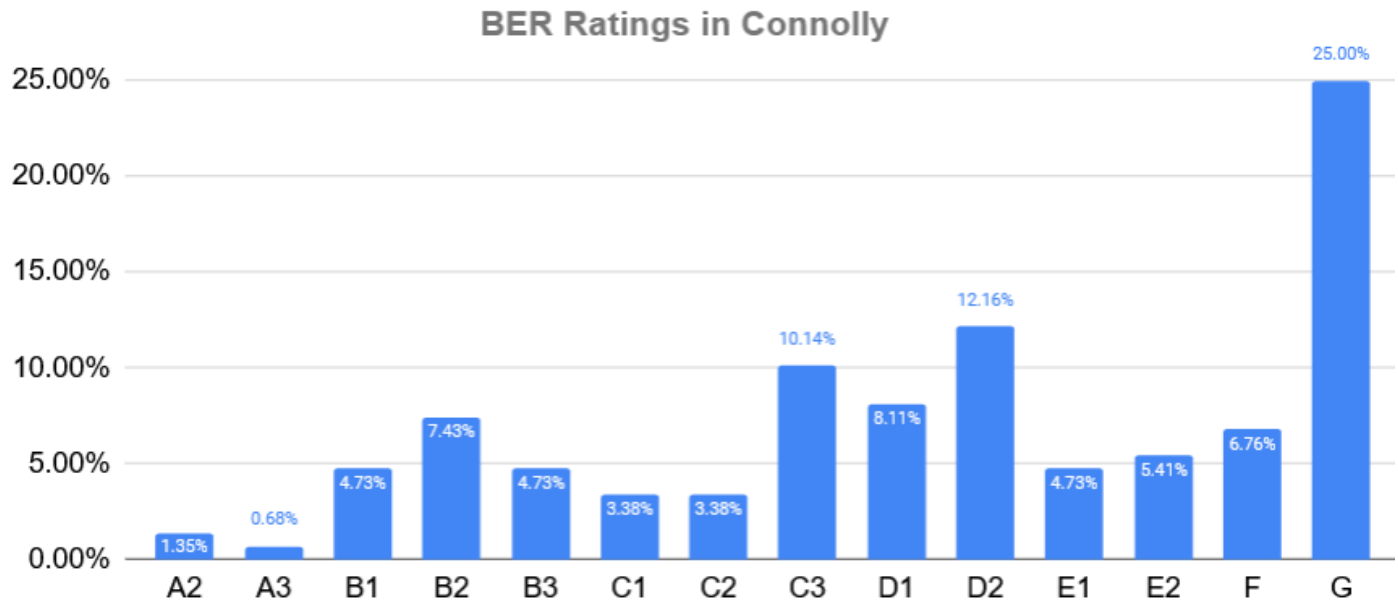


Figure 6: BER Ratings in Connolly Parish

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

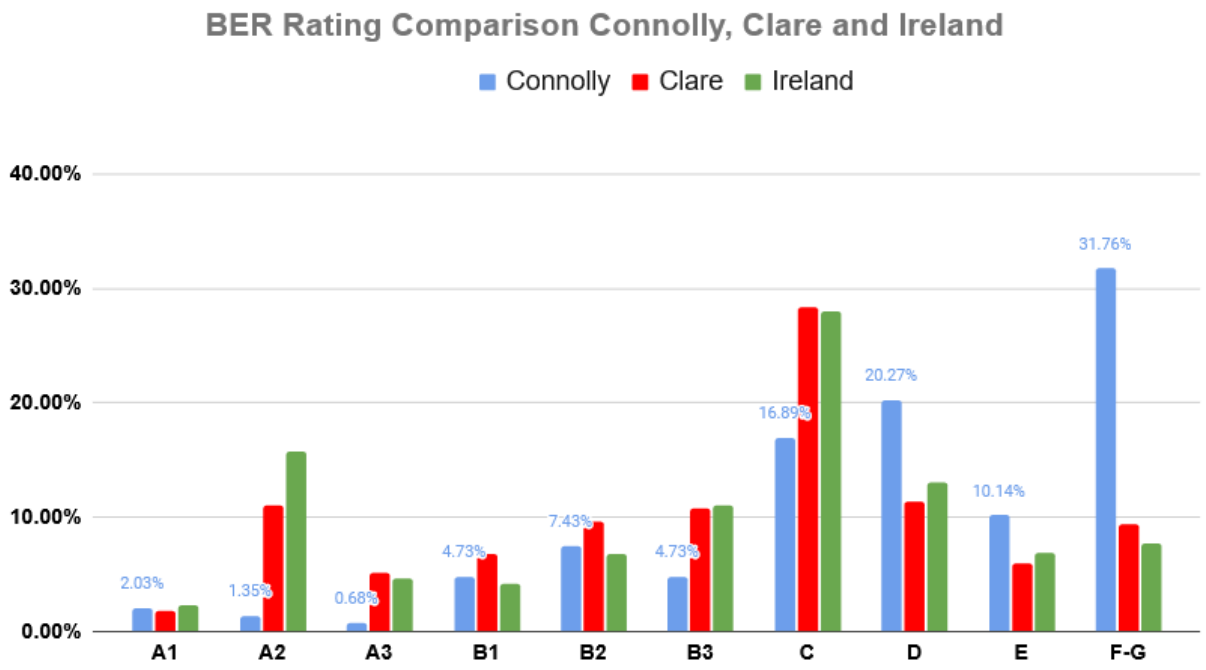


Figure 7: Comparison of BER in Connolly parish, Clare & Ireland

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 42% of the homes in the Connolly parish 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 41.9% 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.

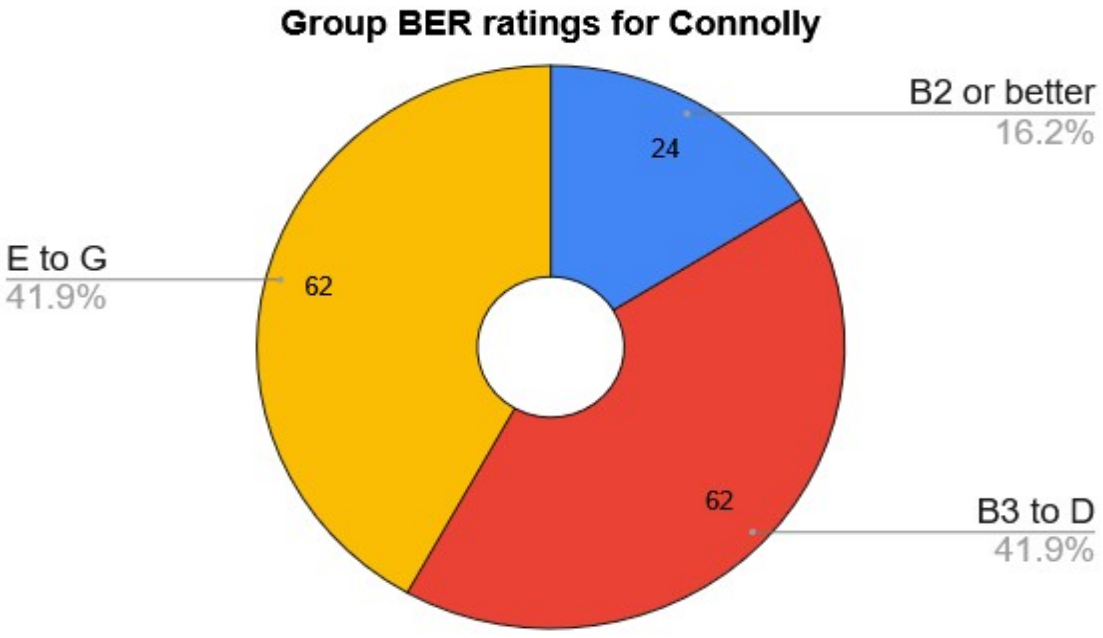


Figure 8: Grouping BER categories in the Connolly parish

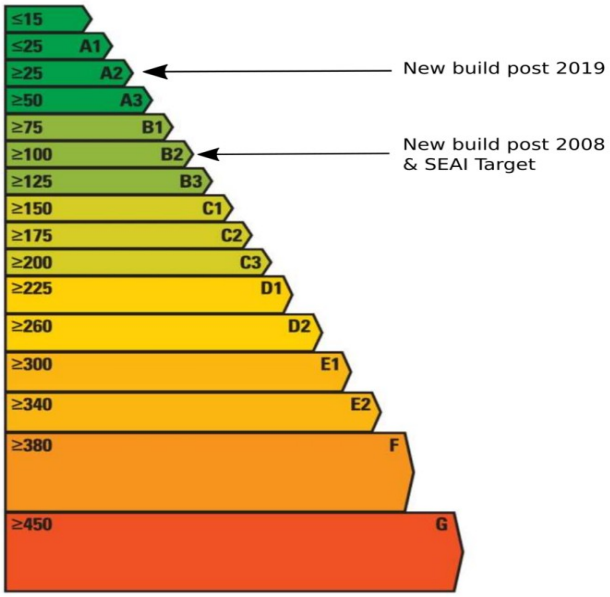


Figure 9: BER Ratings, full scale

5.1.3. Current Heating and Renewable Energy Sources in Connolly

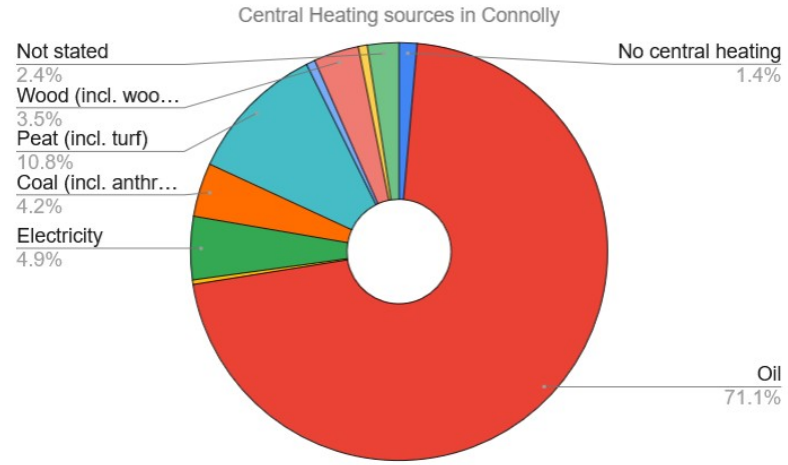


Figure 10: Energy used for central heating in Connolly parish, 2022

- Oil is the predominant source of heating (71.1%) which is a common feature across Ireland. All other heating fuels are relatively insignificant when compared to oil.

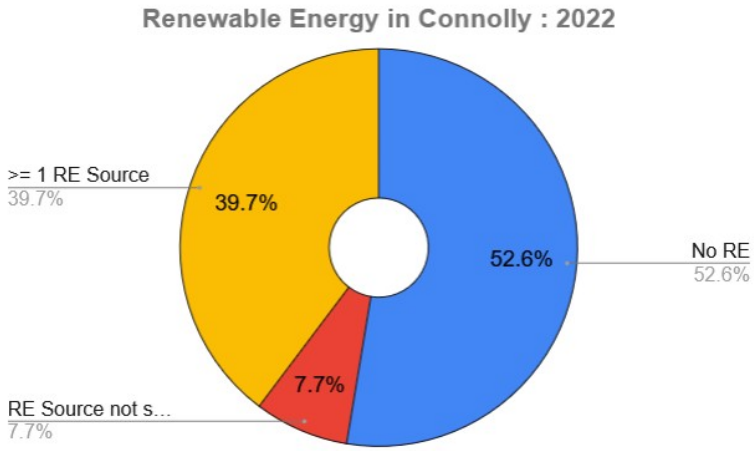


Figure 11: Renewable Energy in EMP area homes, 2022

- At least 46% 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 3 years.

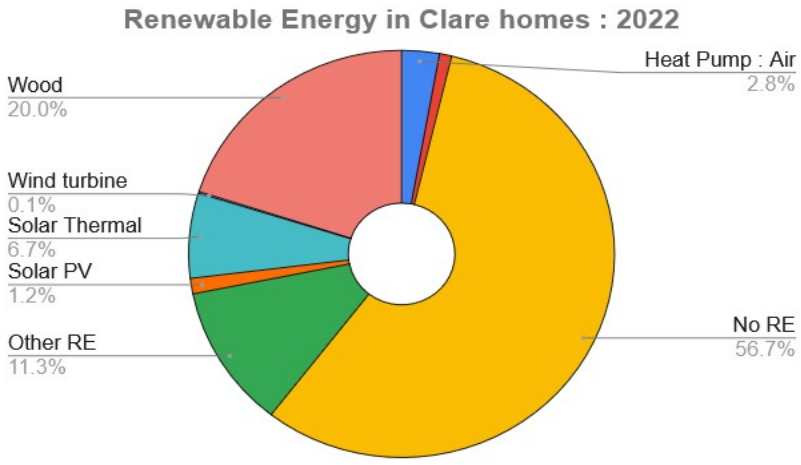


Figure 12: Renewable Energy in Clare Homes 2022

- 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)
- Note again that Solar PV and Heat Pumps are both underrepresented due to the large takeup since 2022

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 :

- 40 replies from 287 occupied homes. This is a constant issue with surveys of this type.
- Of the 40 replies, 100% were homeowners
  - Given that 89% of homes in Connolly are owner-occupied this means that 17% 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.

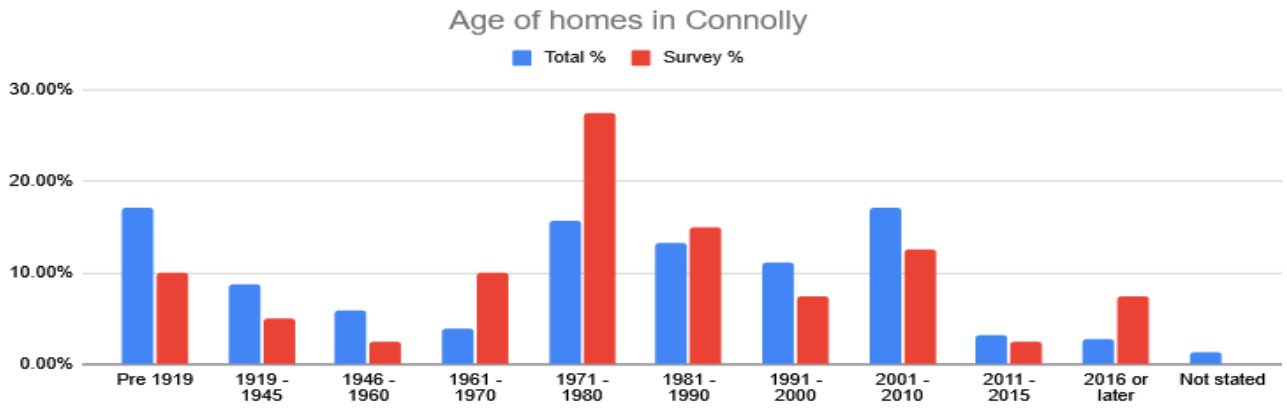


Figure 13: Comparing age of homes in survey responses to full parish

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 12 hours of clinics was divided by grouped clinics and visits to individual houses.
- The house visits were more focussed on the needs of the specific household while the group clinics were ona broader topic.
- 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 initial 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.

8. Annexes

8.1. Annex 1 : Population calculation

- The area covered by the EMP is included in 3 Small Areas
  - 037063001 in the Furroor Electoral Division
  - 037082002 in the Killanniv Electoral Division
  - 037105001 in the Kinturk Electoral Division
- CSO data from table F1011 gives the population per Electoral Districts

Table 19: Population of Connolly Parish

Unit	Population
037063001 / Furroor	180
037082002 / Killanniv	311
037105001 / Kinturk	287
Total Population	778

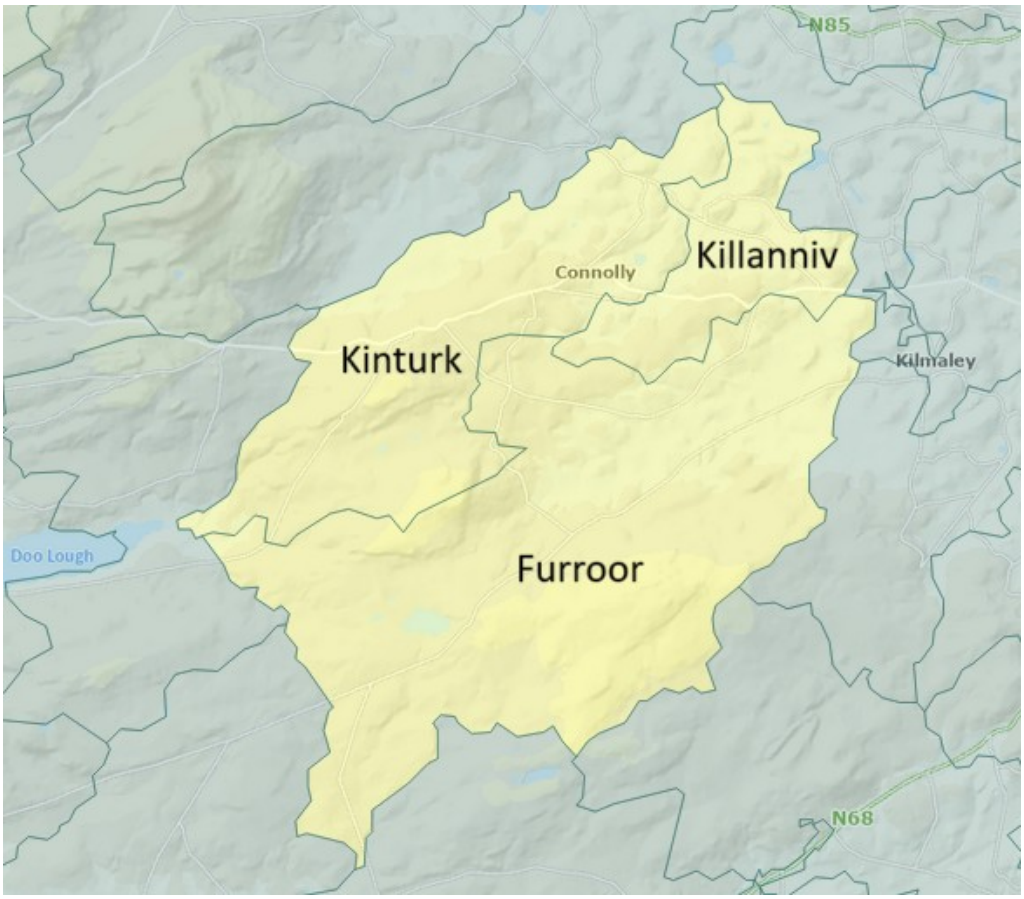


Figure 24: Small Areas / Electoral Divisions in the EMP