Ballyphehane SEC, Energy Master Plan.

December 2021

V2

Authors: Trevor Sweetnam, Stephen McGovern

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This study was funded by the **Sustainable Energy Authority of Ireland** in the framework of its Sustainable Energy Community programme.

Chairperson's Address

The vision of the Ballyphehane Community SEC is to create a clean, green energy community.
We will explore every possible angle of energy efficiency upgrades possible to our community centre facility and retrofit opportunities in surrounding homes. We have been making strides in this area prior to setting up the SEC group, including replacing our Meals on Wheels operation van from diesel to electric, whilst installing an electric vehicle ChargePoint on the grounds of the community centre. As part of our EMP, we are exploring all upgrades possible with the aim of reducing energy demand, powering our community centre with renewable sources of energy and stimulating domestic retrofitting in our community.
We are engaging & empowering the community to join us on this journey. We will continue to involve the wider community in our works and showcase works as they are completed. We aim to be a beacon of change for the community and support various sectors of the community with making sustainable changes.
As part of our EMP, we explore the opportunities that private households have in completing works to their homes, by reducing energy demand and converting from fossil fuel energy supplies to a greener, sustainable supply.
We believe that by co-operating with all sectors of our community, we can firstly raise awareness of & educate the wider community on our sustainability plans, whilst empowering individuals to engage in energy efficiency upgrades to significantly reduce carbon emissions community wide.

Through partnership with SEAI and the completion of our EMP, this provides a robust roadmap to realise of vision and aims.
We look forward to the continued support of all relevant stakeholders in our community as we continue this journey to improve the lives & wellbeing of our community overall. Faithfully,

Jake McAuliffe

Chair, Ballyphehane SEC

Ballyphehane
COMMUNITY ASSOCIATION

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government supporting communities

Introduction

This Energy Master Plan (EMP) study has been commissioned by the Ballyphehane SEC in order to accelerate the transition to a more sustainable future for the local area and its population. By coming together as a community, the local residents have a significant opportunity to tackle energy consumption and transform the energy flow in their area.

The Study and Report

The study has 5 principal aims:

- Establish an understanding of the current, baseline energy consumption and emissions from the community centre
- Identify and quantify opportunities for energy demand reduction in this building
- Estimate the potential to capture renewable energy to meet some of this energy demand
- Identify a specific housing area in the community, establish an average baseline energy consumption for this area
- Identify opportunities for energy reduction in these homes and outline a path to deep retrofit these dwelling to make them low energy or near zero energy houses.

Our analysis is based on a mix of desk research using publicly available data from the Central Statistics Office, SEAI and elsewhere, as well as field research, measuring properties and carrying out building-level modelling.

The Energy Master Plan presents an overall vision and direction of travel for the local area. The Register of Opportunities, presented towards the end of the report, highlights a number of tangible projects that might be taken on by the SEC in the short term. Many Government supports including funding mechanisms, are available to help SECs in this work and we will point out current and future opportunities to capitalise on these as appropriate.

Study Area

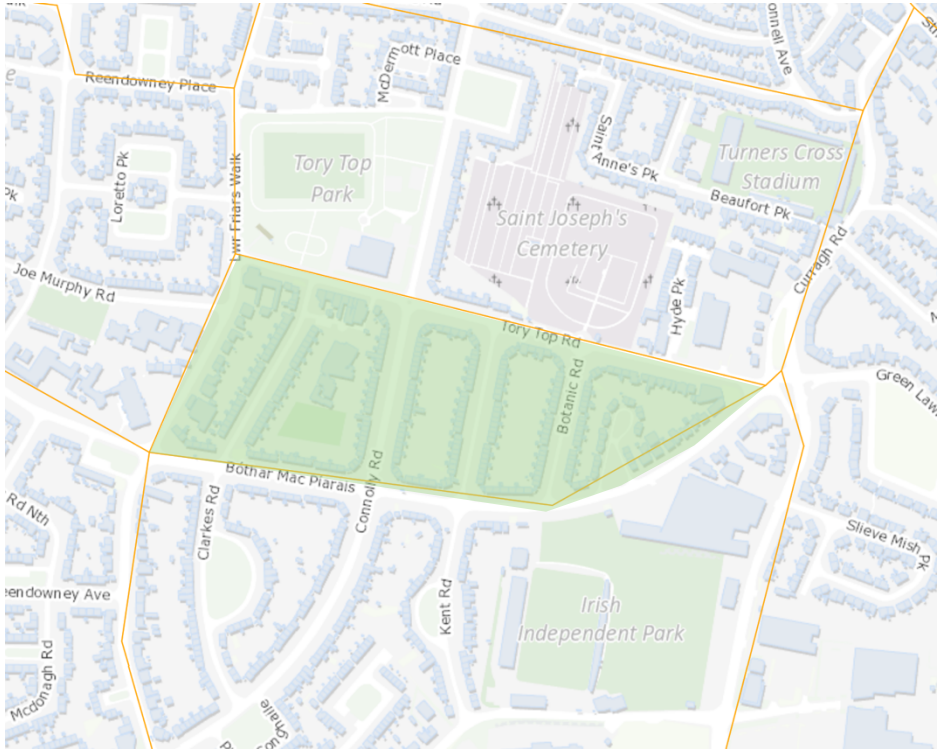


Figure 1: Study Area Source: census.cso.ie/sapmap

Vital Statistics

Residents	Dwellings
674	267

Analytical Approach

The analysis presented in this report is based on the collection of data and information from a range of sources. Our aim has been to make the analysis as

reflective of the local area as possible by using the most granular statistical information available in a bottom-up modelling approach.

Our focus is on the residential sector which provides the biggest opportunities for energy savings in the local area. Two primary data sources have been used in the housing analysis. Data extracted from the Building Energy Rating database for Cork City describes the built form and energy performance of archetypal homes that are representative of the local area. Data from Census 2016, for the single electoral division that makes up the local area, provides statistical data on the local population and housing stock from 2016. The census data allows us to scale the consumption of our archetypes according to the local housing stock and the main heating fuel.

Electricity use for appliances, which is not covered by the BER data, has been estimated by adjusting country-level data provided by the SEAI Energy Policy Statistical Support Unit (EPSSU) to take into account slightly larger household sizes in the local area.

Estimates of energy use in the local community buildings, schools, creches and commercial units have been estimated according to the floor areas of the buildings and typical values from CIBSE TM46.

Estimates for energy use for transport have been estimated using commute length and mode data available in the census.

This data is complemented by primary data gathered on the ground in Ballyphehane, including survey of a typical home in the estate. This provides case studies to illustrate how various depths of retrofit might be implemented in homes typical of the area.

Figure 2: Ballyphehane Community Centre

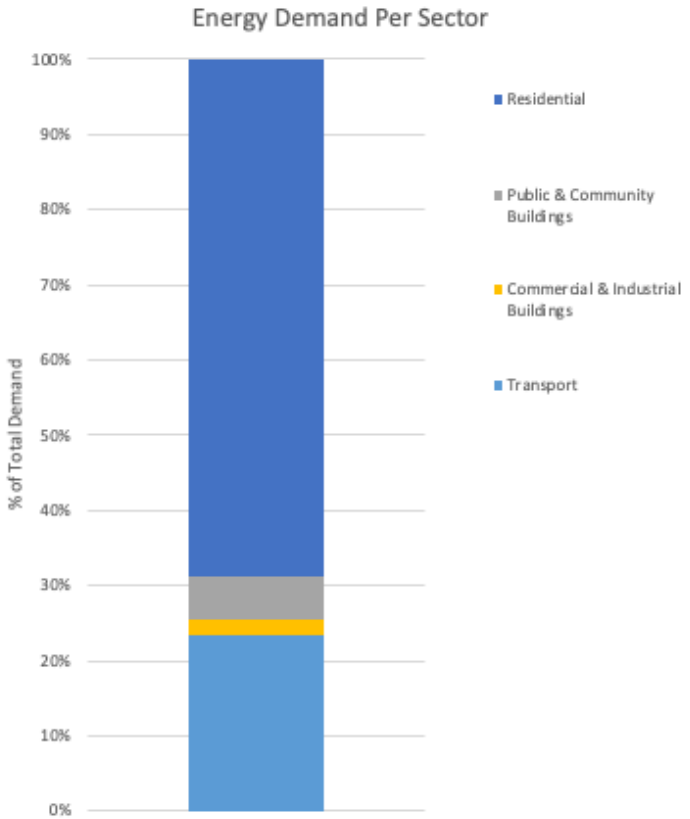
A Note on Units

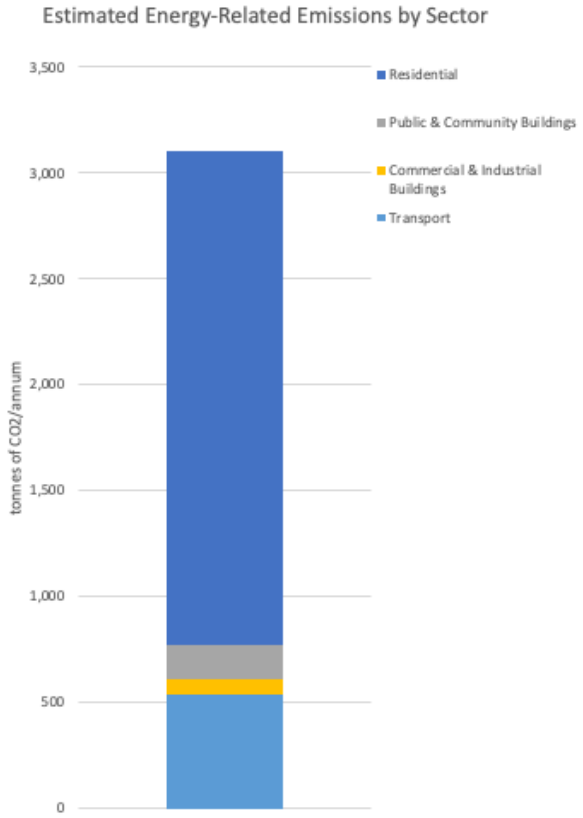
Although we all use energy when we drive our cars or boil a kettle, energy itself is often hard to comprehend. Adding to this difficulty, the units used to describe energy use can be confusing.

Throughout this report we present energy use and energy production, regardless of the fuel used, in megawatt hours per annum (MWh/yr). As a point of reference, a typical home in the local area consumes approximately 19MWh per annum. We present carbon emissions in tonnes or kg of CO_2 emitted per annum. We present energy costs in € spent on energy per annum.

Energy Demand in the Local Area

The graphs below summarise the results of the analysis. The residential sector dominates in terms of energy use accounting for almost 70% of demand. This is followed by energy use for transport which accounts for just over 20%. Public and commercial buildings make up the balance. We estimate that energy spend in the local area is €1.4m per annum which is just over €2100 per every local resident (at 2021 fuel prices). Energy related carbon emissions have been estimated at 3950 tonnes per annum; 5.5 tonnes per resident.





Energy Demand in Housing and Efficiency Potential

Energy demand in our homes is the result of our need for heat to keep warm and provide hot water and electricity to provide lighting and power appliances. The size, shape and nature of the buildings themselves and the technologies used to provide heat, light and other household energy services have a significant influence on how this demand for energy services translates into the figures we see on our energy bills.

The Local Stock

The Central Statistics Office (CSO) provides basic statistics that describe the housing stock at the local electoral area level. There is a total of 267 occupied dwellings and 674 people are residents. About 70% of households are owner occupiers.

The results presented in Figure 3 and Figure 4 compare the local stock to the rest of the country.

Compared to the national statistics, the stock is dominated by homes built in the 1950s. This typology of housing is generally well suited to energy-upgrade measures, therefore there should be good potential to reduce energy consumption.

Natural gas is by far the most common heating source with a fair proportion of oil also present.

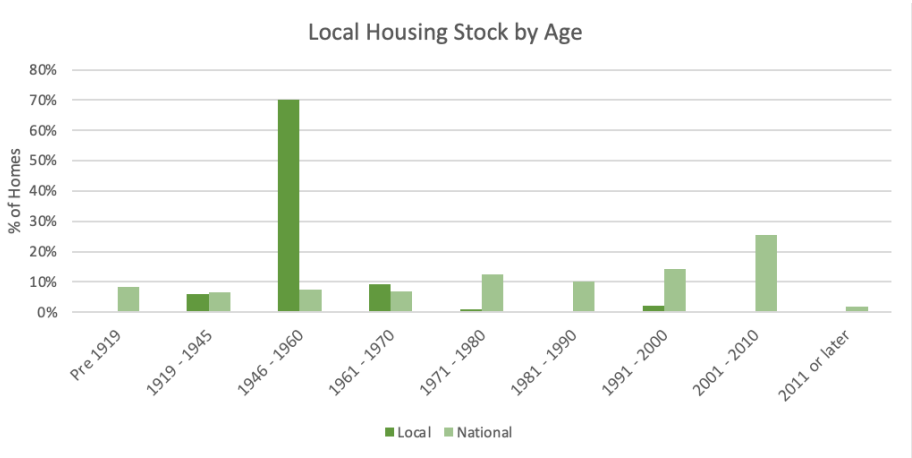


Figure 3: Local Housing Stock by Age (Source: CSO Census Statistics 2016)

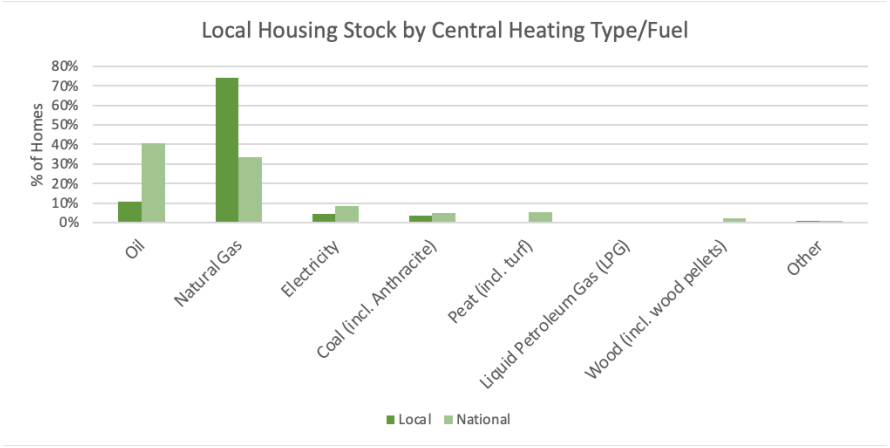


Figure 4: Local Housing Stock by Main Heating Fuel (Source: CSO Census Statistics 2016)

Baseline Energy Consumption

In order to model housing energy demand in the local area we have extracted data for houses in Cork City from the BER Research Tool.[1] With this data we have developed a series of typical dwelling archetypes based on age, dwelling type, construction type and central-heating fuel.

The model simulates the energy consumption of each of these archetypes using the Irish Dwelling Energy Assessment Procedure (DEAP) model in order to estimate energy consumption for lighting, heating and hot water. In order to represent electricity consumption beyond lighting we apply a correction factor to the DEAP estimates.

The consumption of each of these archetypes is scaled to reflect the dwelling ages and heating fuels found in the CSO data.

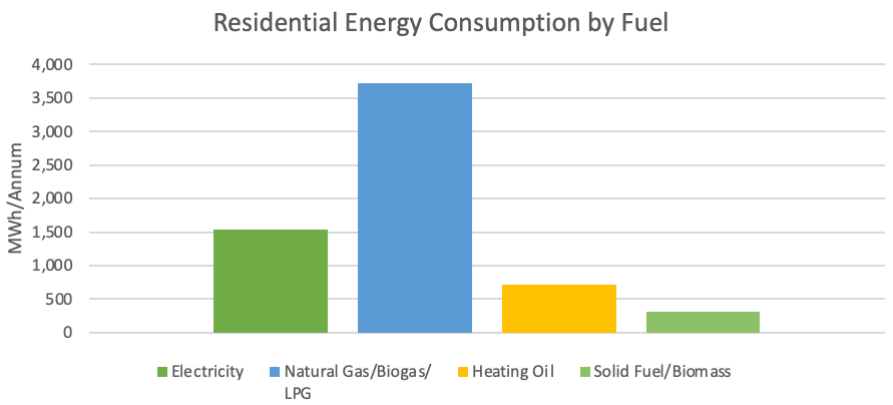
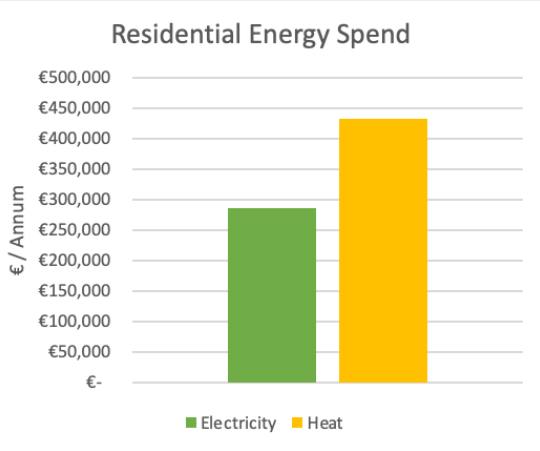


Figure 5: Residential Energy Consumption by Fuel Type



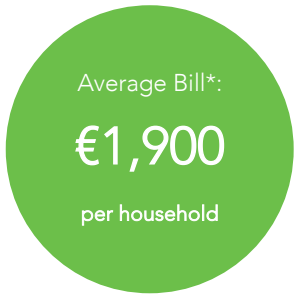


Figure 6: Residential Energy Spend

The model estimates that the total annual energy spend for heating and hot water in the residential sector is €720k with heat representing a higher proportion than electricity demand.

The residential sector is responsible for 2330 tonnes of CO_2 emissions annually.

Typical BER ratings range from E1 in the older portion of the stock to B2 in newer homes.

* for heating and electricity

[1] https://ndber.seai.ie/BERResearchTool/Register/Register.aspx

Energy-Saving Potential

We have used Retrokit to assess the impact of two packages of retrofit measures on the local stock.

Retrokit estimates the cost of applying the various measures using the dimensions of the archetype and a database of cost data. These costs are exclusive of grant aid, which can vary depending on the funding scheme.

These retrofit measures are designed to be additive, i.e. a home that has received a medium retrofit can receive a deep retrofit later to achieve further energy savings without abortive work. The exception to this is triple glazing; however, this could be installed over the natural replacement cycle of the windows. Cost and carbon savings are calculated from a baseline of the current stock.

Medium Retrofit

This scenario focuses on improving the fabric performance of the stock and aims to deliver cost-effective energy savings.

Measures

Providing energy-efficient LED lighting

Replacement of single-glazed windows with double glazing

Improving building airtightness and upgrading ventilation to Part F requirements

Pumped insulation to cavity walls

Insulating attics (min. 300mm mineral wool)

Replacing open fires with wood stoves

Improved heating controls

Deep Retrofit

This scenario focuses on further fabric improvements and switching heat supply from fossil fuels to renewable-energy sources.

Measures

External-wall insulation to pumped cavity walls and solid walls

Drylining sloped ceilings

Replacing windows and doors with triple-glazed units

Further improvements to fabric airtightness

Installing mechanical heat recovery ventilation (MHRV)

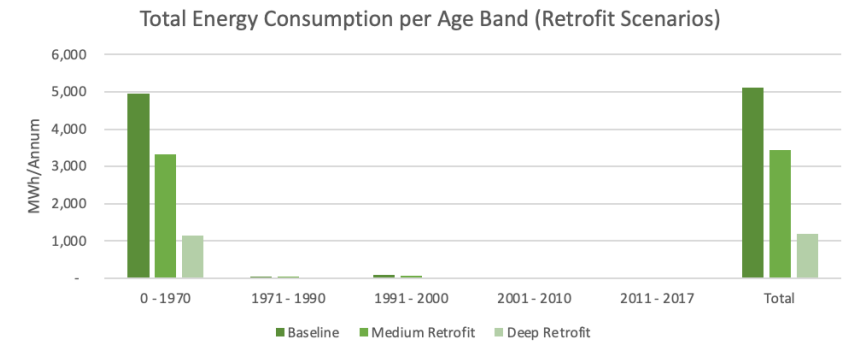
Installing air-to-water heat pumps for heat provision

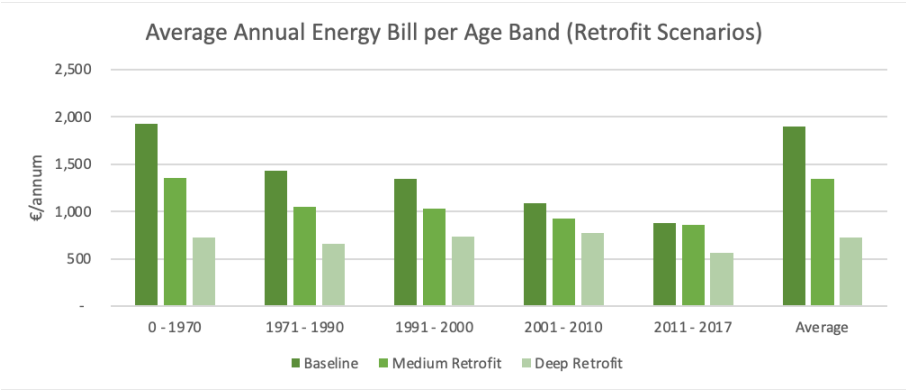
The provision of solar photovoltaic PV on housing is considered separately as part of our assessment of renewable-energy potential which follows the case studies.

Medium Retrofit

The medium retrofit scenario reduces energy demand in the domestic sector by approximately 30%. Intuitively, these saving are largest in the oldest properties. Retrofit spend in all but the newest homes has capital requirements of €7,500 before grant aid. Grant aid of up to 35% could be available under the National home retrofit scheme

Energy bill savings also average approximately 30% or €560 per household; this would equate to a simple payback of 13 years on average and this could be reduced to 10 years with grant aid. Carbon savings in this scenario are approximately 30%.

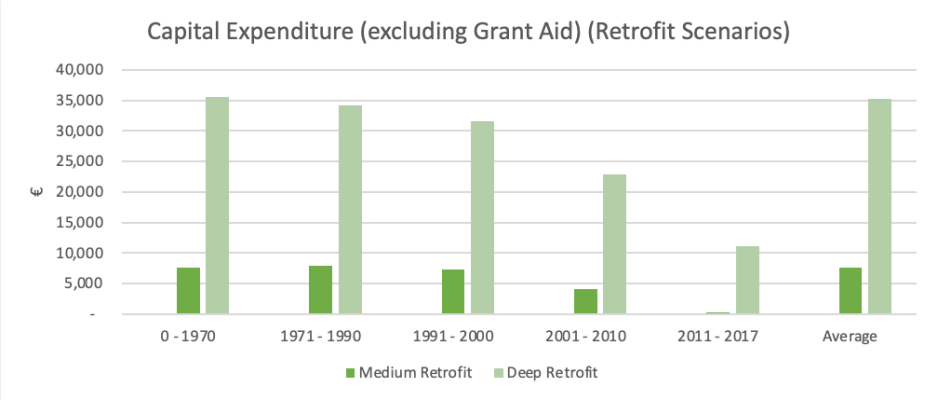




Deep Retrofit

The deep retrofit scenario delivers energy savings of over 75% and similar carbon savings. The average capital spend for this more intensive set of measures is €35,000; however, up to 30–50% grant aid may be available for deep retrofits.

Energy bills would be reduced by 60% under this scenario, delivering an average bill saving of €1170. The payback period would be 30 years without grant aid, not accounting for any value added to the home.



Future Fuel Mix

The final graph shows the impact of the energy retrofit in terms of the fuel mix, showing firstly the impact of a reduction in energy use and finally a switch from fossil fuel to electrical heating. It is important to consider this switch of heating fuel in the context of the local renewable-energy resource as discussed later.

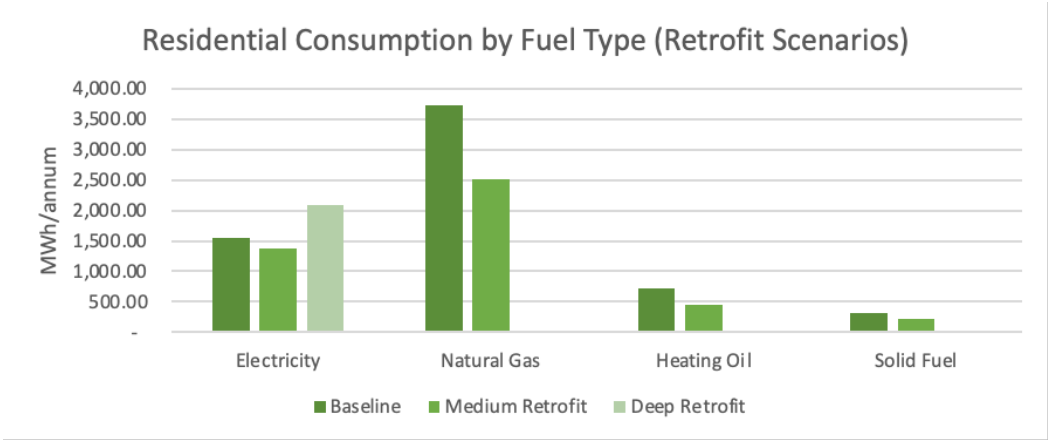


Figure 7: Retrofit Scenario Outcomes

Financial Supports for Dwelling Retrofit

There are a number of financial incentives available to homeowners, including:

a) SEAI's Better Energy Homes programme provides grant aid for a range of energy-efficiency measures and is open to owners and landlords without means testing. For illustration purposes, the medium retrofit described above could attract close to €1,100 (16% of total investment) for the medium retrofit package and €11,200 for a deep retrofit (30%).

More info: https://www.seai.ie/grants/home-grants/better-energy-homes/

b) The SEAI has introduced a new grant scheme for housing associations and local authorities. Housing authorities can claim up to 50% of the cost of works carried out under the scheme.
More info: https://www.seai.ie/grants/local-authority/

c) SEAI's Warmer Homes scheme provides free energy-upgrade services (attic insulation, cavity-wall insulation, draughtproofing, energy-efficient lightbulbs) to vulnerable energy-poor homeowners. Please note some changes to eligibility measures were applied from July 2018.

More info: https://www.seai.ie/grants/home-grants/warmer-homes-scheme/

d) SEAI's Deep Energy Retrofit scheme "One Stop Shop" has been launched on a pilot basis and is due to be rolled out in Q 1 of 2022, targeting organisations such as community groups, local authorities, energy agencies and housing associations with the capacity and ability to deliver group projects (five houses or more) It provides up to 35% of the total capital costs and project management costs combined.

More info: https://www.seai.ie/grants/home-energy-grants/one-stop-shop/

e) SEAI's Better Energy Community programme offers significant funding for community-based projects, including for home energy retrofits. For example, 30% BEC funding for the medium retrofits and 50% funding for deep retrofit may be made available.

f) Local financial institutions: Over the past year many credit unions throughout the country are teaming up with deep retrofit companies to offer a one-stop service whereby grants, work and additional funding to meet the un-granted amount can be provided at a local level by credit unions.
More info: https://www.creditunion.ie/what-we-offer/loans/home-improvement-green/

g) Solar PV, this grant will help you install Solar PV panels in your home to generate renewable electricity. A battery storage grant is available for larger solar PV systems, to store excess electricity generated during daytime hours. 900 euro/kw grant aid is available for panels and 600 euro towards a battery storage.

More info: https://www.seai.ie/grants/home-energy-grants/solar-electricity-grant/

h) SEAI offer a range of incentives to encourage the uptake of electrical vehicle purchase. The grant amounts range from €2000- €5000 for new vehicles with a further € 5000 discount on VRT. There are also great tax incentives such as no deduction from BIK benefit in kind from revenue, reduced tolls, road tax etc. There Is also €600 euro grant towards a home charger for your vehicle.

More Info: https://www.seai.ie/grants/electric-vehicle-grants

Local Retrofit Case Studies

The EMP team would like to express our gratitude to all of the local residents who made their homes available for energy audit. In particular, to the wonderful young couple who allowed this example to feature in this report. We have chosen this home as it is typical of a dwelling from the study area in its original form and requires a full package of upgrades.

The full report is available in the appendix.

DEEP RETROFIT

Client	N/A	20/11/2021
Address	xx Botanic Road, Ballyphehane, Cork	
Prepared By	Stephen McGovern	

BASELINE

BER Score	*HLI*	Heating & Hot Water Costs		CO2 Emissions	
F	3.91	€ 2,196.61	€ per year	3563.0	t per Year

POTENTIAL

BER Score	*HLI*	Heating & Hot Water Costs		CO2 Emissions	
A1	1.77	€ 766.85	€ per year	825.2	t per Year

Estimated Cost	Grant Available		Payback	
€ 42,872.00	€ 19,800.00	€	16.1	years

WORK PROPOSED

Measure	*Cost*
Attic (Loft) Insulation 200 mm top-up	€1,125.00
External Wall Insulation (greater than 85m2 to 150m2)	€14,620.00
Cavity Wall Insulation Bonded Bead *	€352.00
Internal Wall Insulation (sloped or horizontal surface)	€4,200.00
Background ventilation wall vent (Certified Proprietary Integrated System)	€500.00
Led Bulbs (x4Nr) (supply only)	€100.00
Airtightness Measures Floor & Ceiling Perimeters	€800.00
DCV	€4,500.00
Radiator	€0.00
Domestic Heatpump system 9-12kw	€10,500.00
Radiators	€2,800.00
Solar PV inc wiring and inverters to seai standard	€4,500.00

Energy in Transport

The census provides some useful insights into commuting patterns in the local area.

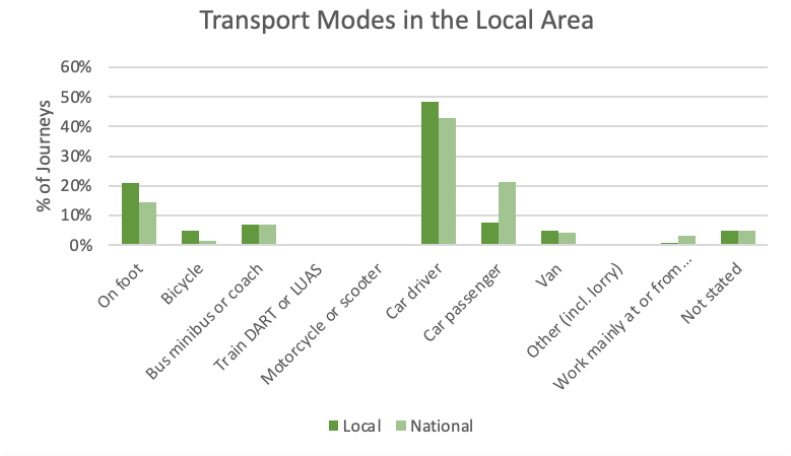


Figure 8: Retrofit Scenario Outcomes

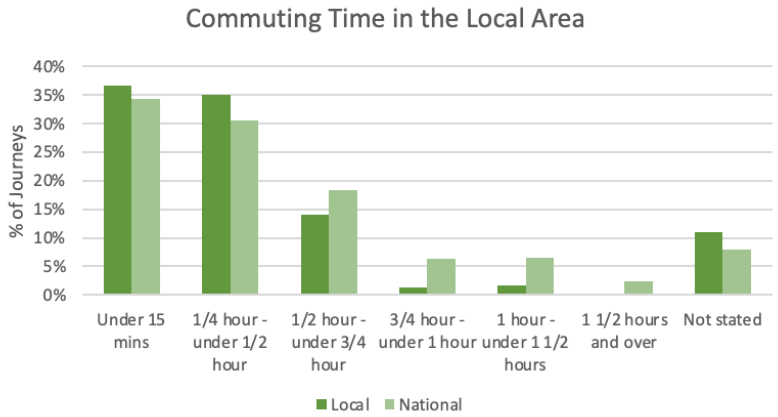


Figure 9: Retrofit Scenario Outcomes

The census data indicates that local residents are more likely to be able to walk to work although a higher proportion than the national average also drive. Commute lengths are significantly shorter than the population at large at 18 minutes vs 27 minutes nationally.

Our model takes this data on commuting and estimates energy use according to the efficiency of the transport modes used, making an allowance for leisure travel.

The model estimates that the total annual energy demand for transport is 2150 MWh accounting for 535 tonnes of CO_2 emissions annually.

Energy in Public, Community & Commercial Buildings

In order to estimate energy use in the public, commercial and community sectors we have estimated building floor areas using satelite imagery and have multiplied these by the average usage of buidings of that type.

The team have also completed a survey of Ballyphehane Community Centre which sits at he heart of the commiunty and has been chosen by the SEC Ballyphehane to be the focal point of this master plan.

The building sits in the middle of the communty and serves many purposes within the area such as

- Medical and daycare service
- Indoor sports hall
- Meeting room and social clubs
- Killreen FC dressing room with pitch located outside in park
- Communty Gym

The buiding was surveyed and energy profile was generated by the software iSbem which is the offical government softwre for generation of Building Energy Ratings for buidings of this type. A base line model is outlined in the attached report and a number of recommendations are set out to improve the fabic and gradully replace gas fired boiler with renewable heat and water generation. Some of these fabric upgrades can also pave the way for the inclusion of a communtiy microgenration project such as roof top solar photovoltiac array to meet the electricty demand of the building and also generate and sell excess electicty to the grid, when this opton is made available to communty groups which is promised in the programe for government and the latest climate action plan.


AMBULANCE

The above report outlines a stratagy to fully upgrade the fabric of the community centre and begin the process of moving away from heating a water service with fossil fuels, to more renewable options. It also outlines the potential of the buiding to generate renewable energy, which will be examined later in this report.

The full report is available in the appendix.

Energy Audit

Building: Ballyphehane Community Centre
Address: Tory top Road , Ballyphehane
Completed By: S. McGovern
Date : 01.09.2021

CORK ENERGY CONSULTANCY

The building in question, Ballyphehane community centre was originally constructed in 1972 adjoining the Tory top park in the heart of the Cork City Suburb of Ballyphehane. The original building provided a community sports hall built of solid wall construction with a metal clad roof with a number of roof lights , this part of the building which has high usage today is heated by 6 large gas radiant heaters which are in bad repair and over 30 years old approx. The buildings surrounding the hall to the East and South were constructed with cavity wall construction. This section received pumped cavity wall insulation in the form of EPS bead in recent times. The entire attic of this section is completely uninsulated. It is worth noting that when insulting this section care will be needed to ensure no air layer is created between heated space and insulation layer . This part of the building has a number of uses, a large section is given over the HSE which runs day care faculties for the elderly , a meals on wheels service is also run from the easterly section. This section is heated by radiators and large gas fired boilers approx. 16 years old. There are 2 hot water cylinders that appear to be connected to this boiler. A 400 litter tank with no insulation located on the far north side of the site and a small 120 litre cylinder factory insulated in a room next to this plant room. The small cylinder although insulted is also pealing and in bad repair. Domestic water for this area is supplied by a new condensing combi boiler. There is a lot of wasted energy here resulting form the over sizing an under insulting of the 2 buffer tanks. Most of the windows in this section as with the rest of the a building are modern uPVC units. However some of the smaller windows of small or irregular size are still single glazed steel framed. There are number of timber doors also in this area, they are visibly mis fitted and allowing a lot of uncontrollable air ingress.
To the left side of the site, a large 2 story extension was construction in 2009 of cavity wall construction and metal clad insulated panelled roof. The ground floor is used mainly as dressing room and changing faculty for the local soccer club and sports hall. Showers are all instantaneous electric units. This section appears to be very under utilised. Upstairs is a working gym again with changing facilitates on 1st floor.
As mentioned above some works have been undertaking already this year on site , this includes full LED lighting retrofit and all the 1972 wall that contain cavities have received injected EPS bead insulation.

Baseline Energy Performance

Total Floor Area (m2):	1774
Energy Rating:	B3/786
Year of construction:	1972
Building Volume	6741

Energy consumption	**Heat &Cool**	**Electricity**	**Notes**			
Usage (kWh/yr.)	195637	899187	Electricity and Oil usage taken from NEAP model			
Cost per unit (€/kWh)	0.09	0.170	Bill data was supplied			
Energy cost (€/yr.)	17607	152862				ratio
Total cost		€170,469	Euro	Actual Bill data	€27,917.00	0.16

Solar Photovoltaic (PV)

Solar photovoltaic (PV) systems convert sunlight into electricity. Solar PV is generally the most viable form of renewable generation available for deployment on residential roofs, particularly in urban areas such as Ballyphehane.

In order to evaluate the practical potential for PV array, we carried out a detailed study of the potential for energy generation as roof top PV array.

There is a significant amount of available roof space on the community centre. It is calculated that there is 1400m2 of roof area of which not all is suitable for PV installation. Potentially it is possible to install 60kWp of a solar array with a potential yield of 48MWhrs. This would likely be too large as it would be outside of the limits of government funded project through sustainable energy communities.

SEAI Community LED projects can be applied for projects generating between 0.5 and 5 MW.

To setup a microgeneration system and gain access to sell electricity into the grid an application must made and feed in tariffs are awarded on an auction basis. This process is called the Renewable Energy Support Scheme (RESS).

It is advised that a project of up to 5MW could be sought for inclusion in the government scheme. Community projects are given preferential treatment to gain access to this system.

Funding could also be sought in the meantime to install a much smaller, up to 11kwp array that would provide the current electricity demand of the building and may be complementary to the existing electric vehicle charger installed on site. It is easier to gain permission in both planning and safety for smaller arrays of under 11 kWp. In previous projects, communities have fitted a screen viewable on entering the building to show the amount of electricity being generated, to raise awareness within the community.

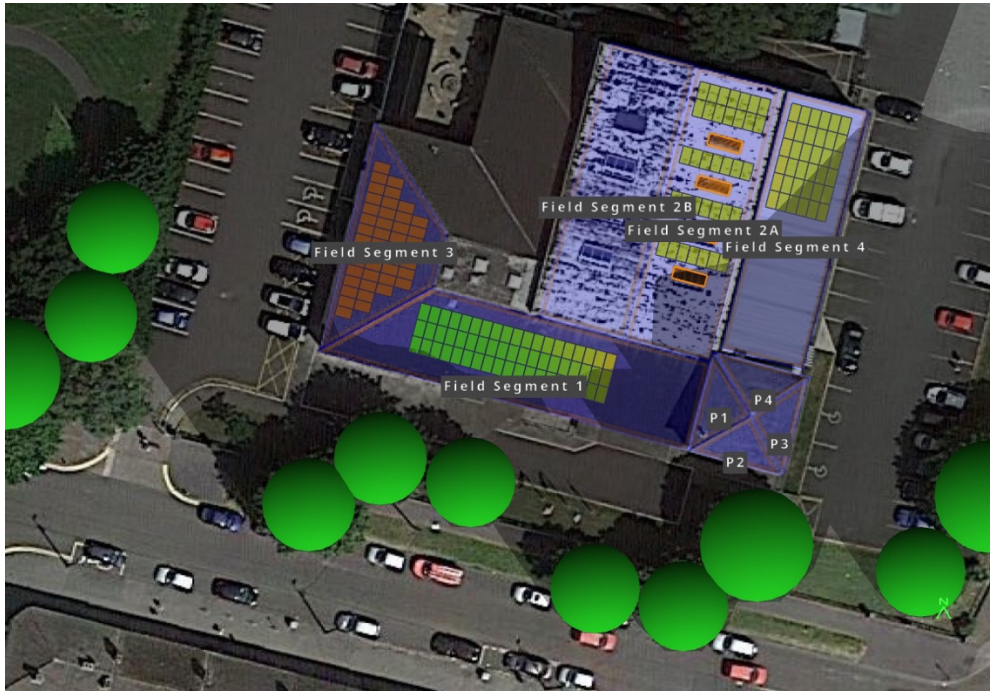


Figure 10: Solar PV on a Roof

The Better Energy Community Programme

The Better Energy Community (BEC) programme run by SEAI has been funding community led sustainable energy projects around the country for over five years. Innovative and pioneering partnerships between sectors are encouraged. This might include collaborations between public and private sectors, residential and non-residential sectors, commercial and not-for-profit organisations, or financing entities and energy suppliers. BEC 2018 had a total budget of €28 million leveraging an estimated €70 million investment. Successful BEC projects must demonstrate some or all of the following characteristics:

- Community benefits
- Multiple elements
- Mix of sustainable solutions
- A clear road map
- Innovation and project ambition
- Justified energy savings
- An ability to deliver the project

In 2018, the following funding levels applied:

- Residential:
    - Private, fuel poor — Up to 80%
    - Private, non-fuel poor — Up to 35%
    - Local Authority — Up to 35%
    - Housing Association — Up to 50%
    - Deep retrofit (BER A3) — + 15%
- Non-residential:
    - Not-for-profit/community — Up to 50%
    - Private and public sector — Up to 30%
    - Public sector (exemplar) — > 30% ≤ 50%

So far, there have been two main approaches for the development and implementation of BEC projects:

a) Firstly, community-based organisations who have developed their own technical, financial and organisational capabilities to deliver projects. This approach increases opportunities to generate revenues for the community group and create local employment, notably for project coordination. When successful, the required skillsets become embedded in the local community and often lead to repeat BEC projects. However, this approach typically requires significant volunteering commitment from key people in the community, and the need to bankroll the projects can put significant stress on community groups.

b) The second one generally involves a professional service provider who acts as project co-ordinator, working in conjunction with a lead applicant. The lead applicant can be a community group, a business or a public body and projects often involve wider cross-sectoral partnerships. The benefit of this approach for a community group is that the project coordinator typically takes responsibility for the technical delivery of the project, from project development to commissioning stage. The project coordinator can also arrange bankrolling of the project for the community element of BEC projects until after SEAI's grant funding has been paid.

The BEC programme puts an emphasis on projects driven by Sustainable Energy Communities who have signed a partnership agreement with SEAI and have developed their Energy Master Plan. There are many benefits for

local community stakeholders to join forces in a SEC-led Better Energy Community project, as opposed to applying for funding individually:

a) Generally, the level of funding available through the BEC programme is higher than in programmes targeting individual applicants, such as the Better Energy Homes.
b) Stakeholders such as businesses, community groups and public buildings have limited opportunities for funding other than the BEC programme.
c) In addition to funding capital investment, the BEC programme also supports some of the project development (design and specification) and project management costs.
d) A BEC project is based on a multi-stakeholder partnership which provides joint project coordination and can also provide technical assistance, as well as a source of finance for bankrolling the overall project.

Register of Opportunities

The table on the right is an extract from the SEAI Register of Opportunities (ROO) table completed by Cork Energy Consultancy. The ROO captures a number of projects that the community can progress that will allow them to reduce their energy consumption from the baseline we have established in this report.

The principle opportunities highlighted are the potential for a number of deep retrofit projects across the Ballyphehane housing stock and the opportunities highlighted in audit report for community centre.

Figure 11: Ballyphehane Community Centre West side

	Ref	Opportunity	Estimated Annual Savings				Additional Information / Comments	Date Entered	Status	Cost Range	Capital Cost
			Fuel Type	[kWh]	[€]	[kgCO2]					
Community Centre	001	Insulate solid wall in community centre	Natural Gas	7,500	€525	1,837.5	Main sports Hall	1-Nov-21	Under Consideration	Medium	€29,700
	002	Replace roof in Sport hall	Natural Gas	105,056	€7,354	25,738.7	Main sports Hall	2-Nov-21	Under Consideration	High	€59,400
	003	Insulate attics in old building	Natural Gas	67,377	€4,716	16,507.4	all single story sections	3-Nov-21	Under Consideration	Medium	€12,600
	004	Remaining doors and windows	Natural Gas	2,970	€208	727.7	all around buiding	4-Nov-21	Under Consideration	High	€11,500
	005	Replace old gas and elecric wall monted heaters	Natural Gas	25,350	€1,775	6,210.8	Large sports hall	5-Nov-21	Under Consideration	High	€40,000
	006	Install 11 kWp Solar PV	Electricity	11,000	€1,980	5,709.0	roof mounted	6-Nov-21	Under Consideration	High	€38,500
	007	Large Microgneration project	Electricity	500,000	€90,000	259,500.0	Roof mounted	7-Nov-21	Under Consideration	High	€180,000
		Total (Community Centre)			**€106,558**	**316,231.0**					**€371,700**
Dwellings	008	Large scale houseing retrofitt phase 1 50% of homes	Natural Gas	1,201,500	€84,105	294,367.5	50% of houses to B2 standard.	8-Nov-21	Under Consideration	High	€4,672,500

Action Plan

Figure 12: Ballyphehane Community Centre east side

1) **Disseminate the EMP** among the community and relevant institutions such as the Local Authority, SEAI, etc. to raise awareness and understanding of its purpose and the opportunities it presents. Dissemination activities should be tailored to the needs of specific target groups, in terms of format and content, and emphasise what they can gain from it. Conduct community engagement and outreach activities as an extension of dissemination activities, for the purpose of generating commitment to the EMP's vision and goals and encourage community members to act for its implementation. Where and when appropriate, the outreach activities will play a key role in recruiting participants in a community-led sustainable-energy project. Engaging with other community-based organisations such as sports clubs, parish organisations, environmental groups, etc. will be essential in generating partnerships.
2) **Build capacity** within the local community to develop and implement sustainable energy projects, by creating opportunities to increase knowledge and gain experience in relevant areas. This can be done by leveraging existing educational and training initiatives available from SEAI, as well as local vocational and third-level education bodies. Learning by doing and peer knowledge exchange is also very powerful in this regard.
3) **Implement low-effort, low-cost efficiency measures**. Our analysis has highlighted a number of 'quick wins' for example, around attic insulation. Providing opportunities for discussion and knowledge sharing among the community can also be a useful way to address the lack of accessible information and clarity around energy

efficiency among the public at large. Implementing these can provide a useful focus to drive progress on items 1 and 2 above and maintain momentum while progressing on larger, longer-term projects.

4) **Set up the community structures and processes** required to lead the development and implementation of BEC-type projects, having selected a delivery model appropriate for the SEC. These should include project management, financial management, health and safety, and grant administration, as well as covering appropriate steps in the project cycle, from development of a project pipeline to design and specification of measures, procurement, site supervision, commissioning and handover. Transitioning from a volunteer-led effort to having staff in place for the day-to-day management of projects will be helpful to sustain the implementation of the EMP in the medium to long term. All of these tasks may be possible through SEAI support, perhaps around forthcoming Better Energy Communities schemes.
5) **Develop energy-efficiency projects that leverage the potential €5,000,000 investment and 190,663 annual savings identified in the Register of Opportunities** to foster local economic development. In addition to job creation by the SEC for project management, there will be many jobs involved in the design, installation and maintenance of energy efficiency and renewable-energy systems. Partnering with local lending institutions and ethical funds to facilitate access to finance at a reasonable cost can help remove an important barrier for project development.
   The process of 'spreading the word' among the local community will naturally bring forward potential dwellings in addition to the ones targeted in the EMP process and other buildings that could form part of a retrofit project. It is important to widely publicise and embed the experience of these projects within the community. Sharing experience and advice among the community is a great way to build up the local knowledge base and understanding. Engagement with other successful SEC community groups may be helpful in this regard
6) **Continue availing of 'soft support mechanisms' from SEAI's SEC programme**, in particular at project-development stage. Having identified key gaps in the SEC's competencies, request technical assistance from SEAI's panel of experts. SEAI's mentors can also help with coaching on organisational aspects as well as community engagement activities.
7) **Evaluate regularly the performance of the SEC** and the impact of its projects, using the objectives and Register of Opportunities of the Energy Master Plan as a benchmark. This evaluation process should feedback into the SEC's policies, plans and processes, learning from successes and more importantly failures.
8) **Continue communicating and engaging** with target groups, promoting the SEC and its achievements, and encouraging further stakeholder involvement. Share your experience and the knowledge acquired in the process of 'doing' with a wider audience outside of your community, including with other SECs, in the framework of outreach and networking activities.

Next steps

This Energy Master Plan provides a robust roadmap for Ballyphehane SEC to continue our journey towards a more sustainable community & to reach our vision of creating a clean, green energy community. The opportunities outlined in the report will guide us in building on the work already completed in the community centre to date, whilst providing clear guidance in engaging & empowering the community to become part of this journey through a retrofit scheme.
We would like to thank Cork Energy Consultancy for their work in completing this in depth analysis.

Following the completion of the EMP, Ballyphehane SEC will:

- Formally adopt the EMP and encourage all of our community and private sector partners to work towards Implementation

- Host a launch/dissemination event for our Community to share the findings and opportunities from the EMP

- Seek funding to complete priority energy efficiency works on the Ballyphehane Community Centre

- Target the recruitment of a number of early 'Leader' householders from the SEC area to plan and implement energy efficient retrofitting

- Continue to engage with SEAI's SEC network to continue to learn and begin to implement projects.

Appendices

The following supporting documents are available separately:

- A: Ballyphehane Community centre full energy audit report
- B: Community Centre Solar PV full feasibility report
- C: Full Register of Opportunities Document
- D: Community Centre BER Outputs Post Works
- E: Details of Energy Model of Community Centre iSBEM
- F: Local dwelling case study