

YOUGHAL ENERGY AUDIT



YOUGHAL
BLUE & GREEN
Community Network

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Supported by



Youghal SEC Energy Audit

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Youghal SEC Energy Audit

Youghal profile

Youghal is a seaside resort town in County Cork and is the most easterly town in the county. In physical terms, Youghal is built into the hillside overlooking the harbour, which is at the confluence of the River Blackwater and Youghal Bay.

Youghal is designated as an Irish Heritage Town and is one of the few towns in Ireland where the medieval town walls still survive. As of the 2016 census, the population for Youghal was 7,963, with plans to grow the population to 9,635 in the coming years.

Youghal has a rich history and a wealth of natural, built and archaeological heritage. The first known reference to Youghal is the establishment of a baronial town by the Anglo-Normans in the 13th century. Perhaps Youghal's most famous historical resident was Sir Walter Raleigh who lived in the town for 17 years. He was gifted a house and 40,000 acres of land by Queen Elizabeth and changed the course of Irish history by introducing the potato and tobacco to the island.

The focal point of Youghal is still its original 16th century town centre, with the old walls and many of the building stock from the past four centuries still surviving in the town. A clear hierarchy of streets and spaces exists within the town, with the interspersed medieval buildings contributing considerable character, interest and cultural significance.

Youghal benefits from its compact form with a tight urban network of streets, lanes and pathways that provide an excellent pedestrian environment. There are a number of residential properties within the centre of the town, both along the main streets and in back land areas which enhance its sense of community.

As already referenced, Youghal is an attractive tourist destination due to its proximity to a number of beaches, the waterfront area and the town's iconic red sandstone-coloured buildings, which help create a visually pleasing townscape. One of the biggest initiatives for the town in recent times has been the development of the Middleton -Youghal greenway, which is due for completion in 2023. It is hoped that the greenway will not only promote active travel, but also attract increased footfall for shops, restaurants and visitor accommodation businesses in the town.

However, in recent years there have been concerns about the growing number of negative social indicators in Youghal, which as highlighted later in the report in the Trutz Haase Deprivation index, are indirectly impacting the comfort, efficiency and energy costs associated with resident's homes.

Going forward, the Youghal SEC and town's authorities aim to address these social indicators through collaboration with Government Departments, State Agencies, local organisations and businesses', so that the quality of life in the town is on par with the national average as well as the rest of County Cork.

Glossary of Terms

Although all efforts have been made to keep the language in this report non-technical, through the use of infographics and normal language it is not always possible. To mitigate against this, we have provided a glossary of key terms used through-out this report and an explanation of their meaning. An additional excellent resource for understanding all terminology around energy and the environment is https://climatejargonbuster.ie/wp-content/uploads/2021/02/ClimateJargonBuster_A-Z_a.pdf

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. A-rated homes are the most energy efficient, comfortable and typically have the lowest energy bills. G-rated homes are the least energy efficient and require a lot of energy to heat the home.

Carbon Dioxide/ CO₂ - Carbon dioxide (CO₂) 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.

The lower the carbon footprint the less that a product or activity contributes to climate change.

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.

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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.

Register of Opportunities (RoO) - The Register of Opportunities is a list of projects or opportunities within your community which if executed will result in energy efficiency and a reduction in energy use and the associated CO₂ output.

Thermal Energy - Defined as energy used to generate heat. This commonly refers to the energy used to heat homes by burning oil, timber peat or using electricity in heat pumps.

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 decentralised energy supplies.

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 year (annum). We also present carbon emissions in tonnes or kg of CO₂/annum. Energy costs are presented in euro spent on energy per annum.

Energy Credits - Projects that generate verifiable energy saving credits, can be sold to energy suppliers and obligated parties. The obligated Energy Suppliers then apply the energy savings towards their yearly targets, reducing overall energy consumption and carbon emissions. For a more detailed explanation please see: <https://www.seai.ie/business-and-public-sector/business-grants-and-supports/energy-efficiency-obligation-scheme/>

Ireland’s Climate Action Plan 2021

- The Climate Action Plan (CAP) is a roadmap developed by the Irish government for taking decisive action to reduce Ireland’s GHG emissions 51% by 2030 (compared to 2018’s totals) and achieve net zero emissions by 2050. The roadmap sets out strategies for achieving these targets sector by sector, with a clear goal set out for each sector. Table 1 shows the proposed emissions reductions in each sector to achieve the targets set out in the Climate Action Plan
- The statutory national climate objective and 2030 targets are aligned with Ireland’s obligations under the Paris Agreement, along with the European Union’s objective to reduce GHG emissions by at least 55% by 2030 (compared to 1990 levels) and to achieve climate neutrality in the European Union by 2050
- Targets for each sector of the economy will be updated annually, to ensure alignment with the governments’ legally binding economy-wide carbon budgets and sectoral ceilings
- Whilst all the sectors referenced in Table 1 are relevant to this Energy Audit, of particular importance are the Electricity, Transport and the Built environment sectors, which feature prominently in the report

Table 1 – Summary of the sectoral targets within the Climate Action Plan

Sector	2018 Emissions (Megatonnes of CO2 equivalent)	2030 target Emissions (Megatonnes of CO2 equivalent)	% Reduction relative to 2018
Electricity	10.5	2 - 4	62-81%
Transport	12.0	6 - 7	42-50%
Built environment	9.0	4 -5	44-56%
Industry	8.5	5 -6	29-41%
Agriculture	23.0	16 - 18	22-30%
Land use, land use change, Forestry & Marine	4.8	2 - 3	37-58%
Unallocated Savings	N/A	4	N/A

- One of the standout targets for the Electricity sector which is particularly relevant for the Youghal SEC is to increase the amount of electricity generated by renewable sources to 80%. SEC’s can play their part through small-scale renewable energy generation in the community as will be discussed later in the report
- Regarding transport, the expectation is that Electric Vehicles will account for 40% of car journeys by 2030. Conversely, public and active transport services will receive heavy investment, enabling an additional 500,000 daily journeys
- Perhaps the sector of most importance to the Youghal SEC is the Built Environment. In the residential sector some of the most ambitious targets include:
 - Retrofitting 500,000 homes to a B2 equivalent BER standard
 - Installing 600,000 heat pumps in residential buildings

Youghal SEC Energy Audit

Introduction

The Youghal Energy Audit has been commissioned by Youghal SEC (Sustainable Energy Community) in conjunction with SEAI to assist in developing and refining short, medium and long term plans for the Youghal Sustainable Energy Community.

The Energy Audit is based on a mixture of desktop research utilising publicly available information sets from a range of sources (CSO, SEAI, County Council, Environmental Protection Agency, Irish Water, Teagasc, etc.). Using modelling tools and methodologies developed inhouse by Plan Energy Consulting, the Energy Audit will also capture the energy consumption, emissions and spend within the community.

The Energy Audit begins with a sectoral energy breakdown that will give a broad overview of each sector's (Residential, Commercial, Transport) energy consumption, energy cost and contribution to CO₂ emissions in the Youghal area, followed by a brief discussion on how the Youghal SEC compares to national averages.

These sections form the basis of the recommendations and options supplied for a transition to renewable energy sources in each of the sectors as well as opportunities for energy reduction and increased efficiency within the Register of Opportunities section. Finally, the Energy Audit concludes with an Action Plan for Youghal SEC 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.

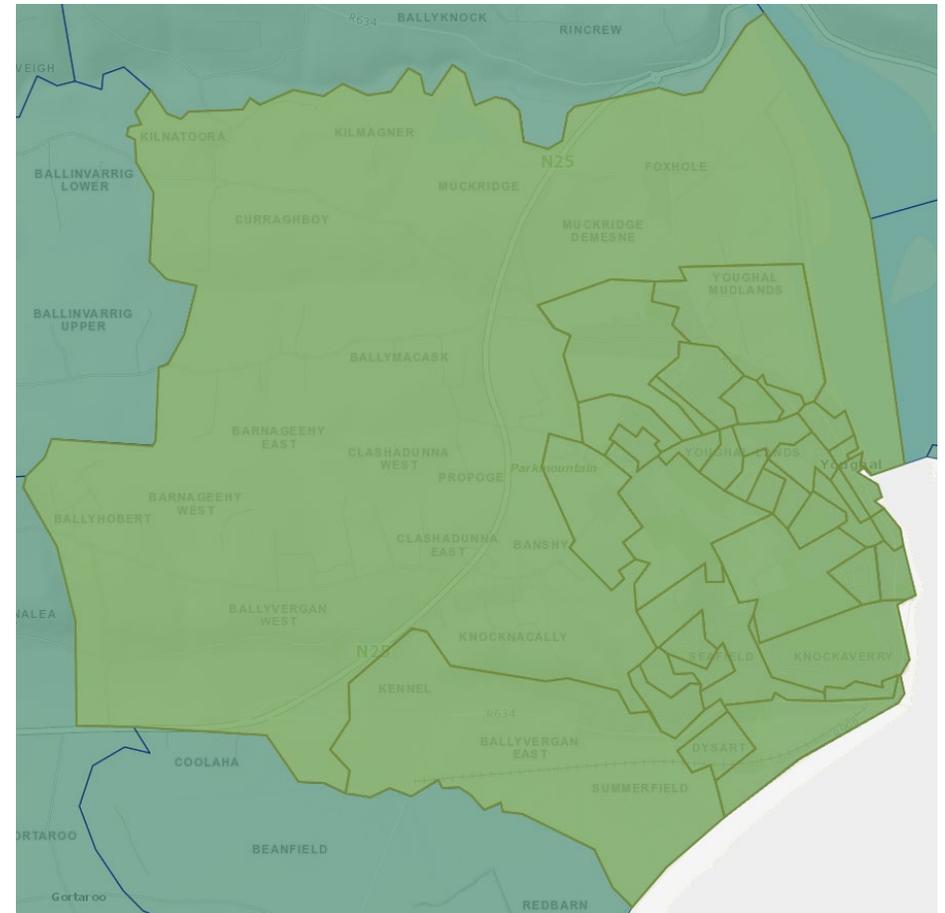


Figure 1 - The image depicts the area covered by Youghal SEC. This was generated using the Small Areas as defined by the Central Statistics Office (CSO SAPMAP 2016).

Youghal SEC Energy Audit

Energy Audit Summary

This Energy Audit project has been funded by SEAI to assist in developing and refining short, medium and long-term plans for the Youghal Sustainable Energy Community. The Master Plan aims to help communities understand their current energy usage and carbon footprint. By understanding where they currently are, the SEC can then set appropriate reduction targets for the future.

The information gathered and tools developed to review projects will help the community strive toward being an exemplar model in the transition to a low carbon community.

The Energy Audit covers 38 Small Area Plans¹ which are defined by the Central Statistics Office (CSO).

Our analysis of the energy consumption within the catchment area has identified that 69% of the energy demand relates to the residential sector, 7% for the commercial sector and approximately 24% relates to the Transport sector. Significant opportunities exist within the community for the development of energy efficiency projects.

¹Small Areas are areas of population generally comprising between 80 and 120 dwellings created by The National Institute of Regional and Spatial Analysis (NIRSA) on behalf of the Ordnance Survey Ireland (OSi) in consultation with CSO. Small Areas were designed as the lowest level of geography for the compilation of statistics in line with data protection and generally comprise either complete or part of townlands or neighborhoods. There is a constraint on Small Areas that they must nest within Electoral Division boundaries.

The Youghal SEC will engage and assist the local community in the development of projects within these priority areas with the goal of achieving the SEC's objective of improving the residential housing stocks' energy efficiency.

Table 2 – Energy, CO₂ and Cost Analysis

	Electricity	Fossil Fuel	Transport	Total (MW)
ENERGY MWh	35,190	47,772	24,331	107,294
CO₂ EMISSIONS tCO₂	17,126	12,692	6,138	35,956
TOTAL ENERGY COST	€4,900,956	€4,059,885	€4,914,837	€13,875,678

Table 3 – Sectoral percentage energy consumption ²

		
Residential	Commercial	Transport
69%	7%	24%

² Commercial energy consumption is based on an evaluation of the commercial footprint, building use and energy consumption norms associated with the businesses in the catchment area utilizing CIBSE TM46 Energy Benchmarks.

Youghal SEC Energy Audit

Sectoral Energy Breakdown

The Energy Audit breaks down the energy consumption and fuel mix within the community's catchment area into 3³ key sectors consisting of:

- 1) Residential
- 2) Non-Residential (Building stock that is not classified as a home, e.g., Commercial, community or industrial buildings)
- 3) Transport

The sectoral baseline energy usage analysis, which will be discussed in more detail in later sections is summarised in Table 4 in the form of an energy balance for the whole catchment area. This provides a full picture of how much energy is used in each sector, which helps identify and prioritise areas for action by the Youghal SEC.

The baseline can be seen as a benchmark against which to measure the impact of the Energy Audit in future energy reviews.

Table 4 illustrates how much energy and associated carbon is associated with each of the key sectors. The residential sector is the highest consumer of energy, mostly in the form of heating oil and is followed by transport sector in energy consumed.

³ The agriculture sector was not included within this report due to the small number of farms within the catchment area of the SEC. It is recommended that a more detailed report on the Agriculture sector be carried out in the catchment area outside of the SEC to develop a more detailed analysis of energy consumption associated with farming.

Table 4 - Sustainable Energy Community Energy Baseline (kWh)

SEC Primary Energy Baseline (kWh)				
Sector	Electricity	Fossil Fuel	Renewable	Total (MW)
Residential	33,195,868	42,292,322	519,299	76,007
Non-residential	1,994,500	5,480,000		7,475
Transport	37,620	24,293,478	1,688,491	26,020
Total Energy	35,227,988	72,065,799	2,207,790	109,502

Residential sector

Background

The Residential sector is one of the largest emitting sectors in Ireland, accounting for 29% of CO₂ emissions and roughly a quarter of the energy used in Ireland as per 2020 estimates from SEAI. Therefore, if communities want to make progress towards individual targets, as well as contributing to the national target of reducing all CO₂ emissions 51% by 2030, it is vital this sector is given particularly close focus.

Whilst energy usage from the residential sector has increased by almost 19% from 2014 to 2020, emissions only subsequently increased by 1%. This can be explained by higher household incomes and expenditure, coupled with improvements in energy efficiency as a result of updated building regulations and homeowners increasingly more willing to invest in fabric upgrades within their homes.

The momentum within the country has been to ensure that as many homes as possible upgrade their insulation ahead of 2030, with the Irish Government setting the ambitious target of ‘retrofitting’⁴ 500,000 homes to a B2 BER by 2030. By retrofitting homes in a manner that focuses on enhancing their insulation, homeowners don’t have to use as much energy on space heating within their home, which will naturally lead to a reduction in emissions within the residential sector.

⁴ A process where you look at the house’s overall energy efficiency and use a combination of measures to improve it.

The residential section of this report will seek to analyse what retrofit measures may be suitable for properties in the Youghal SEC based upon Housing age, occupancy, ownership and type. Furthermore, the fuels used to heat homes within the Youghal SEC are analysed for their emissions in tonnes of CO₂ equivalent.

The fuel mix can have a significant impact on the carbon footprint of a community as each fuel type has its own associated CO₂ output. For example, coal and oil produce approximately 0.4kg and 0.3kg of CO₂ for every kilowatt hour of energy delivered, compared to just over 0.2kg for natural gas.

The BER is based upon the provision of space heating, water heating (for domestic purposes), ventilation, and lighting. The BER does not include what is called ‘point load consumption’ such as plugged-in electrical appliances. An excellent reference which provides a breakdown of all energy used in the home is the [“SEAI Energy in the Residential Sector 2018”](#) Report.

A breakdown of the communities BER per Small Area Plan is provided, which identifies those specific areas in a community that require more investment to improve their BER. Given that a BER is a reflection of a home’s energy efficiency, a lower BER implies that homeowners are using more fuel to heat their homes. Given the continued rise in energy costs, upgrading the communities BER can alleviate homeowners from fuel poverty and prevent others from going into it.

Method

An analysis of the residential housing stock in the catchment area of Youghal SEC has been carried out based on Central Statistics Office (CSO) data and the Eircode data provided by ESRI.

The residential housing stock is based on a baseline year of 2016 and a breakdown of the number of residential units which are vacant or classified as holiday homes is derived from the Eircode Database which is based on a baseline year of 2021. Statistics for residential heating are based on national averages against primary heating type. This allows for comparison against future census data.

The SEAI Building Energy Rating (BER) Map shown in Figure 8 displays colour coded 'Small Areas' of the Youghal SEC. The colour of a given small area represents the BER of the median geo-located dwelling in that small area. The map only contains BER Information at the Small Area level for dwellings that have had a BER completed. The medians were derived from all geo-located dwellings with a BER in that particular Small Area. For example, Small Areas that are green represent areas with a 'good' median BER. Small Areas with dwellings that have a poor median BER are either red or purple.

SEAI's corresponding prices and emission factors as of 2020 were applied to calculate the total spend and CO₂ emissions for various sources of energy and heating.

Results and Analysis

Housing Ownership

Within the catchment area approximately 59.4% of the housing is owner occupied. With a 33.2% outright ownership, this can imply a greater appetite to engage in home retrofits as the occupiers are the decision makers in relation to energy upgrades and have a clear incentive to upgrade.

Equally, for rental properties, it is in landowners' best interests to upgrade the homes they own with retrofit measures in line with the projected minimum BER increases for rental properties that the Government are thought to be implementing from 2025.

However, given that landlords themselves will not reap the benefits of a warmer home and cheaper energy bills, a strong strategy of engagement and encouragement will be required for landlords until obligatory measures come into effect.

Table 5 – Percentage of homes owned outright by owner

Occupancy type	No. of homes	% of homes
Owned with mortgage or loan	868	26.2%
Owned outright	1098	33.2%
Rented from private landlord	741	22.4%
Rented from Local Authority	418	12.6%
Rented from voluntary/co-operative housing body	75	2.3%
Occupied free of rent	55	1.7%
Not stated	54	1.6%
Total	3309	100%

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Housing Type

The majority of the housing stock in the catchment is classified as detached, semi-detached or terraced housing with a small percentage classified as flats or apartments. Flats and apartments mainly consist of smaller developments or over the shop dwellings. This again is a positive sign for Youghal SEC, as the options for retrofitting a home increase with detached, semi-detached and terraced housing as there is less chance of interfering with other properties.

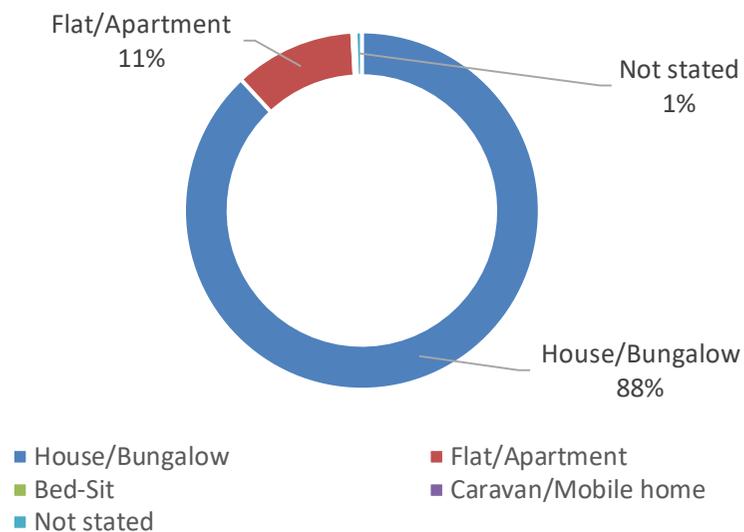


Figure 2 - Housing Stock percentage type

Housing Age

Figure 3 illustrates the age spread of the residential housing stock in the Youghal SEC. The age of the properties is displayed alongside a breakdown of the introduction of the buildings regulations which have had an incremental impact on the construction methodologies used.

This information can be quite informative as it illustrates the type of interventions which may be suitable for the housing stock.

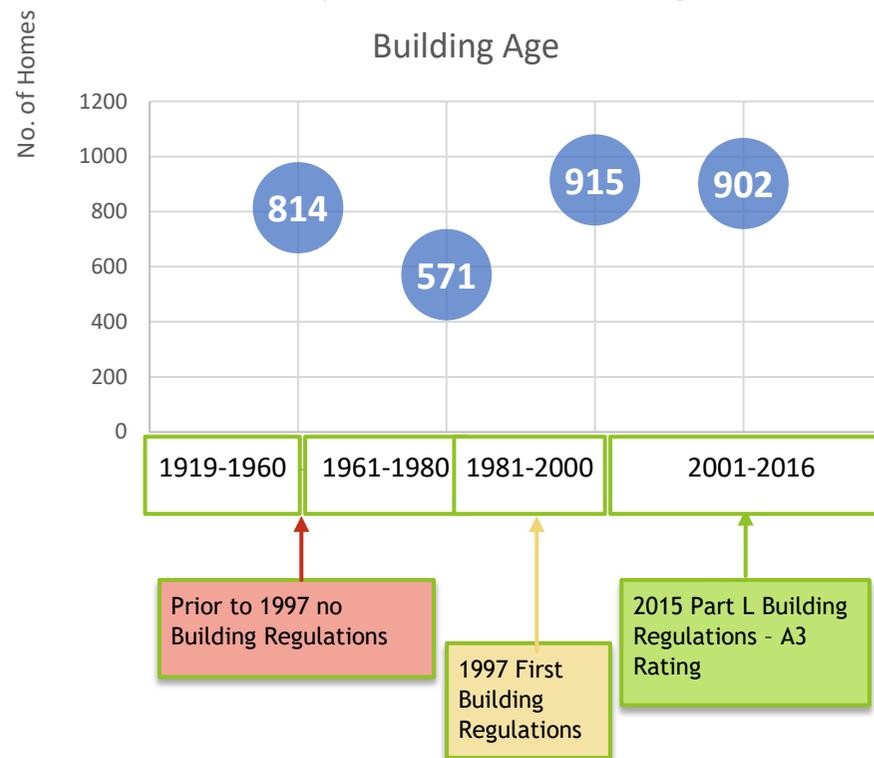


Figure 3 - Relationship between Dwelling Age and Irish Building Regulations

Within the catchment area there is a good mix of housing age types which will each require different energy efficiency measures to achieve a more energy efficient housing stock. 39.5% of Youghal's housing stock would be considered modern having been constructed after the year 2000, which indicates that measures such as cavity insulation improvements and attic insulation can be promoted.

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Housing which was constructed prior to the introduction of the building regulations tended to be solid wall or hollow block construction which is unsuitable for cavity insulation due to the lack of a suitable cavity. These buildings tend to be more suited to internal or external insulation measures⁵.

With 49.7% of dwellings having been constructed from pre 1919 – 1990, this strongly indicates that a large number of homes present opportunities to easily improve energy efficiency and reduce their energy requirements. However, the types of buildings within lower age bands present many challenges due to the historic construction methods applied from their era and the materials used, alongside the important significance associated with preserving the heritage of these homes.

Table 6 – Age profile of the Youghal SEC housing stock

Period	No. of homes	% of homes
Pre 1919	432	13.1%
1919 - 1945	214	6.5%
1946 - 1960	168	5.1%
1961 - 1970	225	6.8%
1971 - 1980	346	10.5%
1981 - 1990	259	7.8%
1991 - 2000	656	19.8%
2001 - 2010	876	26.5%
2011 or later	26	0.8%
Not stated	107	3.2%

⁵ External Wall insulation involves fixing insulation materials such as mineral wool or expanded polystyrene slabs to the outer surface of the wall. The insulation is then covered with a special render to provide weather resistance. A steel or fiber-glass mesh is embedded in this render to provide strength and impact resistance.

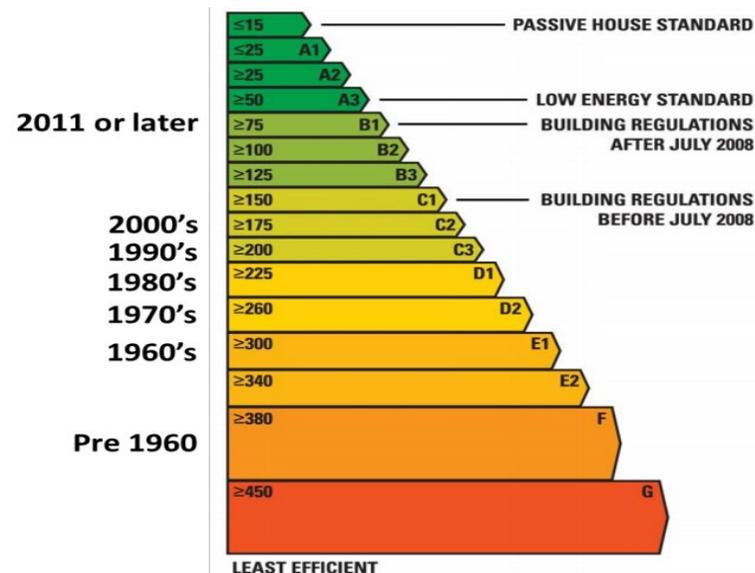


Figure 4 - Typical BER for house age type before upgrade works

Housing Fuel Mix

The residential fuel mix as illustrated in Table 7 provides a breakdown of the different types of fuel sources used in the community for the heating of residential properties. The CO₂ Emissions associated with Youghal SEC is linked to the type of fuel consumed within the community. Through using different fuel types, a community can significantly reduce the CO₂ footprint from the energy it consumes to heat its homes. The ideal situation for any community is to reduce the level of energy required to heat their homes through energy efficiency measures and to provide the remaining heat requirements from low or natural CO₂ producing fuel sources.

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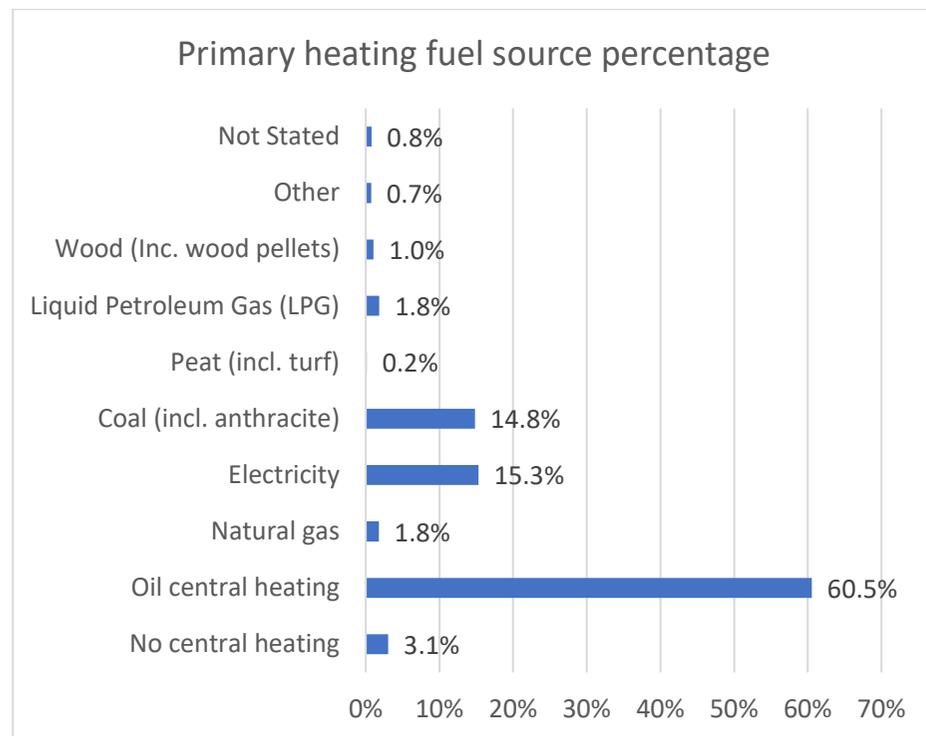


Figure 5 - Percentage emissions in tCO₂e

Within Youghal SEC, the main fuel types are currently coal and oil which make up 76% of the total thermal energy consumed. Combined, these two fuel types make up 91% of the CO₂ emissions from the residential sector. Oil is the primary source at 69% which is typical for houses built pre-2011. Whilst this finding does raise cause for concern, it also demonstrates the huge level of potential for the community to significantly reduce its carbon footprint.

⁶ The fuel specified against no central heating is defined as 'Oil' which is in the mid-range between wood and coal. This is because this type of heating uses a variety of different fuel sources.

Table 7 - Residential Fuel Mix ⁷

Heating Type	NO. OF UNITS	Fuel	Usage (%)	Thermal TFC (kWh)	Emissions (%)
No central heating	101	Oil ⁶	3%	1,402,385	2.6%
Oil central heating	2003	Oil	61%	27,811,655	52.5%
Natural gas	59	Natural Gas	2%	819,215	1.2%
Electricity	506	Electricity	15%	7,025,810	24.3%
Coal (incl. anthracite)	490	Coal	15%	6,803,650	16.6%
Peat (incl. turf)	5	Peat	0%	69,425	0.2%
Liquid Petroleum Gas (LPG)	61	LPG	2%	846,985	1.4%
Wood (Inc. wood pellets)	34	Wood Pellets	1%	472,090	0.0%
Other	24	Other	1%	333,240	0.6%
Not Stated	26	Other	1%	361,010	0.7%
Totals	3309			45,945,465	

Housing BER Coverage

An analysis of the Building Energy Rating (BER) of the residential housing stock within the catchment area was carried out. The average BER rating has been determined, however this figure is based upon a limited number of buildings which have had BER's carried out on them and should be reviewed in that context.

⁷ Residential fuel mix is based on the primary heating source of the property and does not take into consideration secondary fuel sources as this information is not available within the CSO data.

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By analysing the BER data files for all the small areas in the Youghal SEC region, the following information was observed:

Of the 3,309 homes registered within the catchment of the Youghal SEC, 42% of these homes have BER certificates. Whilst the number of dwellings in Youghal with a BER of B or greater is marginally lower than the national average (10.7% vs 11%), it lies quite a bit below the national average for its overall BER.

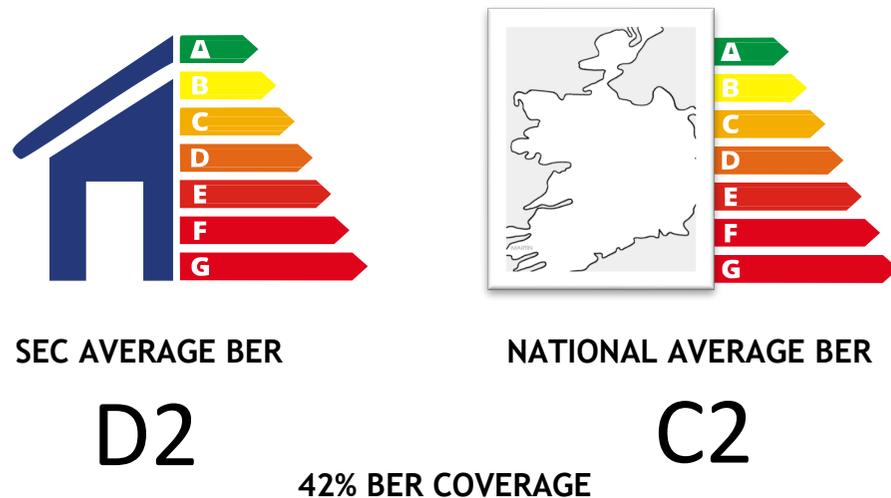


Figure 6 - Building Energy Rating information on Youghal SEC ⁸

⁸ Please note that the SEC average BER is based upon 42% of the building stock within the catchment area which currently has a Building Energy Rating (BER) associated with it. The average BER may be lower based on the fact that buildings are legally required to get a BER carried out when they are sold, leased or rented or when the client is getting grant aided work carried out on the property.

The data in Figure 7 indicates that BERs for a large volume of Youghal SEC's residential building stock ranges from a C1 to an D2, 64.7% collectively, with such dwellings requiring between 150-300 kWh/m²/yr. of energy.⁹

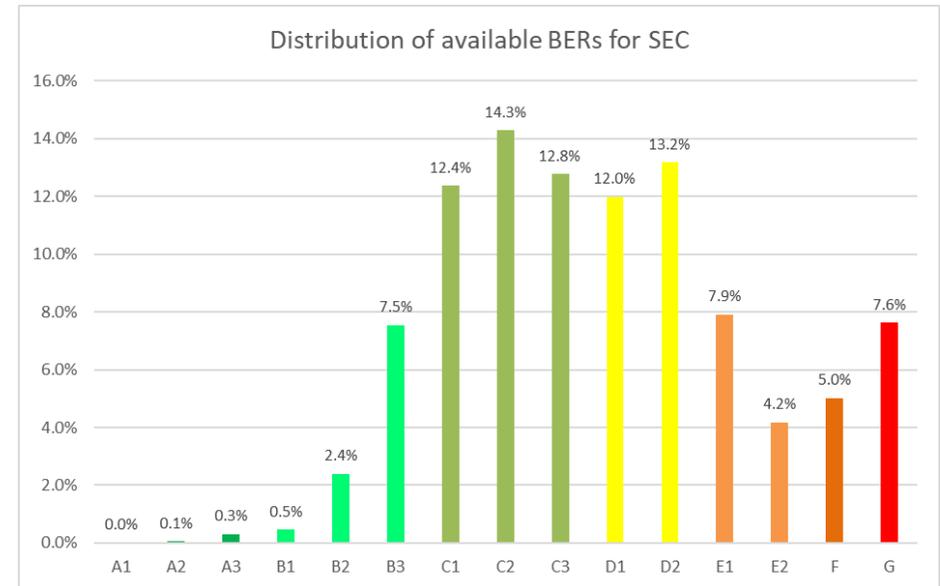


Figure 7 – Distribution of available BERs for Youghal SEC

The chart above indicates that 96.7% of the housing stock in the Youghal SEC lie below the Irish Government's target BER B2. However, of that total, approximately 47% lies within a boundary of B3 – C3 which shows that a majority of the housing stock can be brought up to this rating without deeply extensive retrofitting measures.

⁹ A more detail analysis of BER data and actual performance was carried out by SEAI in the following research document 'Heating and Cooling in Ireland Today 2021' <http://www.seai.ie/publications/heating-and-cooling-in-ireland-today.pdf>

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It's interesting for SECs to see how each subsection of their community fares in terms of BERs. This can reveal insights into fuel poverty and nudges decision makers towards those areas in need of most investment. The map in Figure 8 of the Youghal SEC illustrates the median BER's which have been recorded in each Small Area Plan.

It should be noted that this information is based on a limited number of BER data and is presented in an illustrated format to allow for comparison in future reports.

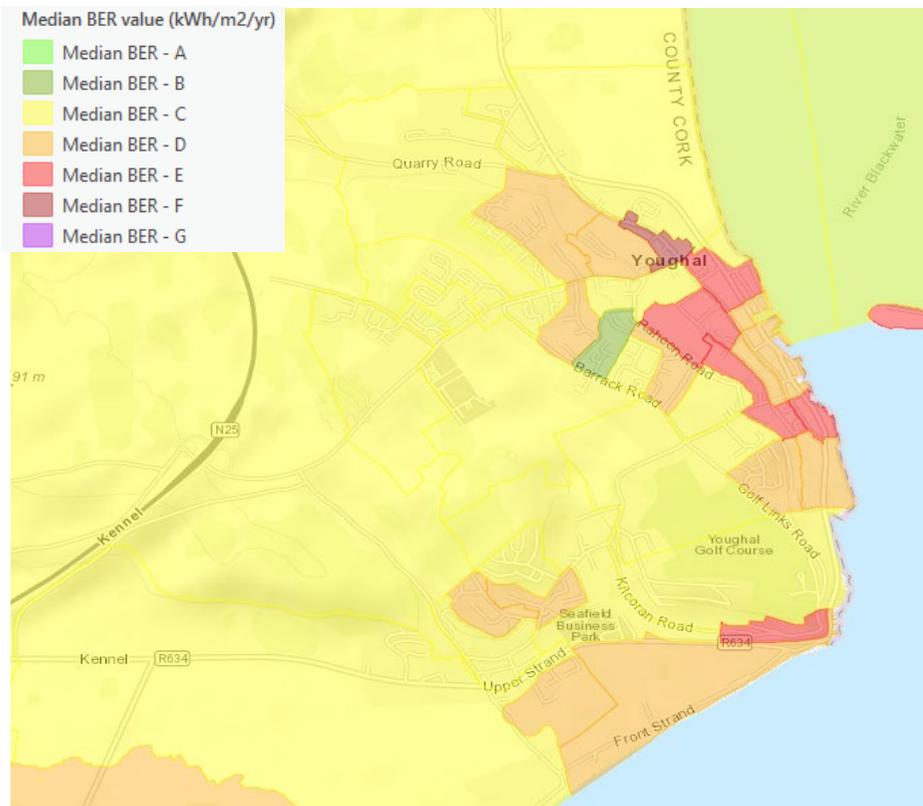


Figure 8 - Map of Median BER in the Youghal SEC Catchment Area

When we compare those Small Area Plans with a poor BER rating in the image above, to those which score poorly on the Trutze Haase deprivation index (Figure 9), we can see there is a correlation between the two. This sort of data provides local decision makers and the Youghal SEC with the appropriate knowledge about their area, so that they can prioritise which areas should receive investment for home energy upgrades. These two images illustrate that it is the Youghal Urban Area, specifically those areas close and adjacent to the town centre which are in most need of investment in terms of upgrading the energy efficiency of homes.

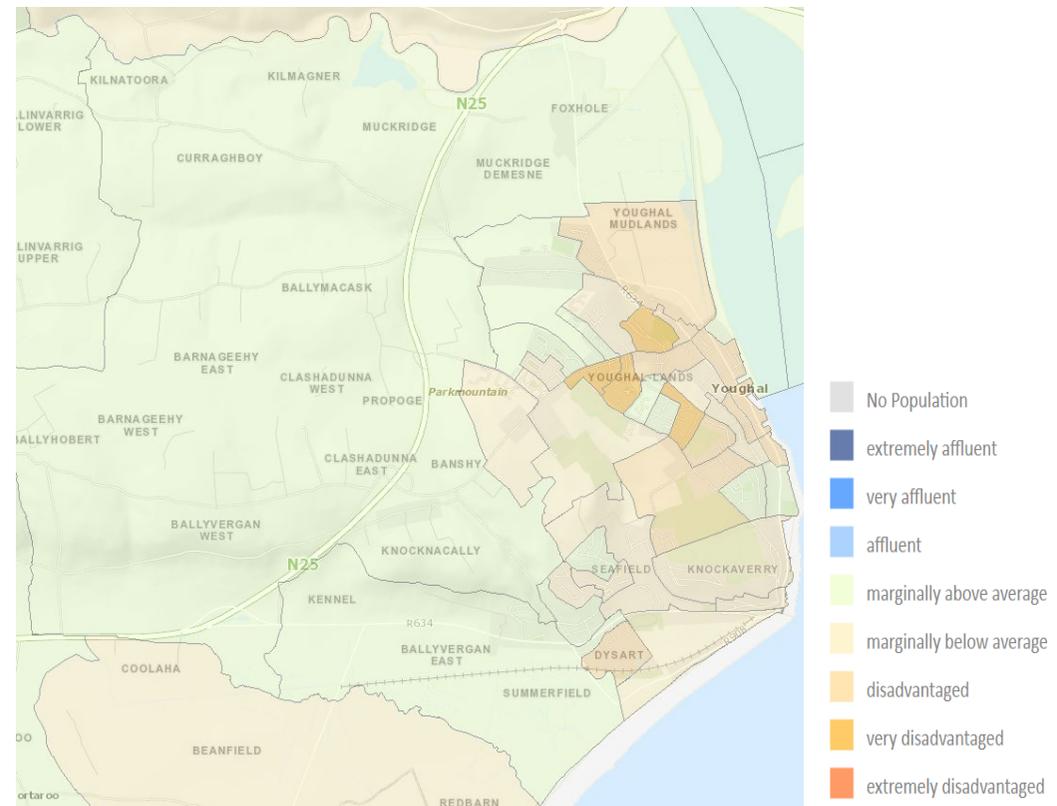


Figure 9 – Trutze Haase Pobal HP Deprivation index for the Youghal SEC

Youghal SEC Energy Audit

Residential Energy Baseline

To calculate the residential sector's energy baseline, data was obtained from the Central Statistics office (CSO), specifically the CSO's Small Area Population Statistics (SAPS), which lists the housing stock present in a specific area by house type and year of construction.

Table 8 - Residential Energy, CO₂ and Spend

	Electricity	Fossil Fuel	Renewable	Total
Total Primary Energy (kWh)	33,195,868	42,292,322	519,299	76,007,489
Total CO ₂ (tonnes)	16,027	11,651	0	27,678
Total Spend (€)	€4,558,101	€3,215,965	€35,690	€7,809,757

For homeowners who wish to upgrade their BER's, the Sustainable Energy Authority of Ireland (SEAI) provides financial incentives to homeowners in the form of grants and supports, details of which can be found in the Appendices. It's important that homeowners are supported throughout the application process, so that they are investing in measures that are appropriate for their home.

Whilst the costs of many of the retrofit measures associated with improving a home's energy efficiency may appear prohibitive on the surface for both lower income groups and landlords alike, SEAI's new 'National Retrofitting Scheme'¹⁰ has meant home upgrades are more achievable for homeowners than ever before.

¹⁰ <https://www.gov.ie/en/press-release/government-launches-the-national-retrofitting-scheme/>

For example, homeowners can now avail of grants equivalent to 80% of the typical cost for attic and cavity wall insulation, with an upper limit of €2,500. These measures have been shown to improve energy efficiency significantly within typical Irish homes and should be an affordable measure for the majority of homeowners in the Youghal SEC.

Furthermore, the Warmer Homes Scheme offers free energy upgrades for eligible homeowners who are most at risk of energy poverty. A budget allocation of €109 million has been provided for this scheme this year. The scheme will target the least energy efficient properties, by prioritising homes that were built and occupied before 1993 and have a pre-works BER of E, F or G. Applications will also be accepted from qualifying homeowners who previously received supports under the scheme, but who could still benefit from even deeper measures.

Given that energy costs are expected to remain at the very least the same level in the coming years, if not increase further, it is vital that homeowners in lower income groups utilise these grant streams to protect themselves against falling into, or further into fuel poverty.

****Further details on grants can be found in the Appendix****

Retrokit

Background

The momentum within the country has been to upgrade the fabric of buildings so that heat pumps can be utilised as the primary heating source. However, in order for heat pumps to be a viable option, buildings need to be insulated to a level where they have a Heat Loss Indicator of 2.0 or less. SEAI define these dwellings as being 'heat pump ready'¹¹. If properties are not insulated to an adequately high level, then this technology is not suitable as a primary heat source.

The government's climate action plan has set a BER of B2 as the target for the energy performance of retrofitted homes. This target is in line with current building regulations - 'Part L conservation of fuel and energy'¹², which specifies that buildings undergoing 'Major Renovations'¹³ must achieve a BER B2 or a 'Cost Optimal' level of energy performance.

In order to accurately identify the fabric upgrades that need to be carried out to upgrade Youghal's residential housing stock to a BER rating of B2 (or better) and to achieve "heat pump readiness", a software package known as 'RetroKit' was employed.

¹¹ Heat Loss Indicator (HLI) value is the total heat loss per m² of dwelling floor area. A minimum HLI of 2 Watts/Kelvin/m² must be achieved to be suitable for a heat pump however in some cases, where upgrades may not be cost-optimal, a value of HLI up to 2.3 Watts/Kelvin/m² can be accepted provided additional requirements are met

Method

RetroKit is a decision-support tool developed by RetroKit Ltd. which compiles a wide range of data sources and applies analytics to establish the current energy performance of the housing stock in a community. It generates baseline data on energy performance of the housing stock in terms of energy use, expenditure, CO₂ emissions, BER rating and Heat Loss Indicator amongst many other variables.

RetroKit uses this data to develop and compare a range of retrofit scenarios:

1. Shallow fabric
2. Medium – (oil boiler)
3. Medium – (heat pump)
4. Deep Retrofit (heat pump)

The software conducts a cost/benefit analysis of each scenario in order to identify the optimum retrofit package for the community's housing stock and considers not only the technical factors, but also financial and environmental concerns.

¹² <https://assets.gov.ie/180475/e532a9c5-3ec6-4a4c-8309-02f8a653e2d8.pdf>

¹³ Major renovations refer to upgrades where more than 25% of the building envelope. Painting, re-plastering, rendering, re-slating, re-tiling, cavity wall insulation and insulation of ceiling are not considered major renovation works.

Youghal SEC Energy Audit

Once baseline analysis is completed, to determine the energy usage of Youghal's housing stock, RetroKit runs a number of customised scenarios, based on the shallow, medium or deep fabric upgrade scenarios mentioned above.

These scenarios are applied against the most common house types in the Youghal community in order to exemplify what fabric, heating and renewable energy upgrades would take place in each archetypal home through a home energy upgrade plan.

Whilst the use of standard assumptions (e.g. fixed heating schedules and hot water usage) and archetypes means that running costs and energy usage estimated by RetroKit will differ somewhat from actual data for specific dwellings, they provide a highly detailed representation of what the impact of a retrofit project would be for typical residences in the Youghal community.

These home energy upgrade plans will help homeowners in the Youghal community understand how a house like theirs can be upgraded, the typical costs involved, whilst also including a breakdown of the revised BER rating, energy consumption, energy costs and payback period of the investment for the homeowner, along with many other variables for each scenario.

Measures are only applied by RetroKit where required and appropriate. This is done on a dwelling by dwelling basis. For example, for cavity wall insulation measures, RetroKit checks to see if the dwelling has a "cavity" wall and if the wall heat loss is high (and therefore worth insulating) before applying that measure.

Table 9 – Overview of each RetroKit Scenario

RetroKit Scenario	Non-exhaustive summary of works
Shallow fabric	Basic measures such as better air tightness, cavity and loft insulation, cylinder insulation, LED lights and wood stove
Medium (boiler)	"Shallow fabric" plus External Wall Insulation, boiler, controls, new door, double glazing
Medium (heat pump)	"Shallow fabric" plus External Wall Insulation, heat pump, controls, new door, double glazing
Deep (heat pump)	Medium (heat pump)" plus triple glazing, sloping ceiling internal insulation, demand control ventilation, Photovoltaic (PV) system

Results and Analysis

Heat pump Readiness

RetroKit enables high level comparison of the four scenarios across a range of metrics that cover the entire Youghal community, not just archetypal homes. Heat pump readiness is the likelihood of dwellings in the scenario having a suitably low heat loss indicator (2.0 or less, or below 2.3 in certain cases) for a heat pump to perform effectively in the dwelling. A suitably low heat loss indicator is also needed if seeking grant funding for heat pumps. A dwelling should have additional fabric or airtightness measures applied if a heat pump is to be installed and if it isn't heat pump ready.

As per Figure 10, 23% of residences in the Youghal SEC are heat pump ready, however this figure jumps to 47% under the 'Shallow fabric' scenario, meaning a significant proportion of homes in the community would only require a moderate amount of investment to be heat pump ready.

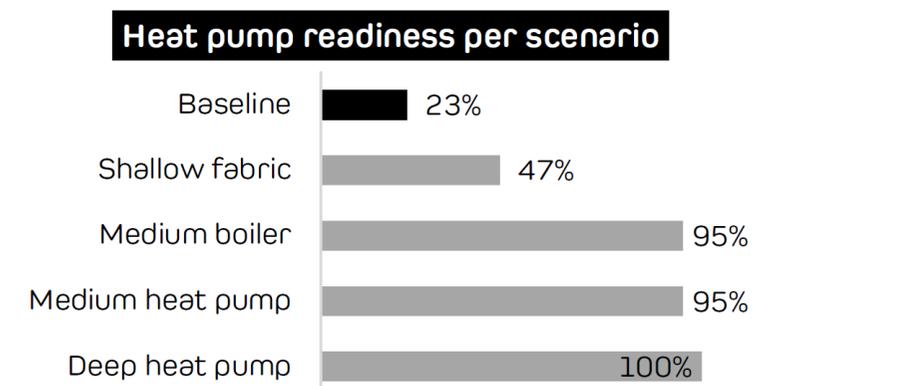


Figure 10 – Heat pump readiness under each RetroKit scenario for the Youghal SEC

Reduction in Final Energy Use

Reduction in final energy use shows how far 'energy usage' is reduced compared to the baseline if the upgrades associated with each scenario were implemented into every home in the Youghal SEC.

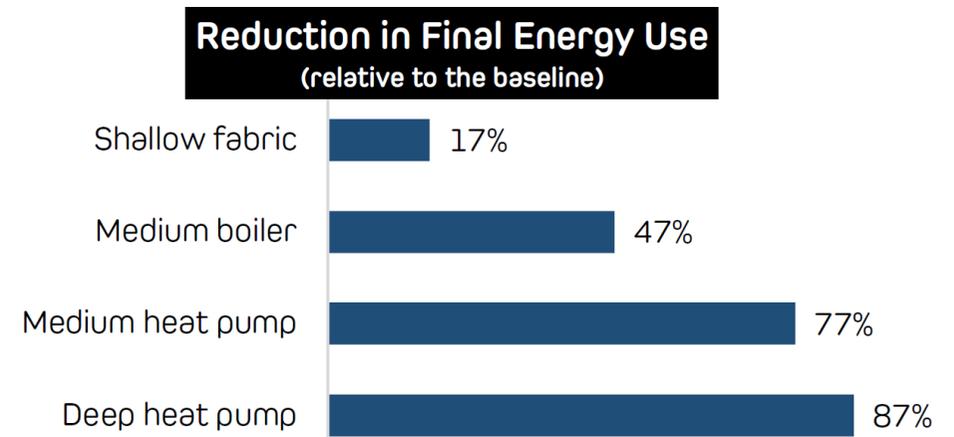


Figure 11 – Reduction in Final Energy Use compared to baseline data in the Youghal SEC

As can be seen from the graph above, significant reductions in energy use across the Youghal SEC can be achieved under the Medium (boiler) scenario, but particularly in the two heat pump scenarios. This is in alignment with the Irish Government's Climate Action Plan and the country's long-term goal of reaching net-zero emissions by 2050.

Youghal SEC Energy Audit

Total Annual Energy Savings

Naturally reductions in energy usage will lead to a corresponding decrease in energy costs for the community. The total annual energy savings graph evidences the fuel cost savings per scenario, broken down by the age bands of dwellings in the Youghal SEC. As Figure 12 shows, the Youghal SEC could save anywhere between €0.86 million - €3.2 million annually depending on which of the fabric upgrade scenarios were adopted by the community.

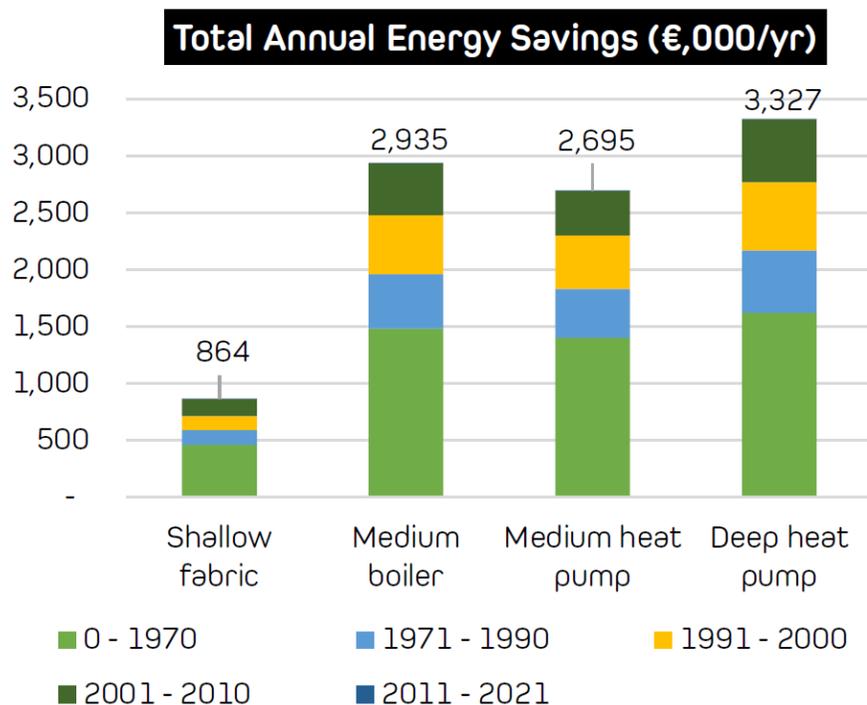


Figure 12 – Total Annual Energy Savings in millions of Euros per year versus baseline conditions if each scenario was adopted by the Youghal SEC

Energy Cost per dwelling

On an individual homeowner level, the fuel costs arising from energy usage show significant reductions on an annual basis, with the potential to save over €1000 annually if implementing upgrades in their home that align with the Deep (heat pump) scenario.

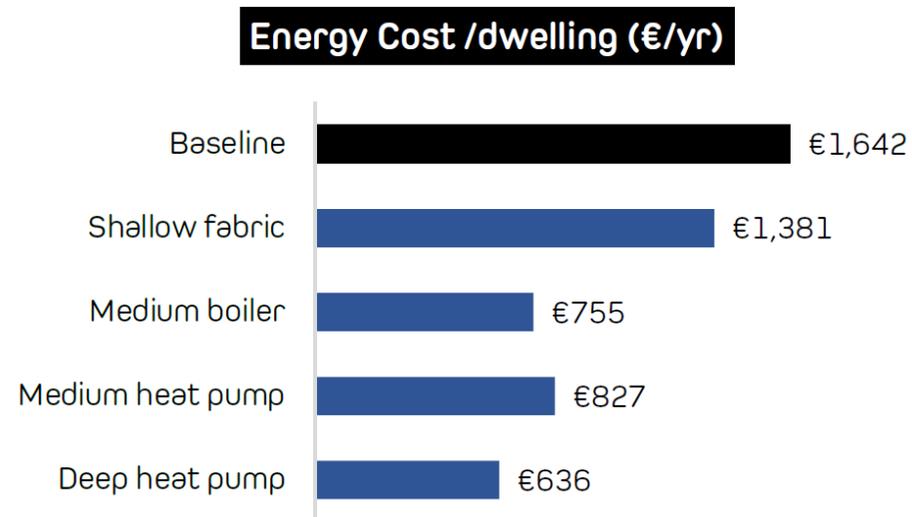


Figure 13 – The average annual energy cost per dwelling under each of the four scenarios

As energy costs look set to continually rise, it is quite likely that the potential savings for both individual homeowners and the community as a whole would also increase under the four scenarios above. It would be hoped that this would create both a more environmentally and economically sustainable community.

Youghal SEC Energy Audit

RetroKit Case Studies

From the BER Research tool, RetroKit creates a set of “typical” archetype dwellings (up to 240 archetypes in total). The archetypes are classified based on five age bands, four dwelling types, four main space heating fuels and three main external wall types.

RetroKit then uses the CSO Small Area Plan data to determine how many archetypal dwellings are in the study area as well as the percentage of these dwellings in each age band and fuel type. As the CSO data does not indicate the dwelling types in sufficient granularity or the wall type, the BER small area data is used to determine the percentage of dwellings belonging to each dwelling type and wall type.

As neither the CSO or BER small area data detail exactly how many dwellings are in each of the 240 archetypes, RetroKit uses the percentage of dwellings in each age band, each dwelling type, each fuel type and each wall type to determine the spread of dwellings across the 240 archetypes.

The software then deduces the most common property types in the community based on their percentage spread across the study area. This provides most homeowners across the community with a case study very similar to their own dwelling. In the case of the Youghal SEC, six common property types were selected. An example of one of these case studies is shown in the following pages, with the remainder contained within the Appendices.

Table 10 – Youghal SEC RetroKit dwelling selection

Age Band	Dwelling Type	Main fuel type	Main wall type
2001 - 2010	Detached house	Heating oil	Cavity
1991 - 2000	Detached house	Heating oil	Cavity
1971 - 1990	Detached house	Heating oil	Cavity
<1971	Terraced house	Heating oil	Solid or hollow
2001 - 2010	Terraced house	Electricity	Cavity
<1971	Detached house	Solid fuel	Solid or hollow

Please be aware that due to the fluid nature of grant schemes, RetroKits’ software does not take into account the money that homeowners can earn from grants that would fund the undertaking of the measures outlined in the Home Upgrade Plans. This means that the costs for residents of upgrading their homes and community as a whole, are likely to be notably lower than the costs outlined by RetroKit in their calculations

Glossary of RetroKit Terminology

Although all efforts have been made to keep the language in the RetroKit Home Upgrade Plans non-technical through infographics and normal language, it is not always possible. In order to mitigate against this, we have provided a glossary of key terms used through-out the Home Upgrade Plans along with their meaning.

Table 11 – Glossary of RetroKit Terminology

Name in HUPs	Description
No fill to FF	Cavity wall insulation to unfilled cavity wall
Partial to FF	Cavity wall insulation to partially filled cavity wall
No insulation to 300 mm	300 mm loft insulation at ceiling level where no insulation exists
70 mm to 400 mm	400 mm loft insulation at ceiling level where 70mm insulation already exists
Shallow sealing	Shallow sealing of draughts for airtightness
Chimney draft limiter	Fit chimney draft limiter to open fire
Open fire to wood fuel stove	Change open fire for high efficiency wood fuel stove
Install LED lighting	Fit low energy lighting throughout property
Solid + 100 mm EWI	100 mm external wall insulation to solid wall
CWI + 100 mm EWI	Cavity wall insulation and 100mm external wall insulation
Full window replacement to DG	Replace windows with double glazed windows
Door replacement	Replace door with highly insulated door

Name in HUPs	Description
Install lagging jacket & insulate pipes	New lagging jacket to hot water cylinder. Insulate pipework to hot water tank
New gas boiler	New high efficiency gas system boiler
New oil boiler	New high efficiency oil system boiler
Install fully integrated controls	Fit new heating controls
El to air to water heat pump	Install new air to water heat pump
To low temperature radiators	Change existing radiators to low temperature radiators
Replace with factory insulated tank	Replace hot water cylinder with new factory insulated model
70 mm bet rafters to 50 mm dry lining	50 mm internal insulation to sloping roof with 70mm existing insulation
Uninsulated rafters to 50 mm dry lining	50 mm internal insulation to sloping roof with no existing insulation
Deep sealing	Extensive sealing of draughts for airtightness
To DCV	Fit demand control ventilation system
Full window replacement to TG	Replace windows with triple glazed windows
Insulate primary pipework	Insulate primary pipework - from boiler to manifold and hot water tank
Install 2kWp solar PV	Install 2kWp solar electric panels
Energy Credits	Please click the link for a full explanation

Housing Upgrade Plan



Rural

Terraced house

100m2

Built: 1917

Heating oil



Your home energy upgrade will give you

More comfort

Money saved

Healthier home

Warmer home

Better for our planet



How you can achieve this

	Current	Shallow fabric	Medium boiler	Medium heat pump	Deep heat pump
➔ BER	D ➔	DI ➔	B2 ➔	B1 ➔	A2 ➔
Comfort Level	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
Roof	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
External Wall	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
Windows	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
Doors	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
Floor	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: red;"></div>			
Draughts	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: orange;"></div>	<div style="width: 100%; height: 10px; background-color: orange;"></div>	<div style="width: 100%; height: 10px; background-color: orange;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
Main Heating	<div style="width: 100%; height: 10px; background-color: orange;"></div>	<div style="width: 100%; height: 10px; background-color: orange;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
Water Heating	<div style="width: 100%; height: 10px; background-color: orange;"></div>	<div style="width: 100%; height: 10px; background-color: orange;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
Heating Controls	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
Lighting	<div style="width: 100%; height: 10px; background-color: red;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>
Ventilation	<div style="width: 100%; height: 10px; background-color: orange;"></div>	<div style="width: 100%; height: 10px; background-color: green;"></div>			



Your options to achieve a more comfortable home

Shallow fabric

BER:

DI

Fuel Bills:

€-318/yr

Environmental Impact:

-2106 kgs CO₂/yr

Payback:

19 yrs

	Cost	Impact
Fit low energy lighting throughout property	€125	★☆☆
300mm Attic insulation at ceiling (from 0mm)	€1559	★★★
Draught proofing - windows, doors and attic hatch	€358	★☆☆
Fit chimney draught excluder	€187	★☆☆
Change open fire for high efficiency wood stove	€4255	★★★
Energy credits	€448	
Total investment	€6038	

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Sustainable Energy
Retrofit Planning Toolkit



Your next 5 easy steps to a more comfortable home



Arrange a home energy survey:



Get quotes for the work



Appoint a contractor



Complete upgrade



Get a warmer home



Your options to achieve a more comfortable home

Medium boiler

BER:

B2 ➔

Fuel Bills:

↓ €-1100/yr

Environmental Impact:

↓ -4839 kgs CO₂/yr

Payback:

25 yrs

	Cost	Impact
Fit low energy lighting throughout property	€125	★☆☆
300mm Attic insulation at ceiling (from 0mm)	€1559	★★★☆☆
Draught proofing - windows, doors and attic hatch	€358	★☆☆☆☆
Fit chimney draught excluder	€187	★☆☆☆☆
Change open fire for high efficiency wood stove	€4255	★☆☆☆☆
External wall insulation (100mm) to solid wall	€13145	★★★★★
Replace door with highly insulated door	€1920	★☆☆☆☆
Replace windows with double glazed windows	€4129	★☆☆☆☆
Fit new digital heating controls	€1192	★★★☆☆
New condensing oil boiler	€2575	★★★★★
Energy credits	€1754	
Total investment	€27696	

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Arrange a home energy survey:



Get quotes for the work



Appoint a contractor



Complete upgrade



Get a warmer home



Your options to achieve a more comfortable home

Medium heat pump

BER:

BI ➔

Fuel Bills:

⬇️ €-1005/yr

Environmental Impact:

⬇️ -5895 kgs CO₂/yr

Payback:

35 yrs

	Cost	Impact
Fit low energy lighting throughout property	€125	☆☆☆
300mm Attic insulation at ceiling (from 0mm)	€1559	★☆☆
Draught proofing - windows, doors and attic hatch	€358	★☆☆
Fit chimney draught excluder	€187	★☆☆
Change open fire for high efficiency wood stove	€4255	★☆☆
External wall insulation (100mm) to solid wall	€13145	★★☆☆
Replace door with highly insulated door	€1920	★☆☆
Replace windows with double glazed windows	€4129	★☆☆
Air to water heat pump, new cylinder and controls	€8582	★★★☆☆
Change existing rads to low temperature radiators	€3576	★☆☆
Energy credits	€2705	
Total investment	€35136	

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Your next 5 easy steps to a more comfortable home



Arrange a home energy survey:



Get quotes for the work



Appoint a contractor



Complete upgrade



Get a warmer home



Your options to achieve a more comfortable home

Deep heat pump

BER:

A2 →

Fuel Bills:

↓ €-1195/yr

Environmental Impact:

↓ -6642 kgs CO₂/yr

Payback:

40 yrs

	Cost	Impact
Fit low energy lighting throughout property	€125	☆☆☆
300mm Attic insulation at ceiling (from 0mm)	€1559	★☆☆
Fit chimney draught excluder	€187	★☆☆
Change open fire for high efficiency wood stove	€4255	★☆☆
External wall insulation (100mm) to solid wall	€13145	★★☆☆
Replace door with highly insulated door	€1920	★☆☆
Air to water heat pump, new cylinder and controls	€8582	★★★☆☆
Change existing rads to low temperature radiators	€3576	★☆☆
Replace windows with triple glazed windows	€4954	★☆☆
Draught proofing - full fabric sealing	€2965	★☆☆
Fit mechanical 'demand control' ventilation	€3576	☆☆☆☆
Install 2kWp solar electric panels	€5722	★☆☆
Energy credits	€2705	
Total investment	€47866	

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Sustainable Energy
Retrofit Planning Toolkit



Your next 5 easy steps to a more comfortable home



Arrange a home energy survey:



Get quotes for the work



Appoint a contractor



Complete upgrade



Get a warmer home

Energy in Transport

Background

Transport in Ireland is currently deeply dependent on imported fossil fuels. Emissions from transport powered by fossil fuels were by far the largest source of energy-related CO₂ in 2020, as they were responsible for 40% of the total and it is the only sector where CO₂ emissions have grown since the end of the recession in 2012. Road transport specifically accounts for 96% of all greenhouse gases associated with transport, so a modal shift is critical.

The Climate Action Plan stipulates that there must be a 42-50% reduction in emissions from the transport sector by 2030 if Ireland is to meet its Climate targets.

In order to achieve these emission reductions, it is clear that a transition towards more sustainable forms of transport is required. To realise this transition, many forms of transport must be maintained, planned, and provided for the region. This ranges from safe and accessible walking and cycle routes to appropriate public transport links serving the needs of the residents, to the implementation of appropriate infrastructure to support the electrification of private car and fleet vehicles.

The standout targets for the Transport sector as part of the Climate Action Plan are to:

- Provide an additional 500,000 daily public and active transport journeys
- Electrify 845,000 passenger cars
- Electrify mass transportation with up to 1,500 Electric Buses

This will necessitate a change in the traditional 'road hierarchy' which has dominated Irish roads for years, starting with active travel and then public transport being encourage over the private car.

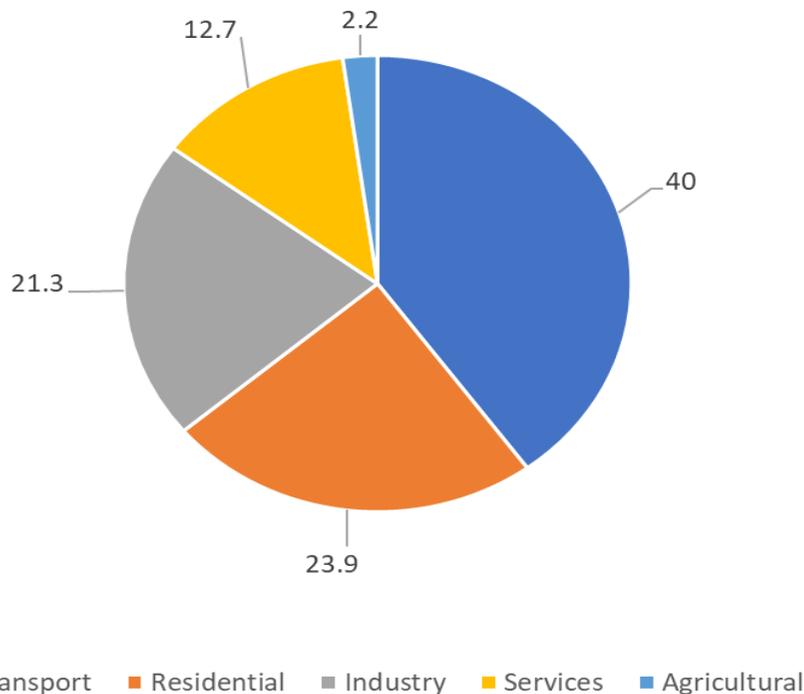


Figure 14 – Percentage share of Energy Related CO₂ by sector for 2020 in Ireland

Youghal SEC Energy Audit

Ireland's rapidly growing economy in recent years has brought with it urban sprawl and low-density development which has locked in unsustainable travel patterns and a reliance on private cars, bringing with it entrenched behavioural patterns that will not be easy to overcome.

The impact of the COVID-19 pandemic, with the introduction of severe travel restrictions and greater remote working practices, is estimated to have resulted in a reduction of 16% of transport emissions (excluding aviation) in 2020 compared to 2019 levels. The pandemic has shown that large scale behaviour change is achievable and that new patterns of mobility and working can play a part in the transition to a more sustainable transport system.

Method

An analysis of the means of transport for workers and students as well as the transport fuel mix in the catchment area of Youghal SEC has been carried out based on data from the Central Statistics Office (CSO).

SEAI's corresponding energy usage, prices and emission factors for various forms of transport as of 2020 were applied to calculate the total spend and CO₂ emissions for various sources of fuel for vehicles in the catchment area.

Results and Analysis

Commuting to work

Commuting to work by private car is the primary method of transport in the Youghal SEC with 72.2% of workers either driving or being driven by car.

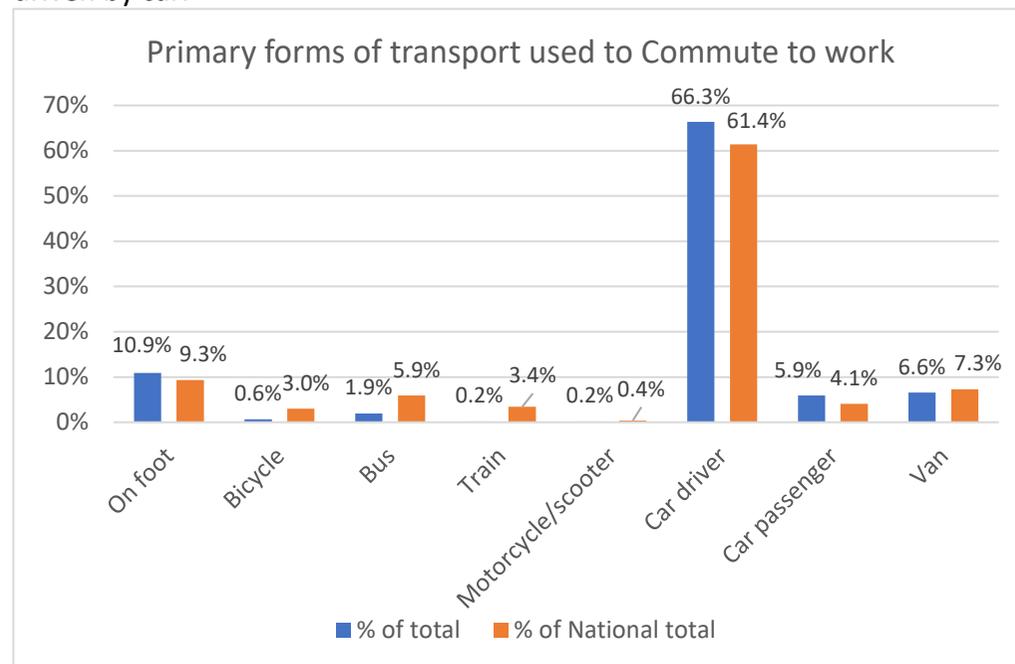
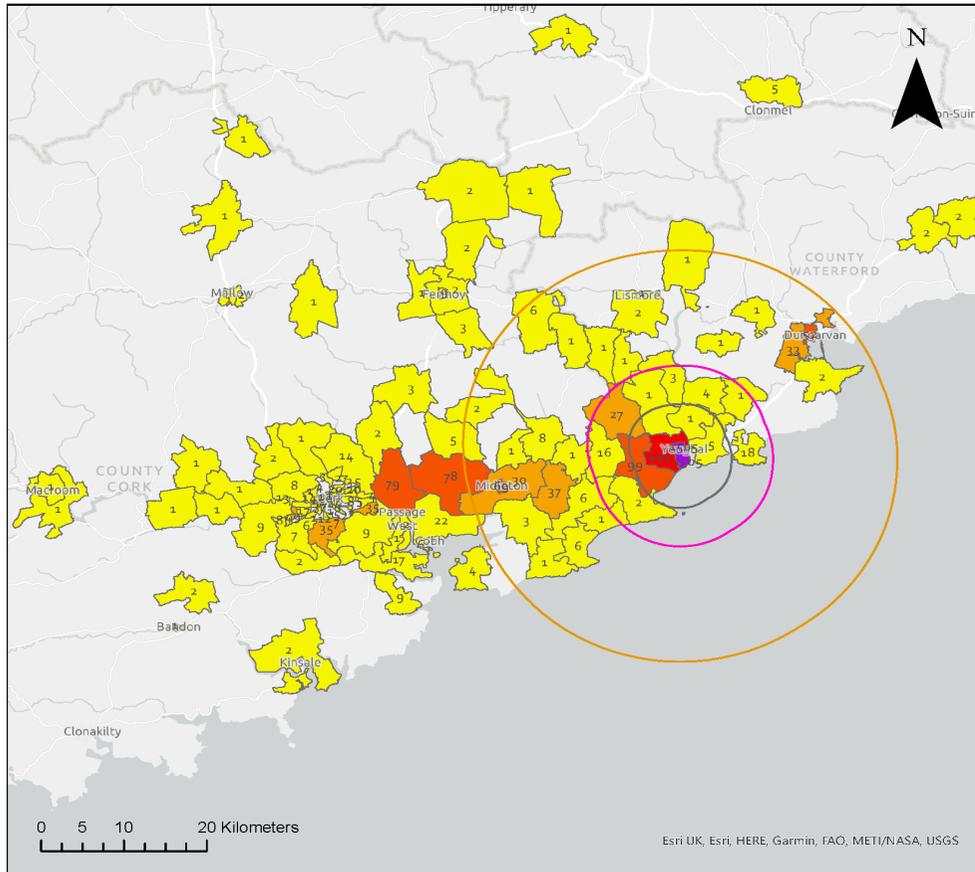


Figure 15 – Primary forms of transport used to commute to work

Youghal lags behind national averages in both active and public transport usage for commuting to work. To tackle these low levels and shift more commuters away from driving traditional fossil fueled cars, the Youghal SEC could try to encourage commuters who travel within a 15km radius of the town to utilise bus services to the surrounding area. The sizeable number of commuters in the Figure 16 that are travelling <15km to work gives further support to this strategy.

Youghal SEC Energy Audit



Census 2016 Place of Work, School or College - Census of Anonymised Records (POWSCAR) illustrates the movement of individuals living in Youghal who travel for Work, School or College. The information is based on the 2016 census data.

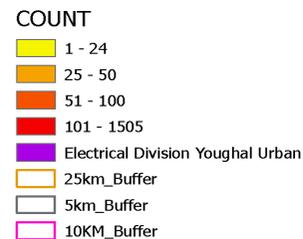


Figure 16 - Place of Work, School or College Census of Anonymised Records (POWSCAR). Travel Destinations from Youghal Urban electoral division.

The CSO 2016 Place of Work, School or College – Census of Anonymised Records (POWSCAR) illustrates the movement of individuals living in the Youghal Urban Electoral Divisions. An analysis of the information when presented using Geographic Information Systems (GIS) illustrates the influence of large Urban centres on the movement of individuals.

Although there are a significant number of journeys outside of the 25km radius, the majority of journeys originating from Youghal are within a distance of 10km. The average distances travelled are well within the single charge capacity of a modern electrical vehicle and therefore should not be seen as a barrier to the acceptance of this technology.

The POWSCAR information highlights the potential to further promote active and public transport methods for commuters given the number of commuters who travel no further than 5kms from the centre of Youghal. Further detailed analysis would be recommended to determine if additional public transport services could economically service this catchment area and provide an alternative mode of transport for individuals who need to commute to Youghal Urban.

Reducing reliance on the private car is difficult, particularly in low density, dispersed population such as Ireland's. Sustainable transport is among the greatest challenges for semi-urban regions, particularly in a town like Youghal which is currently not serviced by an active railway line, although historical lines are in place.

Youghal SEC Energy Audit

Services such as Youghal community bus operate successful services to isolated and vulnerable people within the community, as well as offering an alternative means of transport within the region. Ensuring consistent and reliable operation of such services can help in increasing the number of Youghal residents who will use it. It is also important to circulate the operation of such services through as many means as possible social media, local newsagents etc.

For Youghal residents commuting to Cork City for work or leisure, Expressway coaches provide 13 buses to and from the town Monday to Saturday and 9 departures each way on Sundays, with stop offs in Midleton. Similarly, Bus Eireann's service offers a number of buses each morning and afternoon which stop off in many of the intervening towns between Youghal and Cork. Again, it is important that the availability of such services is promoted within the community.

Reducing car journeys through remote working

The impact of COVID-19 on the profile of transport in Youghal cannot be understated and will have changed significantly in the last two years, with a greater shift to home-based working and education, thus leading to a reduction in car usage.

A recent CSO study indicated that 80% of those in employment have worked remotely at some point since the start of the pandemic. The recent enforced changes have created a national experiment in the concept of hybrid or remote working models which in many cases have been seen as being successful.

¹⁴ <https://tinyurl.com/9d756vrX>

Many office-based jobs can be based partly or on a full-time basis at home or within remote office hubs within the community. The recent enforced changes have created a national experiment in the concept of hybrid or remote working models which in many cases have been seen as being successful. Many office-based jobs can be based partly or on a full-time basis at home or within remote office hubs within the community.

A reduction of 40% in work associated commutes could be achieved by working remotely 2 days a week, which would mean significant progress in reducing transport emissions by 42-50%. Youghal SEC could explore the potential for smart remote working hubs within existing community building infrastructure or as additions onto community buildings with childcare and after school facilities. It can also be used as an opportunity to give derelict buildings within the community a new lease of life.

The Building Block ¹⁴ in Sligo town is an excellent example of this, which is a shared working space that prior to its development in 2017, had been unused for 10 years. Key elements which will be required to make this successful are comfortable buildings with high-speed broadband and shared canteen facilities. It is understood that there are already multiple remote working hubs in Mullingar. The SEC could try to take advantage of the recently announced grant funding for community hubs in the [Town and Village Renewal Scheme](#), in order to modernise existing remote working spaces in the community and make them more attractive for remote working.

Youghal SEC Energy Audit

Commuting to school or college

The outcome is similar for students commuting to primary, secondary and college education. Naturally we would expect the car to dominate for primary school children, so this slightly skews the results. However, the community's low usage of public transport continues amongst the student population, with the Youghal SEC's usage over 27% lower than the national average.

This may be seen as a cause for concern but could also be viewed as a significant opportunity, as the community could try to address this by lobbying their local councilors and TDs if they can prove there is demand for increased bus services to and from schools.

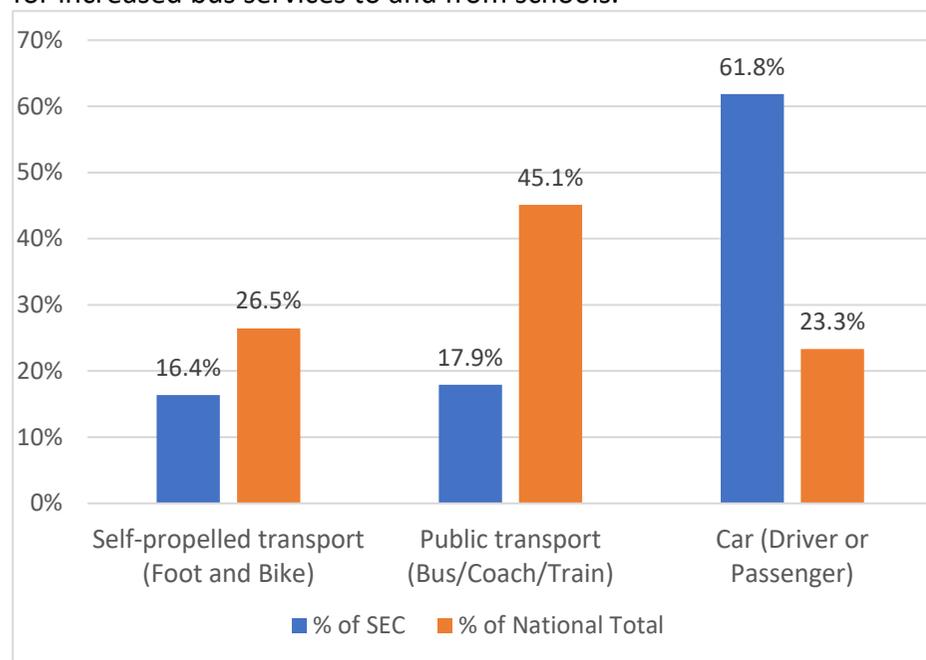


Figure 17 – Primary forms of transport for primary, secondary and college student

Youghal has a respectable level of students who either walk or cycle to school, however it still sits below the national average. To increase this rate the Youghal SEC could seek funding or grants in order to improve the active travel infrastructure in their community so that walkways and cycle paths are safer for students.

For example, The Safe Routes to School (SRTS) Programme launched in March 2021 and was open to all schools in Ireland to apply for active travel funding and delivery. Over €15 million was provided in Round 1 of funding to accelerate the delivery of walking and cycling infrastructure on key access routes to schools and on school grounds.

Often times, one of parent's primary concerns about their children using active transport to go to school is their safety when going out alone. One way to combat this is through a 'Cycle Bus'. A Cycle Bus is where students cycle along a designated route to school with parents accompanying them.

It is a parent/guardian/community-led initiative whereby several parents and volunteers lead groups of cycling students to one or more schools. Cycle Buses have a specific route with stops along the way where students can join. Whilst this began as in cities, it has since spread to smaller towns such as [Skibbereen, Strandhill and Cootehill](#).

Similar initiatives have popped up over the country, except rather than cycling, parents' guide children by foot in what is known as a '[Walking Bus](#)'.

Youghal SEC Energy Audit

Energy consumption from transport

An analysis of transport related energy consumption was carried out for the Youghal SEC catchment areas. This was based upon a statistical analysis of vehicle ownership in the catchment area along with the types of vehicles used and their associated carbon emissions.¹⁵ As already referenced, the Census data shows that the majority of commutes within the Youghal SEC catchment area is by car or van.

Table 12 – Means of commuting in the SEC

Commuting to work	No. of people	% of total
Private transport	2104	73.1%
Passenger	170	5.9%
Public transport	61	2.1%
Walking, cycling	331	11.5%
Work from home	119	4.1%
Other or not stated	94	3.3%
Total	2879	100%

Based on the information for vehicle ownership within the Youghal SEC, it is possible to calculate the energy consumption and carbon footprint for the transport sector. A national stock breakdown has been used to calculate energy consumption and emissions (56.9% diesel, 42.7% petrol, 0.4% Battery Electric Vehicle (BEV)) based on national average km travelled.

¹⁵ The renewable portion of the fuels has been taken as follows: renewable content of electricity consumed (40% in 2020), 5% of petrol consumption and 7% of diesel consumption (as per the Biofuels Obligation Scheme).

Table 13 – Private Vehicle Transport Energy and CO₂ impacts

		National average annual km	kWh/km (TPER)	gCO ₂ /km
Car	Petrol	12,113	0.73	167
	Diesel	19,681	0.70	167
	BEV	12,958	0.38	65
Motorcycle		2,741	0.41	94
Van		19,787	1.01	243
Truck		44,671	3.47	832

Based on this information and values, a conservative estimate of energy used in transport is shown in Table 14 below.

Table 14 - Youghal SEC Transport Energy, CO₂ and Spend

	Electricity	Fossil Fuel	Renewable	Total
Total Primary Energy (kWh)	37,620	24,293,478	1,688,491	26,019,589
Total CO ₂ (tonnes)	6.43	6,137	0	6,143
Total Spend (€)	€7,110	€4,907,727	€319,125	€5,233,962

Youghal SEC Energy Audit

Switch to electrical vehicles

A significant increase in the availability of long-range electrical vehicles (EV) has made this mode of transport more suitable for environments outside of large urban centres. Electric vehicles will become the dominant mode of privately owned vehicles in the coming decade. The key benefit for the user is the reduced operational costs associated with fuel to power the car.

In fact, an analysis of the impact of changing 40% of the existing private vehicle fleet to battery electric vehicles is detailed in Table 15. It indicates that this switch could lead to a CO₂ reduction of 1,547 tonnes and a reduction in energy spend of approximately €1,106,283 per annum.

These are savings which can be recirculated around in the local economy, creating a more economically sustainable community. If the Youghal SEC is struggling to avoid using cars or shift its residents to active or public transport, then a transition to electric vehicles shows that it can still reduce emissions, therefore aligning with the Climate Action Plan's targets.

Table 15 - Youghal SEC Transport Energy, CO₂ and Spend with 40% Electric Vehicles

	Electricity	Fossil Fuel	Renewable	Total
Total Primary Energy (kWh)	3,761,967	15,672,954	1,334,052	20,768,972
Total CO ₂ (tonnes)	643	3,952	0	4,596
Total Spend (€)	€711,012	€3,164,532	€252,136	€4,127,679

¹⁶ <https://www.esb.ie/our-business/ecars/ecars-cost-calculator>

The following fuel costs for the EV are based upon home charging with night rate electricity in 2020.¹⁶

Table 16 - Comparison of CO₂ impacts and fuel costs based on 250km per week

Vehicle	Weekly fuel cost	Weekly gCO ₂
Electric e.g. Nissan LEAF	€2.54	13,800
Petrol equivalent	€21.60	27,200
Diesel equivalent	€15.74	21,800

The Youghal SEC should consider a public EV awareness event to promote awareness of the suitability of electrical vehicles for suburban environments. Although it is a significant investment to purchase an EV, households with two vehicles should be encouraged to look at the possibility of having a smaller electric car alongside their first car for shorter journeys as a starting point on the route to electric vehicles.

SEAI provides a series of supports to incentivise the transition from fossil fuel-based vehicles towards electrical vehicles, details of which can be found in the Appendices.

Youghal SEC Energy Audit

Whilst we anticipate the accelerated growth of a 'second-hand' market to grow in the next five years, given the lower economic status of a chunk of the Youghal SEC's residents, in the short term the Youghal SEC should focus on implementing the 'Avoid-Shift-Improve' or ASI model for transport within the community:

Table 17 – Avoid–Shift–Improve Transport model

Pillar	Description	Example
Avoid	Avoid or reduce travel or the need to travel	Transitioning to increased remote working. Walking or cycling where possible
Shift	Shift to more energy efficient modes	Using public transport such as bus services
Improve	Improve efficiency through vehicle technology	Moving towards electric vehicles

Car Sharing/Pooling

Car sharing within a suburban environment can be complex due to the distribution of homes, however many people are likely to be travelling to the same locations on a regular basis, such as on school runs. Car sharing or pooling can reduce the number of vehicle journeys and reduce the cost for both the driver and its occupancy by sharing costs. Although car sharing/pooling does require planning, it does have benefits that include:

- Reduced driving and car maintenance costs
- Social and inclusive
- Suitable for longer distance commutes daily
- Suitable for school runs as the start and finish times are defined

Background

In order to achieve a 51% reduction in Carbon emissions by 2030 and a subsequent 'Climate neutral economy' by 2050, the business community will have to go through a period of transition in the same way as other sectors of the economy. Over the next decade businesses are encouraged to invest in a greener future, through sustainable products, services and business models.

Since the financial crisis, Ireland's economy has shifted from one influenced by the construction sector, to one which is more influenced by Small to Medium Enterprises (SMEs). There are an estimated 234,000 SMEs in Ireland, meaning there is significant potential to reduce emissions within this sub-sector.

Many of the avenues that the commercial/business sector can take to reduce their carbon footprint and move towards a more sustainable model show crossover with the opportunities in the residential sector. However, there are a significant number of commercial processes such as refrigeration within convenience stores, air compressors at warehouse facilities and lighting arrangements in the hospitality industry which use significant amounts of energy and require tailored strategies to reduce this.

Given the turnover that some SMEs are recording in Ireland it can be difficult to have oversight of all monetary outgoings from a business.

Therefore, many business owners simply don't notice the amount of unnecessary energy they are using in the day-to-day running of their business.

For this reason, an important theme throughout all these reports is the importance of engaging employees regarding good energy management and educating all building users on the ways in which everyone within the building can contribute towards saving energy. Simple measures, such as upgrading to more energy efficient appliances, or switching off IT equipment rather than leaving on standby, have proven to be successful in saving energy.

[The recent Government announcement](#) aimed at accelerating the decarbonisation of Irish businesses will see a new €55 million programme to help businesses plan for a more sustainable future and accelerate their decarbonisation journeys. The programme, which will run over the next five years will primarily comprise of the following:

- The Climate Planning Fund for Business, will give businesses a €1,800 grant to devise a personalised plan to identify how best to eliminate their reliance on fossil fuels and up to €50,000 matched funding to go towards specific capacity building
- The Enterprise Emissions Reduction Investment Fund will offer up to €1 million for manufacturing businesses to upgrade their processes. With funding to invest in energy monitoring and tracking, carbon neutral heating processes, smart metering and research and development

Youghal SEC Energy Audit

Method

An analysis of non-domestic energy consumption within the Youghal SEC catchment was carried out using various data sources including CIBSE TM46 Energy Benchmarks, Valuations Office and Energy Consumption and SEAI's 'Extensive Survey of Commercial Building Stock in Ireland'.

In order to estimate the potential energy usage of all Industrial and Commercial premises within the catchment area, a method based on the estimated floor area and business category was designed. Energy benchmarks for various business categories were sourced from "CIBSE TM46 Energy Benchmarks and Energy Consumption Guide" and were applied to the floor area data available.

As part of the Energy Audit for Youghal, three non-domestic premises were audited to Ashrae level 1 to identify any opportunities within these premises for energy efficiency upgrades. The recommendations within the reports are based on utility data, a site audit, and related engineering calculations.

The site audit consisted of a walk-through of the facility and review of the electrical and mechanical systems and equipment. It is recommended that the organisations implement the measures identified in their reports to contribute towards the energy consumption reduction goals as set out in the Climate Action Plan.

The premises which were audited are listed below and a detailed report was provided to each of the property owners, the results of which are located within the Appendices:

- Cumann Na Daoine
- Gael Scoil Choráin
- Bru na Sí

Results and Analysis

Table 18 provides an overview of the estimated total energy usage, emissions and spend from the Commercial/Business sector within the Youghal SEC. This helps the Youghal SEC get an idea of just how much their commercial sector needs to reduce its energy usage by in order to keep in line with the Irish Government's targets in the Climate Action Plan.

Table 18 - Youghal SEC Non-Domestic Energy, CO₂ and Spend

Electricity typical benchmark (MW·h)	Fossil-thermal typical benchmark (MW·h)	Illustrative electricity typical benchmark (tCO ₂)	Illustrative fossil-thermal typical benchmark (tCO ₂)	Illustrative total typical benchmark (tCO ₂)	Illustrative total Energy Spend (€)
1995	5480	1099	1041	2140	€1,186,775

Youghal SEC Energy Audit

Support for SMEs

Aside from the recommendations contained within the Energy Audit and supplementary non-domestic audits, businesses can utilise the recently created ClimateToolKit ¹⁷ website launched by the government to help businesses get started in taking climate action.

This online tool allows SMEs (Small and medium-sized enterprises) to input some simple information and get an estimate of their carbon footprint and a personalised action plan to reduce it. Each tailored action plan includes straight-forward, practical instructions and highlights the relevant help that is available from Government, through agencies such as Enterprise Ireland, the Local Enterprise Offices and SEAI.

SEAI are currently running an energy audit scheme that offers SMEs a €2,000 voucher towards the cost of a high-quality energy audit¹⁸. These energy audits are suitable for businesses with an annual energy spend of over €10,000. These energy audits delve deeper than those contained within this report, analysing the sites suitability for various renewable technologies, the most significant users of energy in their business and their overall Carbon footprint.

A highly detailed audit like this gives business owners the confidence to take appropriate steps to improve both their energy efficiency and reduce their annual energy bills. The non-domestic audits identified several opportunities within the premises and Youghal SEC which can be developed into energy efficiency projects. Some of the most noteworthy projects are:

¹⁷ [climatetoolkit4business.gov.ie](https://www.climatetoolkit4business.gov.ie)

Gaelscoil Choráin

- Installing Energy Monitoring Equipment within the school so that targeted interventions can be made, and inefficient processes/appliances can be upgraded

Cumann na Daoine

- Installation of a Porch with automatic doors. This would stop the cold air coming straight into the building, resulting in less heat loss and therefore less energy use.
- Upgrading to a more efficient oil condensing boiler which would lead to energy and monetary savings

Youghal SEC

- Energy Audit Scheme for SME's. SME's that spend €10,000 on energy per year are eligible for an in-depth energy audit which aims to help businesses understand:
 - How much energy the business uses
 - The equipment and processes that use the most energy
 - What actions businesses should take to save energy, their estimated cost, impact and suitability for renewable energy

Brú na Sí

- Retrofit Brú na Sí to a B2 rating in associated with the current extension being constructed.

¹⁸ <https://www.seai.ie/business-and-public-sector/small-and-medium-business/supports/energy-audits/>

Youghal SEC Energy Audit

Renewable Electricity

If a 20% reduction in electricity consumption could be achieved by Youghal SEC through energy efficiency measures, there would remain a residual electrical demand of 28,182 MWh. In order to offset this demand, it has been calculated that it would require the provision of a 12 MW wind farm, or a 32 MW solar farm to service the Youghal SEC catchment area.

A community led Renewable Electricity Support Scheme (RESS) project which has an upper limit of 5MW would be capable of providing a significant amount of the residual energy demand for the community.

Residual Energy Demand



A detailed set of calculations on the generator size and the arrangements to use the energy locally would need to be carried out under a more detailed scoping study. Initial calculations indicate that that a wind turbine or solar photovoltaic farm correctly sized and installed with the capacity described above could generate sufficient electricity to meet this demand. A battery or other storage solution may also form part of such an initiative.

Renewable Electricity Support Scheme

The Government of Ireland has put in place a scheme called the Renewable Electricity Support Scheme (RESS)¹⁹ which aims to deliver increased community involvement in renewable energy projects. This scheme provides financial support for renewable electricity projects of over 0.5 MW in size in the Republic of Ireland.

RESS is an auction-based scheme, which invites renewable electricity projects to bid for capacity and receive a guaranteed price for the electricity they generate.

Support schemes like RESS, in place all over the world, are a way of ensuring that renewable energy technologies are incentivised to replace the use of fossil fuels in our economy. Communities are incentivised to invest in renewable technologies by Governments who contract to buy electricity at a guaranteed price for the long term, typically a period of about fifteen years.

In total, about 3,000 'gigawatt-hours' will be put up for auction by the state. The most cost-efficient bidder will be the first picked, the second most cost-efficient will be the second picked and so on until all the gigawatt-hours are accounted for. In essence this means only the most efficient project offering a price at the lowest level will get picked

¹⁹ <https://www.dccae.gov.ie/en-ie/energy/topics/Renewable-Energy/electricity/renewable-electricity-supports/ress/Pages/default.aspx>

Youghal SEC Energy Audit

Eligible technologies under the RESS scheme include:



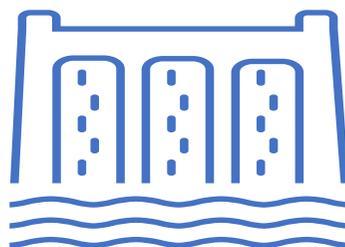
Onshore wind turbines/solar thermal/solar PV technology



Onshore wind turbines/solar thermal/solar PV technology with battery storage



High-efficiency Combined Heat and Power (CHP) boilers fueled exclusively by waste/biomass/biogas



Hydroelectric

All projects looking for support under the RESS scheme will need to meet certain criteria before becoming successful. There are three aspects of community participation in RESS:

- Community Led Projects
- Community Benefit Funds
- Community Enabling Framework

Community Led Project Criteria

The application must be made in conjunction with a Sustainable Energy Community (SEC). The SEC must be identified in the Declaration of a Community-Led Project, together with a description of the relationship between the Applicant and the Sustainable Energy Community. In addition:

- Project size must be between 0.5 and 5 Megawatts
- Fully (100%) owned by a Renewable Energy Community (REC)-primary purpose is community benefit (environmental, economic, or social) rather than financial profit
- Community group must be based on open and voluntary participation
- Participation based on local domicile (within close proximity to the RESS project)

Community Benefit Funds

A key feature of RESS is that all projects must establish a 'Community Benefit Fund' to be used for the wider economic, environmental, social and cultural well-being of the local community. The amount payable by RESS Projects into the Community Benefit Fund by the Government is mandated at €2 per Megawatt hour of electricity generated from a RESS Project. This means there are quantifiable funds made available annually for the benefit of the local community.

This will allow communities to further invest in local renewable energy, energy efficiency measures and climate action initiatives. For RESS-1 alone it is envisaged that almost €4m in annual payments, over a period of approximately 15 years, will be paid into the Community Benefit Funds in communities that host RESS-1 projects.

Youghal SEC Energy Audit

With several more RESS auctions planned in the coming decade the total funds involved are several hundred million euro in value over the lifetime of RESS.

Recently it was announced that Community-led projects seeking to apply to future RESS auctions, must be 100% owned by the community, as opposed to being majority owned as was the case for RESS-1. Therefore, Community-Led Projects must now meet the following requirements:

(a) at all relevant times be 100% owned by a Renewable Energy Community (the “Relevant REC”) either by way of (i) a direct ownership of the RESS 2 Project’s assets, or (ii) a direct ownership of the shares in the Generator; and

(b) at all relevant times, 100% of all profits, dividends and surpluses derived from the RESS 2 Project are returned to the Relevant REC.

Community Enabling Framework

Project planning, grid infrastructure and community buy-in remain the major obstacles to a community led development. Community consensus is the key to the successful development of a community owned project. If there is consensus within the community, an application can then be made to SEAI (or another funding body) to carry out a feasibility study for a renewable energy development in the areas within the community identified.

This feasibility study should look at grid capacity and constraints, planning constraints, environmental designations, and residential buffer zones around the proposed sites.

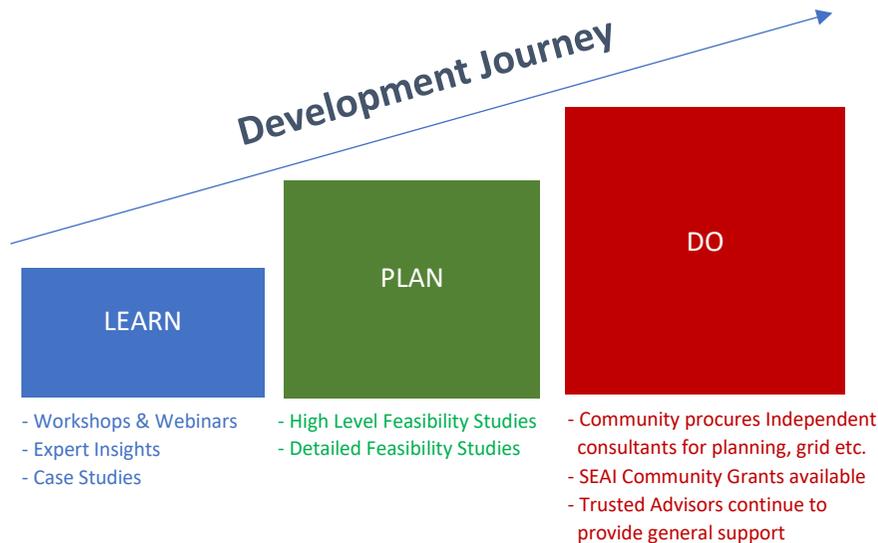
One of the key community provisions as part of RESS is the Community Enabling Framework which provides end-to-end support to create a community energy sector in Ireland that can flourish sustainably over time and one that will deliver meaningful impact to communities nationwide. SEAI have been appointed by the Department of Environment, Climate & Communications (DECC) as the implementation body for this Framework which will provide a range of supports including:

1. **Trusted Intermediary:** this is effectively the RESS community team within SEAI. This is the first place that communities go to seek help with their RESS projects. The contact email is: CommunityRESS@seai.ie
2. **Information warehouse:** SEAI have developed a number of toolkits to help communities understand the RESS journey²⁰. Toolkits include: onshore wind, solar PV, the planning process and grid connection. There are several more in development. The Toolkits provides a set of guidance modules across a number of different areas (including technology options, business planning, project development stages, setting up an organisation / governance strategy) to support development and delivery of a Renewable Energy project.

²⁰ <https://www.seai.ie/community-energy/ress/enabling-framework/>

Youghal SEC Energy Audit

- The **Trusted Advisor (TA)** service from SEAI is now available for communities who want to develop their own electricity generation projects. The TAs will help the SECs through the development stages of a generation project. This will include two free feasibility studies to determine if the community generation project is viable.



- Financial supports:** this is the community RESS enabling grant. The total grant available is 80% of eligible costs up to a maximum of €180,000. Entry to the grant programme is based on the successful completion of the feasibility stage conducted by an SEAI appointed TA from above. The grants can be drawn down in €25,000 tranches on completion of key milestones. A requirement before drawing down the second tranche is the undertaking of a public engagement event to ensure that the generation project is socialised within the community.

Youghal SEC Energy Audit

Sustainable Energy Roadmap

The Sustainability Energy Roadmap is one of the key outputs of the Energy Audit as it outlines to the community the scale of the challenge faced in moving the community from their baseline to achieving 2030 reduction targets. The following analysis provides a general path for the Youghal SEC to reach its targets of 50% energy reduction and 50% renewable energy generation within the next ten years.

These targets have been broken down in each of the sectors detailed in Table 20 below.

Community CO2	
tCO2	35,956
% Annual CO2 Reduction	7%
Year	tCO2
2022	33,439
2023	31,099
2024	28,922
2025	26,897
2026	25,014
2027	23,263
2028	21,635
2029	20,120
2030	18,712
2031	17,402
2032	16,184

	Number of Projects	Primary Energy Savings (kWh)	CO ₂ Savings (tonnes)
Community owned Wind Project in MW	12.9	28,182,390	13,606
Residential Housing Upgrades to a B2 BER	500	7,499,352	2,279
40% Electrical Vehicle (EV) Ownership	40% Change	5,250,617	1,547
Reduction in Car Journeys though remote working	40% Change	8,307,589	1,838
Total		49,239,948	19,271

Youghal SEC Energy Audit

Register of Opportunities (RoO)

The Register of Opportunities (RoO)²¹ developed for Youghal SEC provides a list of projects in three categories which have been identified within the community.

Behavior, Energy Efficiency and Renewable Energy Projects have been identified, which have both short- and medium-term timescales. The RoO provides for a detailed project specific planning tool including project cost, energy impact and carbon savings.

The Register of Opportunities (RoO) is a live document used to identify, evaluate, and plan your energy projects. The Sustainable Energy Community owns this document and is responsible for using, editing and improving the content in order to match its ambitions.

The RoO is presented in an excel workbook because some parts contain formulas to calculate financial and energy savings.

As part of the scope of works for the Energy Audit for Youghal SEC, a number of domestic energy audits and non-domestic audits were carried out on buildings selected within the community. Sections of the register of opportunities was generated from these audits based on the information available.

²¹ Each of the projects are detailed within the RoO spreadsheet, which is a live document attached as Appendix B.

The key criteria when selecting projects where are suitable to progress are:

- 1) Return on investment or payback period
- 2) Complexity of the project
- 3) Are the project costs known?
- 4) Is supporting funding available?
- 5) What impact is the project going to have on the community?

Key standout projects are listed below:

- 2kWp Solar PV system at Cumann na Daoine
- Air Source heat pump heating system at Bru Na Sí
- Community EV Charging Point
- Feasibility study for a Renewable Energy Support Scheme (RESS) community power project
- Community electric bike scheme

Note: The costings provided are indicative only and quotations should be sought from suitably qualified contractors following an appropriate design and specification process.

Action Plan for Youghal SEC

Capacity Building

One of the key elements in the development of a successful Sustainable Energy Community is the ability to build capacity within the group, which is required for the implementation of successful projects. By increasing the capacity of the SEC there is a higher probability that the group will be able to take on more complex projects as their confidence grows. Capacity building can be achieved by utilising the mentors appointed to the group by SEAI to arrange educational and training initiatives as well as vocational and third level education bodies. The SEC can also work with other established SEC's to exchange shared learnings

Energy Audit Dissemination to Community

The dissemination of the Energy Audit throughout the community is one of the key actions for the SEC now that the plan has been completed. The Energy Audit will provide the community with an understanding of what their current energy profile is and where they as a community should put their efforts in reducing their energy and carbon footprint.

Communication and Engagement Events

Engagement with other community organisations to identify shared needs especially in the development of existing community assets for remote working may be beneficial to the greater community. The upgrading and reimagining of community buildings through BEC grants to provide remote working hubs, childcare facilities, or social hubs feeds into the DO stage of the SEC's plan.

In addition to other community groups, private sector groups such as energy project developers which have community benefit funds may be interested in providing support to the SEC, but only if they are aware of its existence.

Low Lying Fruit First

The SEC is encouraged to develop low-effort, low-cost efficiency projects first to increase their internal capacity and skills. These low-effort, low-cost efficiency measures can be quick wins for the community and encourage the group to tackle more complex, higher effort projects in the future. These projects also provide a focus point for the greater community to prompt discussions and knowledge sharing experiences.

LEAF (Local Energy Action Fund) Funding

Avail of funding streams from SEAI for activation of energy efficiency projects within your community. These funding streams are constantly changing, and the community should continue to engage with SEAI on a regular basis to understand what is available for communities.

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- [7] NSAI, SR54 Code of Practise for the Energy Efficiency Retrofit of Buildings

NO PLANET 2.0



Appendix A: Grant Streams

Better Energy Communities

Better Energy Communities is the national retrofit initiative which provides capital grants for energy efficiency projects in Irish communities. The BEC programme with grant support of up to €28 million for 2021 aims to deliver energy savings to homeowners, communities, and private sector organisations. Projects must be community orientated with a focus on cross-sectoral approach.

Successful Community projects must demonstrate some or all of the following characteristics.

- Community benefits
- Multiple elements, not a single focus
- Mix of sustainable solutions
- Innovation and project ambition
- Justified energy savings
- An ability to deliver the project

The following list outlines the types of measures that SEAI want to support through the Communities grant program

- Building Fabric Upgrades
- Technology and System upgrades
- Integration of renewable energy sources
- Domestic Combined Fabric Upgrade
- Single Building Demonstration projects will be considered under the Communities Grant

BEC 2021 Funding Levels

Residential		
Home type	Fuel type	Funding Level
Private	Fuel Poor	Up to 80%
Private	Non-Fuel Poor	Up to 35%
Local Authority		Up to 35%
Private Rented Homes		Up to 35%
Housing Association		Up to 50%

Non-Residential	
Type	Funding Level
Not for profit/community	30% Up to 50% (may be available subject to state aid rules and SEAI approval in advance)
Private and public sector	Up to 30%
Public Sector	> 30% ≤ 50%

SEAI's Home Energy Grants

<https://www.seai.ie/grants/home-energy-grants/>

SEAI primarily has three grants and supports schemes for individual homeowners who wish to make energy upgrades to their home:

- Free Energy Upgrade
- Individual Energy Upgrade Grants
- One Stop Shop Service

Free Energy Upgrade

This SEAI grant provides free energy-efficient home upgrades for homeowners that receive certain welfare payments. Homeowners will receive a free assessment from an SEAI surveyor who will recommend the most suitable upgrades for the property.

Eligible Free Energy Upgrade home improvements		
Attic insulation	Cavity wall insulation	External wall insulation
Internal wall insulation	Replacement windows	Heating Systems upgrade
Heating controls	Ventilation	Compact fluorescent lamps (CFLs)
Draught proofing	Lagging jacket	

To qualify for any of these SEAI grants under the Free Energy Upgrade Scheme, homeowners need to meet all of the following criteria:

- The home must be your main residence and you must be the homeowner
- The home was constructed before 1993. It must have also been lived in prior to this date
- The home has an energy rating of C, D, E, F, or G.
- You receive one of the following government payments:
 - Fuel Allowance scheme
 - Working Family Payment
 - One-Parent Family Payment
 - Domiciliary Care Allowance
 - Carers Allowance. You must be living with the person you are caring for
 - Disability Allowance for more than six months. You must also have a child less than seven years old
 - Job Seekers Allowance for more than six months. You must also have a child less than seven years old

The Free Energy Upgrade grant will cover all expenses for a Home Survey, Contractor Selection, Contractor Works and a BER certificate. It is important to note that it will be the Surveyor who decides the improvements to make, the homeowner cannot choose which specific upgrades they would like.

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Individual Energy Upgrade Grants

This grant allows the homeowner to choose which home improvements to bring, choose the registered contractor, and complete the work yourself. Despite being more in charge of this grant, you still need to wait for the approval of the grant before starting the project.

To qualify for any of the SEAI individual energy upgrade grants, you need to meet all four of the following criteria:

- The home must be your main residence and you must be the homeowner
- For any of the insulation and heating controls grants, your home must have been constructed and lived in before 2011
- For any of the heat pumps and renewable energy systems grants, your home must have been constructed and lived in before 2021
- Your home must not have received the same home improvement government grant in the past

Measure	Individual Energy Upgrade Grants			
	Detached	Semi D/End of Terrace	Mid Terrace	Apartment
Ceiling insulation	€1,500	€1,300	€1,200	€800
Cavity Wall Insulation	€1,700	€1,200	€800	€400
External Wall Insulation	€8,000	€6,000	€3,500	€3,000
Internal Insulation	€4,500	€3,500	€2,000	€1,500
Air to Air Heat pump system	€3,500			
Air to water Heat pump system	€6,000			€4,500
Ground source to water Heat pump system	€6,000			€4,500
Heat Pump Technical Assessment	€200			
Heating Controls (Homes built pre-2011)	€700			
Solar Water heating	€1,200			
Solar PV (Homes built pre-2021)	€1,800 for 2kWp system, additional €300 per kWp up to €2,400			

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One Stop Shop Service

Under this programme, homeowners will be able to receive a complete home energy upgrade. These will be managed by registered contractors who will manage the entire process for you. From the initial assessment, placing the SEAI grant application for you, conducting the work, and providing the final BER.

Measure	One Stop Shop Service grants			
	Detached	Semi D/End of Terrace	Mid Terrace	Apartment
Home Energy Assessment	€ 350			
Air Tightness	€ 1,000			
Mechanical Ventilation	€ 1,500			
Solar Hot Water	€ 1,200			
Bonus for reaching B2 with a Heat Pump	€ 2,000			
Heating Controls	€ 700			
Air to Air Heat Pump system	€ 3,500			
Floor insulation	€ 3,500			
External doors (max of 2)	€800 per door			
Heat Pump Systems	€6,500		€4,500	
Central Heating System for Heat Pump	€2,000		€1,000	

Measure	One Stop Shop Service grants			
	Detached	Semi D/End of Terrace	Mid Terrace	Apartment
Ceiling insulation	€3,000	€3,000	€2,000	€1,500
Cavity Wall Insulation	€4,000	€3,000	€1,800	€1,500
External Wall Insulation	€2,000	€1,600	€1,200	€800
Internal Insulation	€4,500	€3,500	€2,000	€1,500
Rafter Insulation	€3,000	€3,000	€2,000	€1,500
Windows (Complete Upgrade)	€4,000	€3,000	€1,800	€1,500
Project Management	€2,000	€1,600	€1,200	€800
Solar PV - 0 to 2kWp	€900/kWp			
Solar PV - 2 to 4kWp	€300/kWp			

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Your home or property needs to meet all of the following criteria to qualify for the One Stop Shop Service grant:

- The home must be your main residence and you must be the homeowner
- Your home must have been constructed and lived in before 2011 for insulation and heating controls grants
- Your home must have been constructed and lived in before 2021 for heat pumps and renewable energy systems grants
- Your property must have a B3 or lower energy efficiency rating and a minimum of a B2 upon completion of the upgrades
- Your property must not have received government grants in the past for the same home improvement

Electric Vehicles

Privately bought EVs

A maximum grant of €5,000 is available for qualifying new electric vehicles when purchased privately. Approved EVs with a List Price of less than €14,000 will not receive a grant. As of the 1st of July 2021, there is a cap of €60,000 on the full price of all vehicles. The full price of the vehicle to the customer includes all optional extras, paint, and delivery but excludes any incentives such as grants or rebates.

List Price of Approved EV	Grant available
€14,000 to €15,000	€2,000
€15,000 to €16,000	€2,500
€16,000 to €17,000	€3,000
€17,000 to €18,000	€3,500
€18,000 to €19,000	€4,000
€19,000 to €20,000	€4,500
Greater than €20,000	€5,000

Commercially bought EVs

SEAI provides grant supports towards the purchase of new N1 category electric vehicles for business and public entities. N1 category vehicles are typically small goods carrying vans with a technically permissible maximum mass not exceeding 3500kg.

A maximum grant of €3,800 is available for qualifying N1 category EVs when purchased commercially. Approved EVs with a list price of less than €14,000 will not receive a grant. It should be noted that these grants apply to new vehicles only and cannot be claimed on secondhand vehicles.

The grant level depends on the list price of the vehicle. This is the full non-discounted price in the absence of VRT relief or grant support.

Vehicle Registration Tax

Electrical vehicles receive VRT relief separately to SEAI grant support as well as reduced motor tax.

Home Unit Charger

SEAI provide a grant up to the value of €600 towards the purchase and installation of a home charger unit.

Benefit in Kind

For commercial electric cars, Revenue provides an exemption for Benefit in Kind.²²

²² <https://www.seai.ie/sustainable-solutions/electric-vehicles/>