

2. Executive Summary

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

The development of the plan has been led by a steering group that includes representatives from the Ruan 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 SEAI¹ which give the population of Ruan parish as 665. (See Annex [9.1. Annex 1 : Population calculation](#))

Table 1: Baseline Energy Usage

Sector	Electricity	Fossil Fuel	Renewable	Total
Residential	1242 MWh	3321 MWh	198 MWh	4762 MWh
Community	58 MWh	95 MWh		153 MWh
Transport	35 MWh	5179 MWh		5214 MWh
Total Energy	1335 MWh	8596 MWh	198 MWh	10130 MWh

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

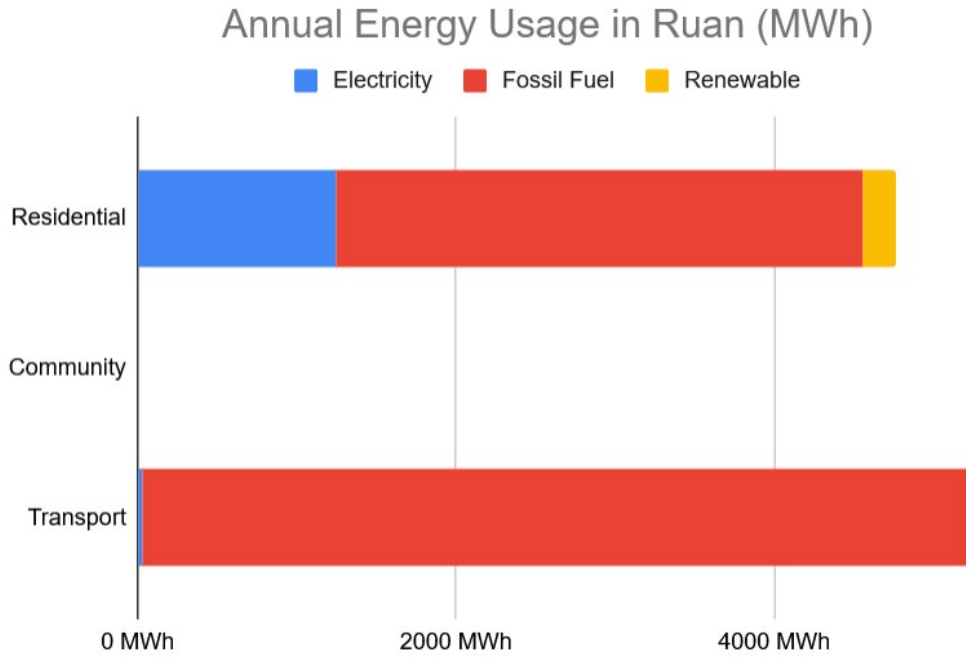


Figure 1: Annual energy usage in Ruan by sector and energy source

Table 2: Baseline Emissions & Cost

	Electricity	Fossil Fuel	Renewable	Transport	Total
CO2 Emissions	425 tCO2	990 tCO2	6 tCO2	1216 tCO2	2638 tCO2
Total Cost	€421,545	€552,935	€9,917	€837,116	€1,821,513

5. SEC Baseline Analysis

5.1. Analysis of Residential Sector

5.1.1. Summary of Residential Sector

- There are 311 homes in the Ruan parish, of which 283 are permanently occupied
- Oil is by far the most common residential heating fuel (71.7%)
- 46% homes already use at least one form of renewable energy
- 22.6% of houses in the community were built pre-1971
- The average estimated heating and electricity cost is €3478 per year
- The estimated annual household CO₂ 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 311 houses of which 21 are vacant and a further 7 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. 276) returned and others data sources will use the total number of houses (i.e. 311)

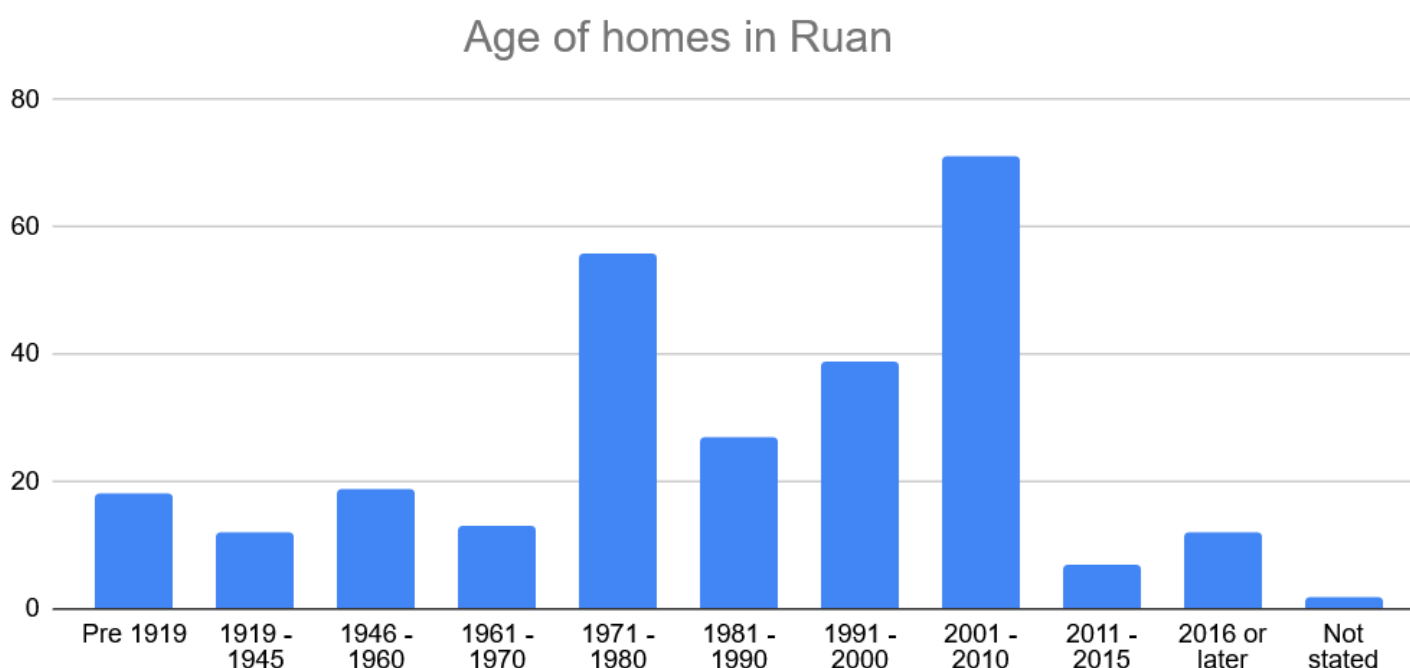


Figure 2: Age of homes in Ruan

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-1919.

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 post 1997 (after building regulations were introduced).

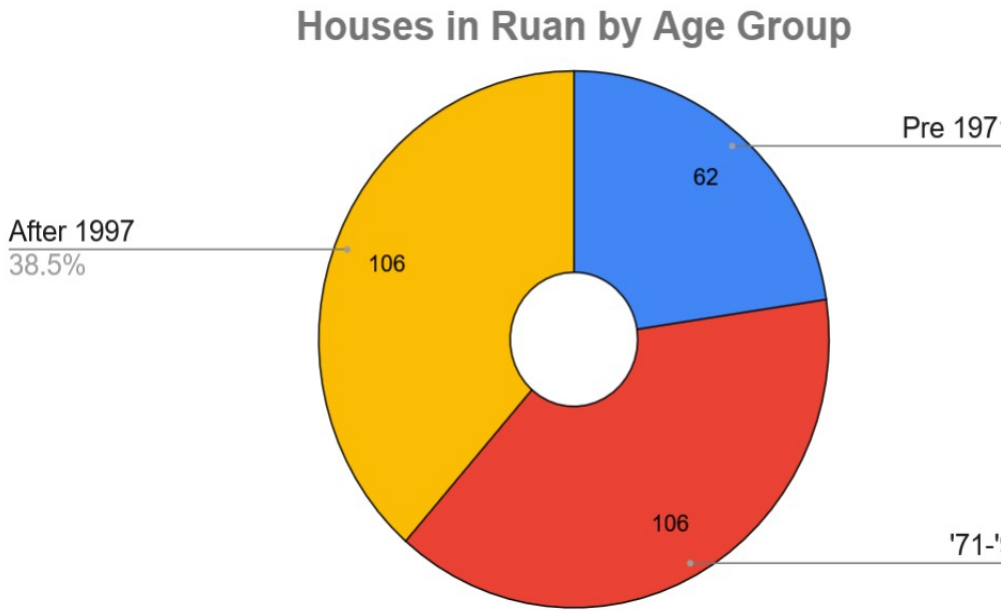


Figure 3: Houses in Ruan by age group

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 49% of homes in the EMP area have a BER rating so the table below does not necessarily reflect the entire EMP area.

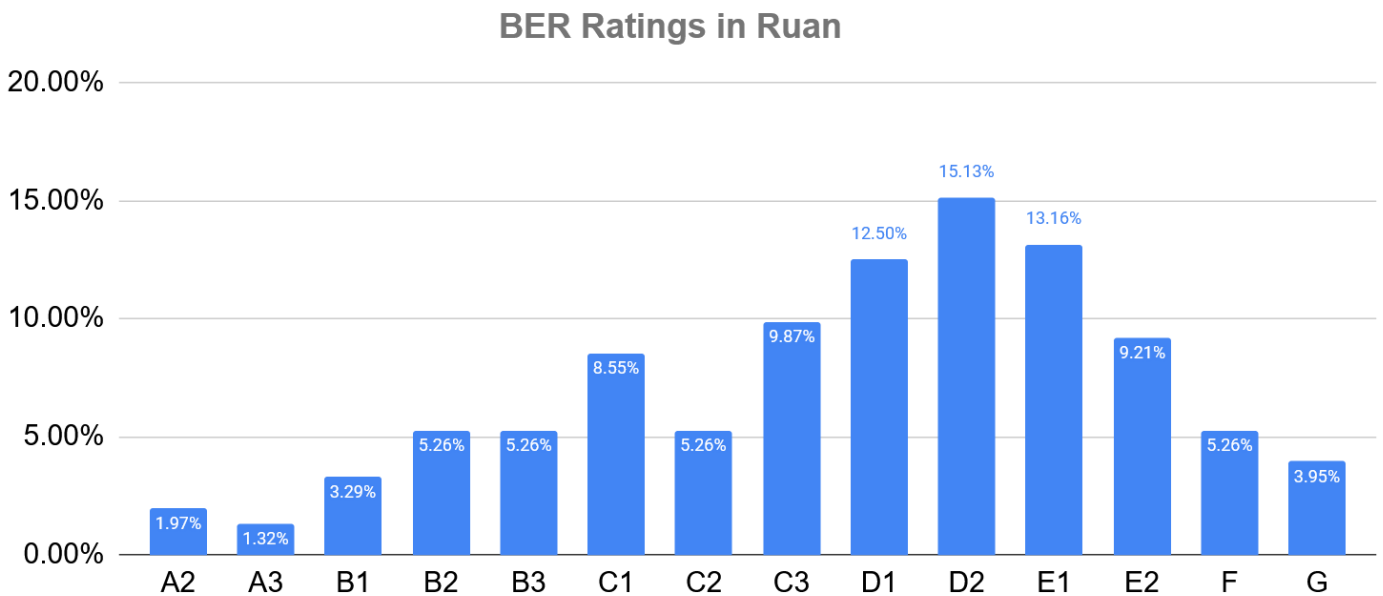


Figure 4: BER Ratings in Ruan Parish

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

BER Rating Comparison Ruan, Clare and Ireland

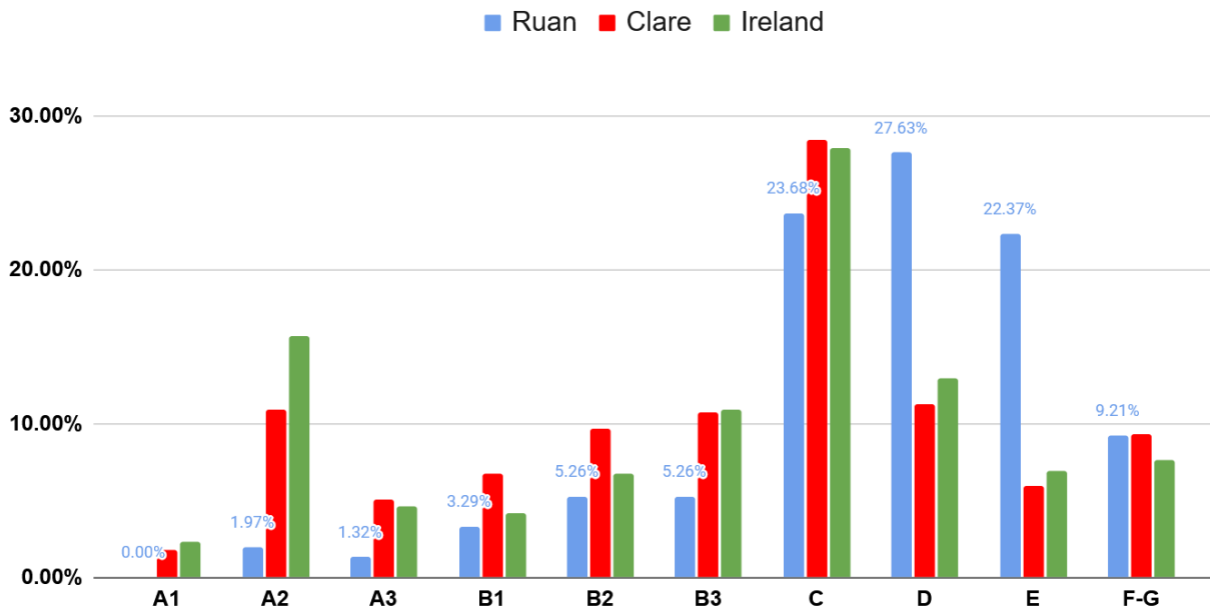


Figure 5: Comparison of BER in Ruan parish, Clare & Ireland

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 over half (56.6%) of the homes in the Ruan 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 31.6% of homes in the EMP area are in the E-G zone. The greatest overall energy/cost/emission savings could be made by focussing on this zone.

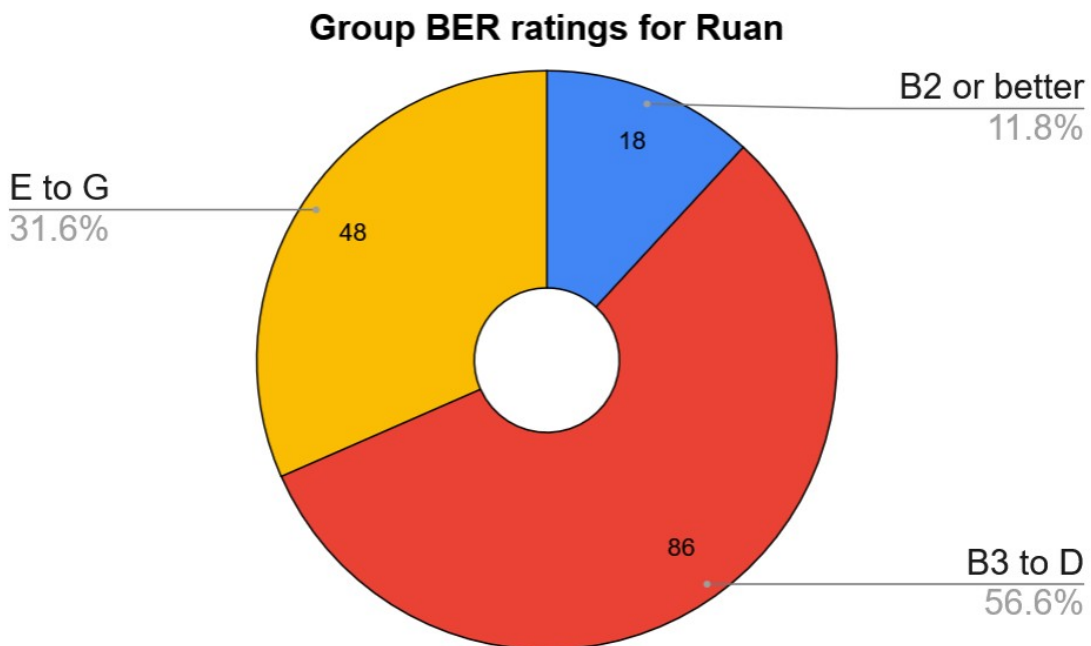


Figure 6: Grouping BER categories in the Ruan parish

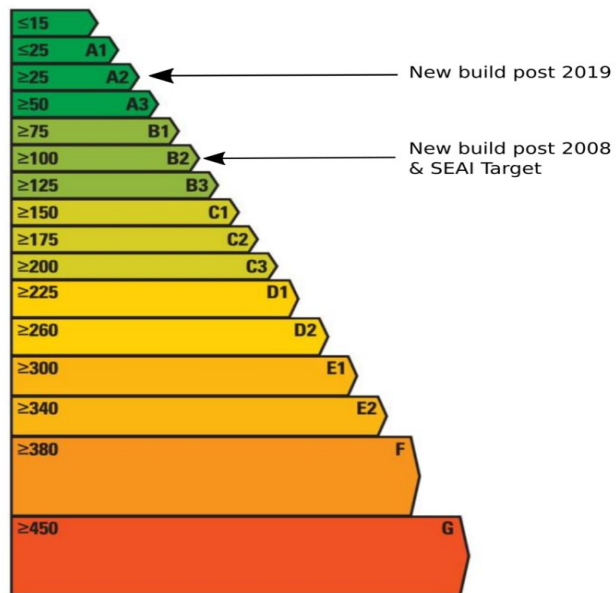


Figure 7: BER Ratings, full scale

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

<p style="text-align: center;">Central Heating sources in Ruan</p> <table border="1"> <thead> <tr> <th>Source</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Oil</td> <td>71.7%</td> </tr> <tr> <td>No central heating</td> <td>0.7%</td> </tr> <tr> <td>Electricity</td> <td>5.1%</td> </tr> <tr> <td>Coal (incl. a...)</td> <td>5.1%</td> </tr> <tr> <td>Wood (incl....)</td> <td>5.4%</td> </tr> <tr> <td>Peat (incl. turf)</td> <td>2.5%</td> </tr> <tr> <td>Not stated</td> <td>5.8%</td> </tr> </tbody> </table> <p style="text-align: center;">Figure 8: Energy used for central heating in Ruan parish, 2022</p>	Source	Percentage	Oil	71.7%	No central heating	0.7%	Electricity	5.1%	Coal (incl. a...)	5.1%	Wood (incl....)	5.4%	Peat (incl. turf)	2.5%	Not stated	5.8%	<ul style="list-style-type: none"> ● Oil is the predominant source of heating (71.7%) which is a common feature across Ireland. All other heating fuels are relatively insignificant when compared to oil.
Source	Percentage																
Oil	71.7%																
No central heating	0.7%																
Electricity	5.1%																
Coal (incl. a...)	5.1%																
Wood (incl....)	5.4%																
Peat (incl. turf)	2.5%																
Not stated	5.8%																
<p style="text-align: center;">Renewable Energy in Ruan homes : 2022</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>>1 RE Source</td> <td>46.0%</td> </tr> <tr> <td>No RE</td> <td>43.8%</td> </tr> <tr> <td>RE Source...</td> <td>10.1%</td> </tr> </tbody> </table> <p style="text-align: center;">Figure 9: Renewable Energy in EMP area homes, 2022</p>	Category	Percentage	>1 RE Source	46.0%	No RE	43.8%	RE Source...	10.1%	<ul style="list-style-type: none"> ● 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. 								
Category	Percentage																
>1 RE Source	46.0%																
No RE	43.8%																
RE Source...	10.1%																
<p style="text-align: center;">Renewable Energy in Clare homes : 2022</p> <table border="1"> <thead> <tr> <th>Source</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>No RE</td> <td>56.7%</td> </tr> <tr> <td>Wood</td> <td>20.0%</td> </tr> <tr> <td>Other RE</td> <td>11.3%</td> </tr> <tr> <td>Solar Thermal</td> <td>6.7%</td> </tr> <tr> <td>Heat Pump : Air</td> <td>2.8%</td> </tr> <tr> <td>Solar PV</td> <td>1.2%</td> </tr> <tr> <td>Wind turbine</td> <td>0.1%</td> </tr> </tbody> </table> <p style="text-align: center;">Figure 10: Renewable Energy in Clare Homes, 2022</p>	Source	Percentage	No RE	56.7%	Wood	20.0%	Other RE	11.3%	Solar Thermal	6.7%	Heat Pump : Air	2.8%	Solar PV	1.2%	Wind turbine	0.1%	<ul style="list-style-type: none"> ● 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)
Source	Percentage																
No RE	56.7%																
Wood	20.0%																
Other RE	11.3%																
Solar Thermal	6.7%																
Heat Pump : Air	2.8%																
Solar PV	1.2%																
Wind turbine	0.1%																