 SOUTH EAST ENERGY AGENCY	<b>SEC EMP Report</b>	BOF- 027	Issue No.01 Issue Date: 01/05/2022
--	-----------------------	----------	--



# Energy Master Plan

## High Park SEC

PREPARED BY: Jonah Faulkner

DATE: May 2023

The SEC Programme is Supported by:



**GET IN CONTACT**  
[www.southeastenergy.ie](http://www.southeastenergy.ie)  
(056) 7790856  
[contact@southeastenergy.ie](mailto:contact@southeastenergy.ie)

Kilkenny Research & Innovation Centre  
Unit F06, Burrell's Hall  
St Kieran's College  
Kilkenny, R95 TP64

Carlow Kilkenny Energy Agency CLG  
trading as South East Energy Agency  
Company No: 356270  
Reg. No IE 6376270

# Table of Contents

1.0	High Park SEC– Community Charter .....	5
2.0	Glossary of Terms.....	6
3.0	Executive Summary .....	7
4.0	Introduction .....	10
5.0	Methodology and Baseline Data.....	12
6.0	Baseline – Fuel Type & Sector Energy Demand .....	14
7.0	Sectorial Energy Analysis.....	16
7.1	Residential Data.....	16
7.2	Commercial/Business Data.....	20
7.3	Transport Data.....	20
7.4	Community & Public Sector Data.....	24
8.0	Register of Opportunities.....	26
8.1	Register of Opportunities - Residential.....	27
8.1.1	Energy Efficiency Upgrades for Housing .....	27
8.1.2	Levels of domestic upgrade .....	28
8.1.3	Replication in your building.....	30
8.2	Register of Opportunities – Commercial/ Businesses.....	31
8.2.1	Register of Opportunities.....	31
8.2.2	Example of existing buildings .....	32
8.2.3	Replication in your building.....	33
8.2.4	Remote working / Shared Workspaces.....	33
8.3	Register of Opportunities - Sustainable Transport .....	34
8.3.1	electric vehicles .....	34
8.3.2	Walking .....	34
8.3.3	Cycling .....	35
8.3.4	Car Pooling, car sharing and Park&Ride.....	36
8.4	Register of Opportunities - Community & Public Sector.....	37
8.4.1	Register of Opportunities.....	37
8.4.2	Example of existing buildings .....	38
8.4.3	Replication in your building.....	41
8.4.4	Schools SEAI Programme.....	41
8.5	Register of Opportunities – Agriculture .....	41
8.6	Register of Opportunities – Renewable Energy.....	44
8.6.1	Domestic Renewable Energy Opportunities .....	44
8.6.2	Other Renewable energy technologies available throughout Ireland .....	48
9.0	Funding and Support Options .....	51
9.1	Residential – Home Grants.....	51
9.1.1	Commercial / SME .....	59

9.1.2	Transport – Electric Vehicles.....	61
9.1.3	Community & Public Sector.....	63
10.0	Action Plan .....	69
10.1	Year 1.....	69
10.2	Year 2.....	72
10.3	Employment Opportunities .....	73
10.4	Next Steps.....	75
10.5	Getting Started .....	76
10.5.1	Applying for an Individual SEAI Grant:.....	76
11.0	Conclusion.....	77
12.0	Reference Data .....	78
13.0	Appendices.....	80
Appendix A	– Domestic Energy Surveys .....	80

## List of Figures

Figure 1	- Overview of Baseline Energy profile.....	7
Figure 2	- Summary of Baseline Energy profile .....	8
Figure 3	: Map highlighting scope of the High Park SEC area .....	10
Figure 4	: Data Sources .....	12
Figure 5	: Top-down analysis flow chart .....	13
Figure 6	: Bottom-up analysis flow chart .....	13
Figure 7	: Breakdown of energy demand by fuel type .....	14
Figure 8	: Breakdown of energy demand by sector .....	15
Figure 9	: Housing Stock by Dwelling Type - Source: CSO, 2016 .....	16
Figure 10	: Housing stock by construction period - Source: CSO .....	17
Figure 11	: Breakdown of heating fuel type used – Source: CSO.....	17
Figure 12	: Average annual energy consumption by construction period – Source: SEAI.....	18
Figure 13	: Average Annual Energy Cost by Building Age – Source: SEAI .....	18
Figure 14	: Survey – Residential energy demand .....	19
Figure 15	: Commuting Method in SEC Area – Source: CSO, 2016.....	21
Figure 16	: Commuting Times in the SEC Area – Source: CSO, 2016 .....	21
Figure 17	: Energy Demand by Vehicle Type – Source: CSO, 2016.....	22
Figure 18	: Energy Demand by Fuel Type – Source: CSO, 2016.....	22
Figure 19	: Community & Public Sector Energy Demand in the SEC Area by Fuel Type – Source: SEAI’s Annual Public Sector report.....	24
Figure 20	: Average surface radiation for the period 1981 – 2000 .....	44
Figure 21	: Wicklow County Development Plan 2016-22 Wind Strategy Areas of Wind Potential.....	48

## List of Tables

Table 1	: List of small areas within the Settlement Area of High Park .....	10
Table 2	: Register of Opportunities for Residential.....	27

### Document Revision History

Revision	Date	Prepared By:	Reviewed By:	Action Taken/Comments
Rev A	03-02-2023	<b>Initials:</b> JF <b>Date:</b>	<b>Initials:</b> <b>Date:</b>	
Rev B	06-06-2023	<b>Initials:</b> JF <b>Date:</b>	<b>Initials:</b> <b>Date:</b>	
Rev C		<b>Initials:</b> <b>Date:</b>	<b>Initials:</b> <b>Date:</b>	
Rev D		<b>Initials:</b> <b>Date:</b>	<b>Initials:</b> <b>Date:</b>	
Rev E		<b>Initials:</b> <b>Date:</b>	<b>Initials:</b> <b>Date:</b>	
Rev F		<b>Initials:</b> <b>Date:</b>	<b>Initials:</b> <b>Date:</b>	

## 1.0 HIGH PARK SEC– COMMUNITY CHARTER

**High Park Sustainable Energy Community** is a voluntary group established for the purpose of achieving increased energy-efficiency and renewable energy take up amongst the local community in the High Park area. The SEC is closely aligned with St Patrick's retirement community and residential nursing unit, their staff and local community. It is a rural community and includes farmers, nurses, carers, commuters and a large retired community. There is a mix of old and new residential and farm buildings. The population is settled with very little turnover. Our focus is on increasing rural community sustainability within the context of the care of the earth. We will achieve our vision by:

- Educating the community on energy conservation and encouraging behavioural change which results in financial and energy/emission savings
- Engaging with the community to identify a number of pilot exemplar projects. A full circle biomass project combined with alternative sources of energy generation is hoped to prove the concept and to create real impact in the community by showcasing innovative energy solutions and the way to achieve them.
- Raising awareness and empowerment within the community on energy conservation by leveraging aspects of the pilot project
- 
- Ascertaining the mechanics and actual energy usage of the community with a view to progressing to a community renewable power generation at scale.
- Moving toward energy generation and zero energy targets for the Community
- We will work together with existing community groups where possible particularly Kiltegan Tidy Towns and Rathdangan Community Association to advance the vision and goals of High Park SEC either directly or indirectly

## 2.0 GLOSSARY OF TERMS

At times, the language used in reports can be complicated and confusing. Below is a list of terms used throughout the report and their meanings.

**kWh – Kilowatt hours.** This is the equivalent of one kilowatt being used continually for one hour. You will recognise kilowatt hours (kWh) as the unit of energy detailed on a home electricity bill, where you are charged for each kilowatt hour (kWh) used.

**CAPEX - Capital Expenditure** is money spent by an individual or organization in acquiring or maintaining fixed assets, such as land, buildings, and equipment.

**Energy Efficiency** – Simply put, this means doing more with less. Energy efficiency is achieved when a change in technology or behaviour leads to a reduction in energy consumption. For example, insulating a home allows that building to use **less energy** to maintain a comfortable temperature.

**Energy Savings** – Energy costs money, therefore when energy efficiency is increased, energy savings are made in the form of Euros. It is for this reason that when discussing energy savings in this report it is done in Euros.

**Register of Opportunities (ROO)** – The Register of Opportunities is the record of all opportunities (measures) for energy savings in the building

**Renewable Technologies** – These are system that use natural resources such as sunlight, wind, or geothermal heat, which are naturally replenished, to generate electricity or useful heat.

**Simple Payback Period** – This is the number of years it will take for the total initial investment in a project to be paid by the savings made.

Example: Initial Investment = €1,000

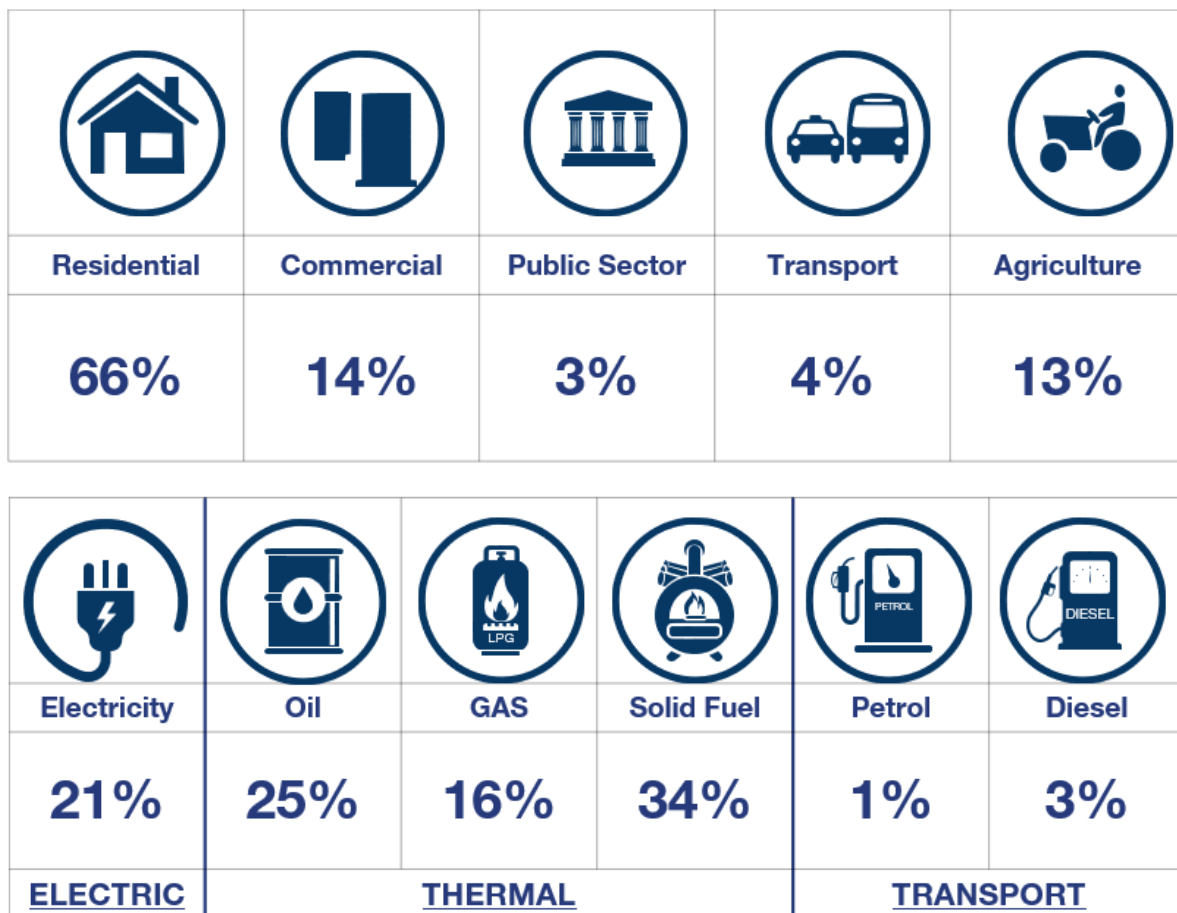
Annual savings as a direct result of investment = €100

$$\text{Simple Payback Period} = \frac{\text{Initial Investment}}{\text{Annual Savings}} = \frac{\text{€1000}}{\text{€100}} = 10 \text{ yrs.}$$

**Thermal Energy** – defined as energy used to generate heat. Examples include oil or natural gas being used in a boiler, or wood in an open fire.

### 3.0 EXECUTIVE SUMMARY

A Sustainable Energy Community (SEC) is a community that works together to develop and implement changes in the local community to become more energy efficient, use more renewable energy and consider smart energy solutions. High Park SEC have embarked on this journey and in doing so have identified a baseline energy profile for their community Figure 1 provides a breakdown of fuel use by type in the High Park SEC area while figure 2 details the cost of this energy consumption both in terms of money and carbon emissions.

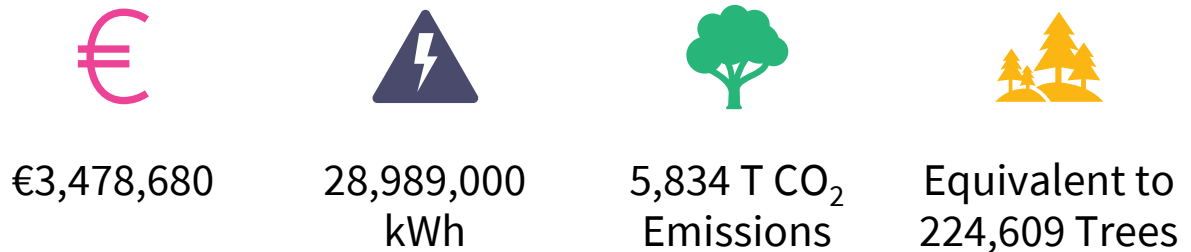


**Figure 1 - Overview of Baseline Energy profile**

The energy demand for the High Park SEC area shows that direct use of electricity is the largest proportion of energy demand by fuel type. Thermal fuels such as oil, LPG and solid fuels make up a significant proportion of fuel consumption, with road fuels (petrol & diesel) making up the remainder.

Residential and commercial buildings make up most of the energy demand by sector.

Using national average unit prices, this equates into the following annual energy spend, energy consumption, CO<sub>2</sub> emissions for the High Park area. Also shown is the number of trees needed to be planted to offset these emissions.



**Figure 2 - Summary of Baseline Energy profile**

Opportunities are presented throughout this report for improvements in energy efficiency in the domestic, commercial, transport, agriculture, and public/community sectors. The greatest opportunity lies in retrofitting both residential, commercial and community buildings within the High Park SEC area. Retrofitting will both improve the thermal performance of the building, increase comfort levels and reduce the running cost of the buildings.

The proposed energy upgrades for domestic buildings include:

- Roof insulation – improved thermal comfort
- Cavity & External/Internal wall insulation – improve thermal comfort
- Windows/Doors upgrade – improve thermal comfort
- Lighting – improved lighting levels and reduce electricity costs
- Heating upgrade (Heat pump) – improved efficiency and reduced heating costs
- Solar Photovoltaic (PV) – generating green electricity and reduced electricity costs

House No.	Initial BER Rating	Energy Savings (kWh/yr)	Energy Savings (€/yr)	Final BER Rating	Estimated Capital Expenditure with no grant funding (€)	Estimated Capital Expenditure with SEAI grant funding (€)	Simple Payback (Years)	Year of construction
1	E1	21,000	1,890	A3	€ 45,000	€ 33,000	17	1970-1980s (bungalow)
2	D2	16,500	1,485	A2	€ 55,000	€ 40,000	27	1800s
3	D2	15,500	1,395	A3	€ 55,000	€ 40,000	20	1990s
4	C1	12,500	1,125	A3	€ 60,000	€ 45,000	40	1990s



The proposed energy upgrades for non-domestic buildings include:

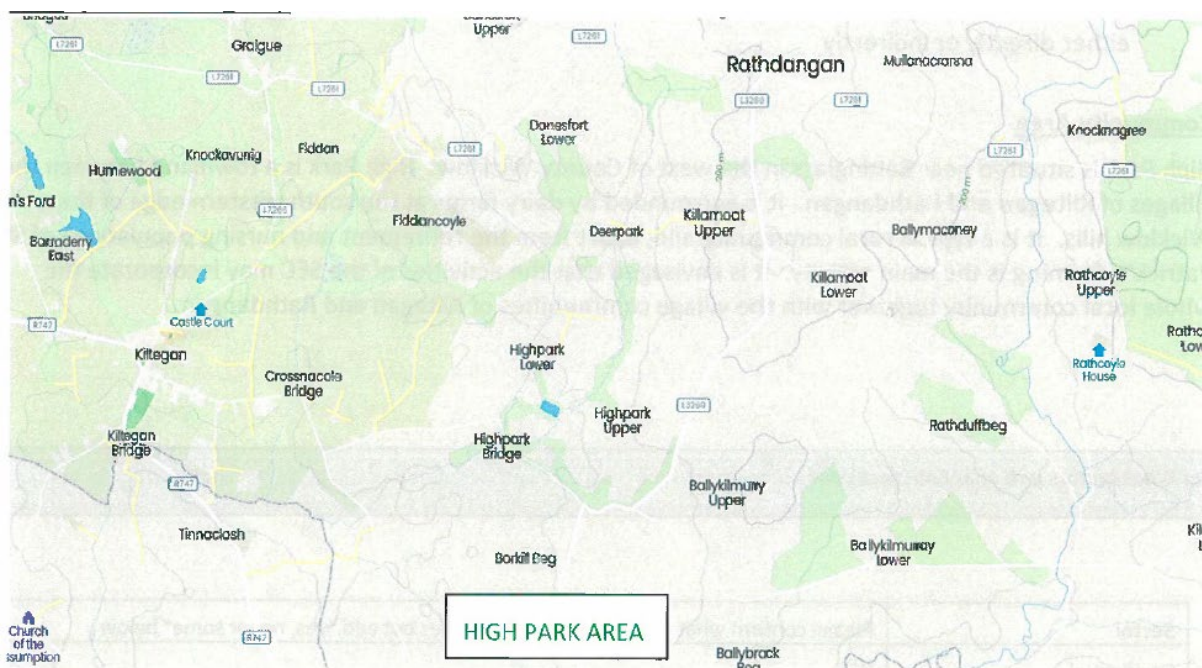
- Lighting – improved lighting levels and reduce electricity costs
- Boiler upgrades – improved efficiency and reduced heating costs
- Roof / wall / attic insulation – improve thermal comfort
- Solar PV – generating green electricity and reduced electricity costs
- EV charge points – offer new service for client/users

Building name	Kilowatt-hour savings	Savings [€] per year	Tonnes CO2 /year	Estimated Cost exc. VAT
O Toole Memorial Hall	5,046	€839	1	€58,060
Sli an Chroi	27,358	€1,505	0.2	€102,376
High Park Farm	16,692	€3,813	5.6	€50,300

## 4.0 INTRODUCTION

This report was commissioned by SEAI on behalf of High Park SEC through the SEAI Sustainable Energy Communities (SEC) programme. High Park SEC is one of several energy-conscious community groups in County Wicklow that have been accepted into the Sustainable Energy Communities (SEC) Programme, managed by the Sustainable Energy Authority of Ireland (SEAI). This Energy Master Plan is part of a three-year, two-way exchange between High Park and the SEAI, to help establish an understanding of the baseline energy consumption and emissions for the local area.

The image below (Figure 3) depicts the area covered by the High Park SEC area.



**Figure 3: Map highlighting scope of the High Park SEC area**

The areas highlighted in the map are listed below.

Small Area
257042001
257064001

**Table 1: List of small areas within the Settlement Area of High Park**

This report will provide the framework upon which a variety of energy related projects can be undertaken. The report is constructed around three main stages

### **Stage 1: To establish an energy baseline for the High Park**

This is a summary of the different types of energy currently used, and a breakdown of energy demand per sector. This will be compiled through accessing data from National Authority databases

(Top-Down), in conjunction with data collected from residents through surveys and energy audits (Bottom-Up).

**Stage 2: In-depth understanding of energy use in High Park**

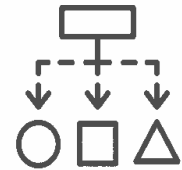
To review each of the sectors in more detail to generate a tailored snapshot of energy use in the High Park Community. This will be compiled through accessing data from National Authority databases (Top-Down), in conjunction with data collected from residents through surveys and energy audits (Bottom-Up).

**Stage 3: Opportunities for energy efficiency, reduced energy demand and renewables**

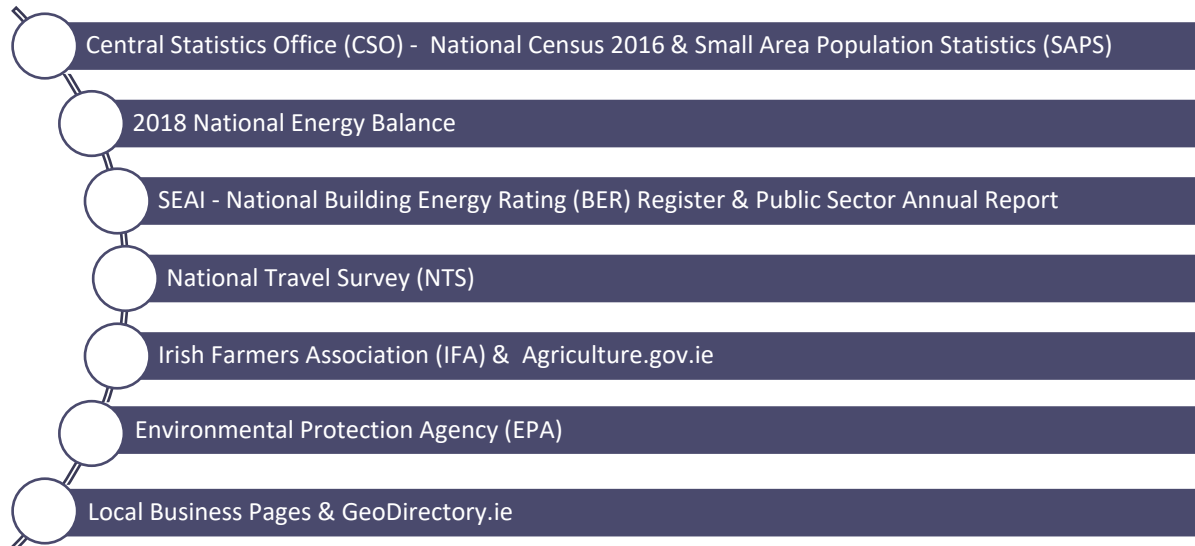
Identifying the main opportunities for improvement of energy efficiency, reduction of energy demand, as well as the potential for renewables, and alternative options in each sector of the local economy.

The report will assist the community in setting out a roadmap for their energy transition by increasing knowledge of how and where energy is used in the community and suggesting priority energy saving projects to aid in the reduction of energy usage and CO<sub>2</sub> emissions.

## 5.0 METHODOLOGY AND BASELINE DATA

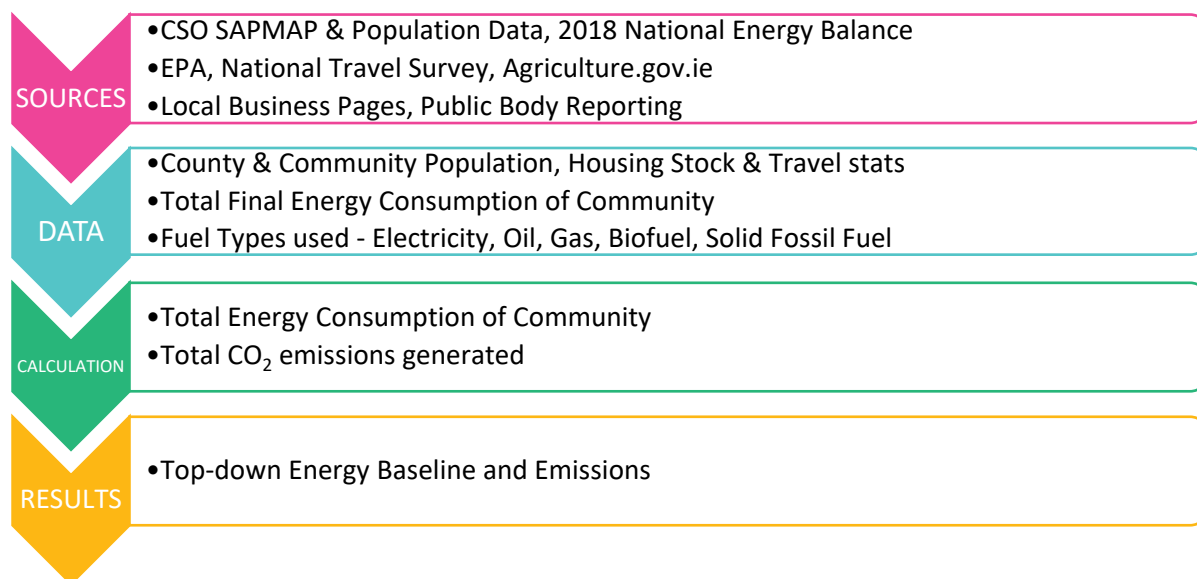


A Top down data analysis was completed using data from national authority databases, as listed below.



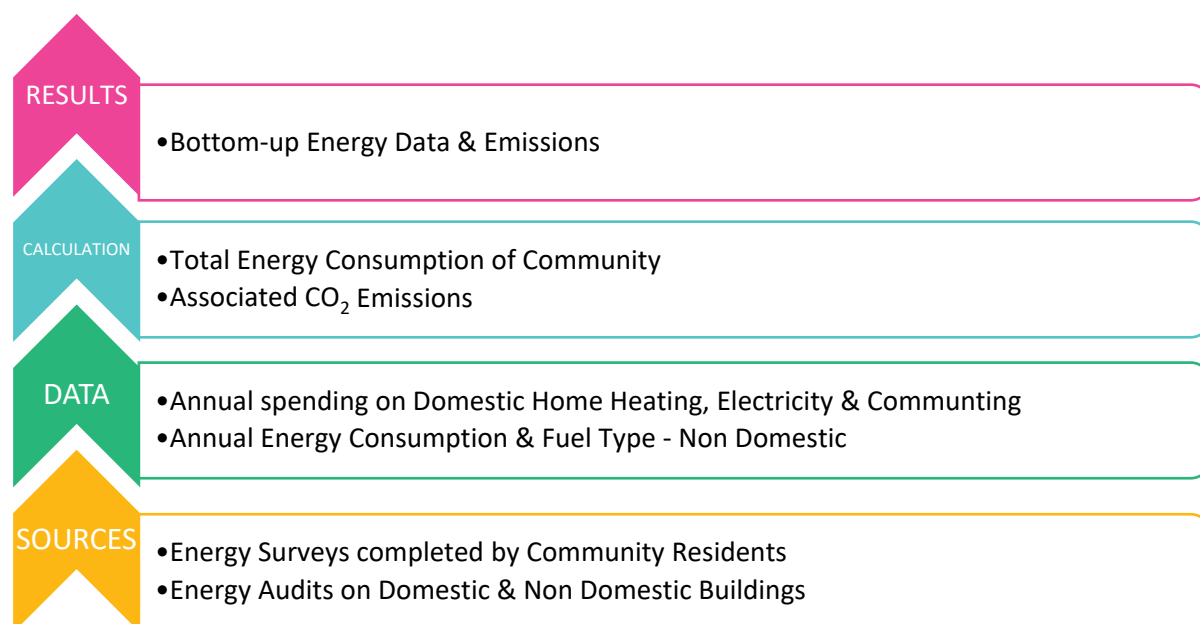
**Figure 4: Data Sources**

The baseline year selected for the top-down method was 2018, due to the availability of the 2018 National Energy Balance data. The national energy data was apportioned to a county level based on population figures from the most recent census. The data represents the energy profile of an average townland (usage by sector and energy type etc.).



**Figure 5: Top-down analysis flow chart**

**A Bottom-up data analysis** was used to analyse local data. This was collected directly from the residents and businesses of High Park through online surveys and building audits. The baseline year selected for the bottom-up method was 2021 as this was when the energy audits and online survey responses were collated.








**Figure 6: Bottom-up analysis flow chart**

Bottom-up analysis can provide a clearer picture of actual fuel consumption and energy usage by sector within a region. However, this is dependent on the number of responses to online surveys, paper surveys and energy audits. This report includes the data collated from both top-down and bottom-up methods, a summary of which is illustrated through a series of graphs in Section 6.0.

## 6.0 BASELINE – FUEL TYPE & SECTOR ENERGY DEMAND

The top-down energy baseline provides a high-level breakdown of energy usage in the High Park SEC area. This is based on national statistics and broken down to an area based on population. Specific characteristics of any town or village may result in some differences to these figures.







				
Residential	Commercial	Public Sector	Transport	Agriculture
66%	14%	3%	4%	13%

**Figure 7: Breakdown of energy demand by fuel type**

Energy demand analysis was broken down into sectors

- Residential – energy used for space and water heating in domestic settings
- Commercial – including small and medium-sized enterprises (SMEs), retail, hospitality, and industry.
- Community & Public Sector – schools, churches, sports facilities, community halls and Local Authority & Government Buildings,
- Transport – commuting & goods vehicles
- Agriculture – energy consumed in the day to day running of a farm: Less than 1%

National statistics were used to attribute a percentage to each sector.

					
Electricity	Oil	GAS	Solid Fuel	PETROL	DIESEL
<b>21%</b>	<b>25%</b>	<b>16%</b>	<b>34%</b>	<b>1%</b>	<b>3%</b>
<b>ELECTRIC</b>	<b>THERMAL</b>			<b>TRANSPORT</b>	

**Figure 8: Breakdown of energy demand by sector**

Due to the potential anomalies in the data above, a bottom-up analysis was conducted to review local data to obtain a better percentage distribution across fuel type and sectorial breakdown for High Park. This is done in the following section.

## 7.0 SECTORIAL ENERGY ANALYSIS

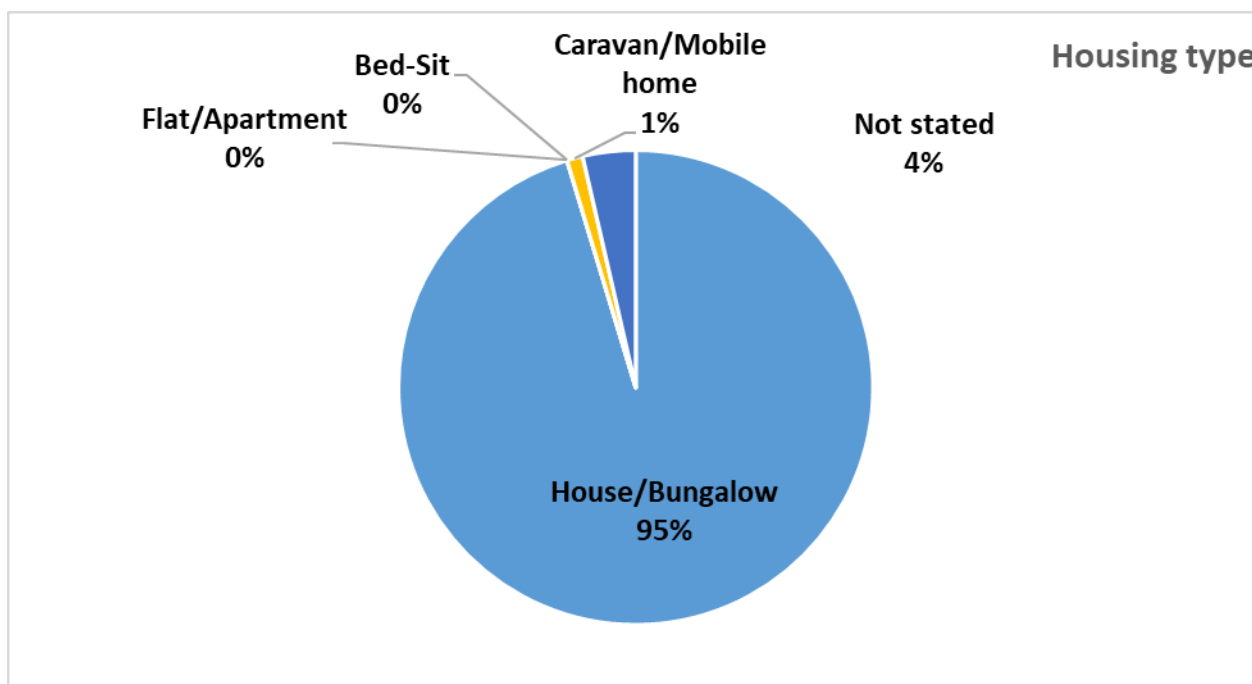
### 7.1 RESIDENTIAL DATA



From the top-down analysis, residential energy consumption represents 66% of energy demand in High Park.

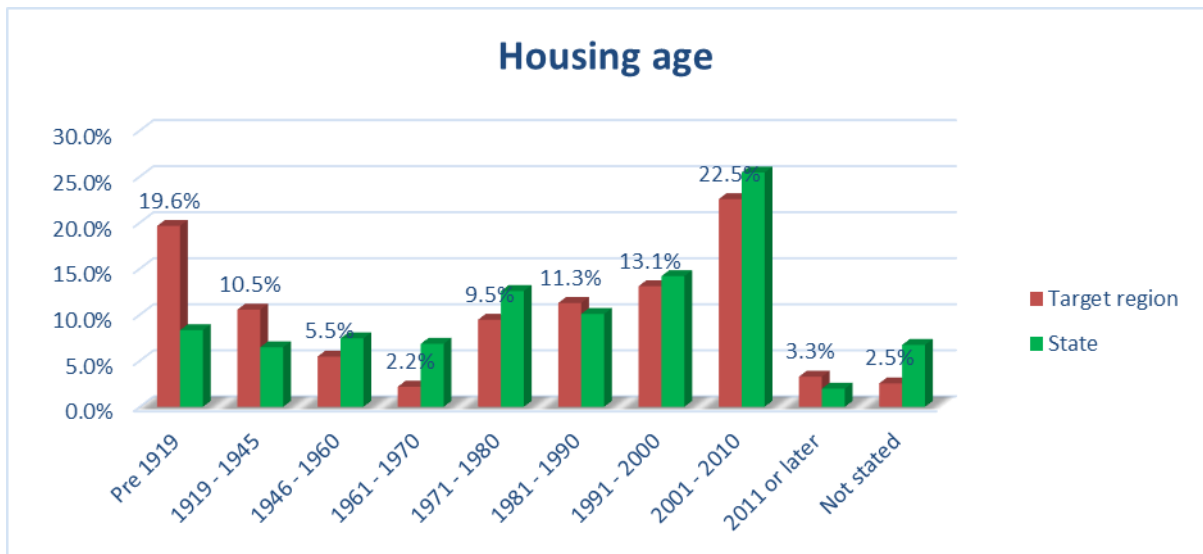
To review the residential sector further, national residential data was obtained from the Central Statistics Office (CSO), and the granular town data was obtained through the CSO's Small Area Population Statistics (SAPS), which lists the housing stock present in a small town by house type and year of construction. Approximately 330 dwellings were recorded for the area covered by High Park SEC.

Figures 9 – 14 show the dwelling types, age of construction, heating fuel source and average energy use per dwelling based on year of construction.

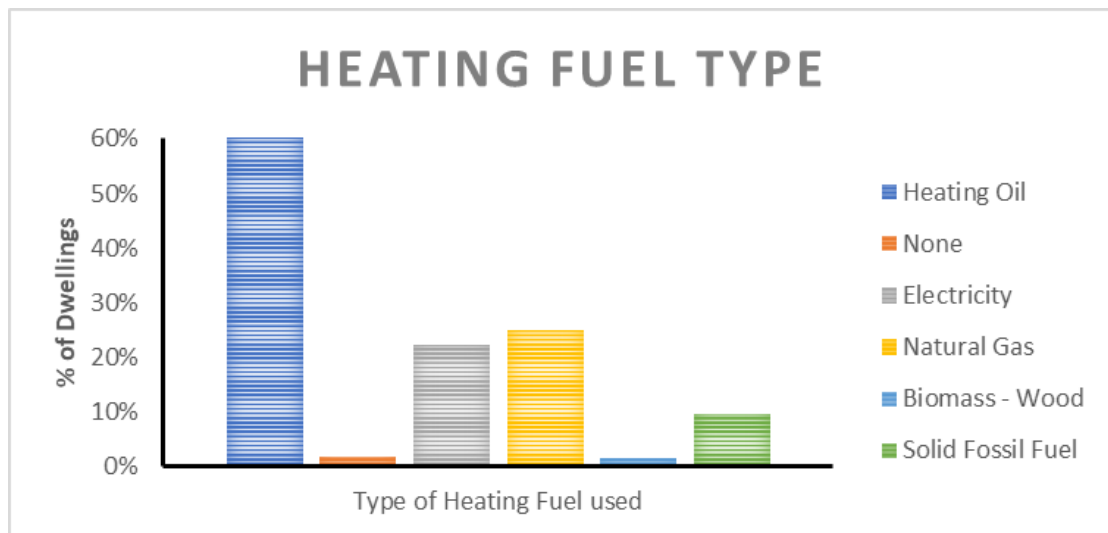


**Figure 9: Housing Stock by Dwelling Type - Source: CSO, 2016**

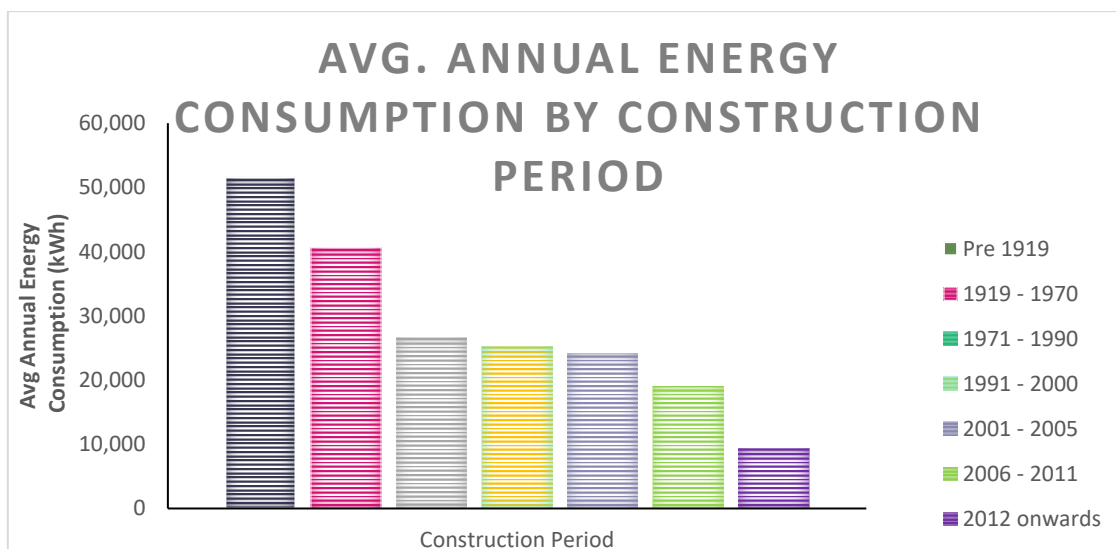




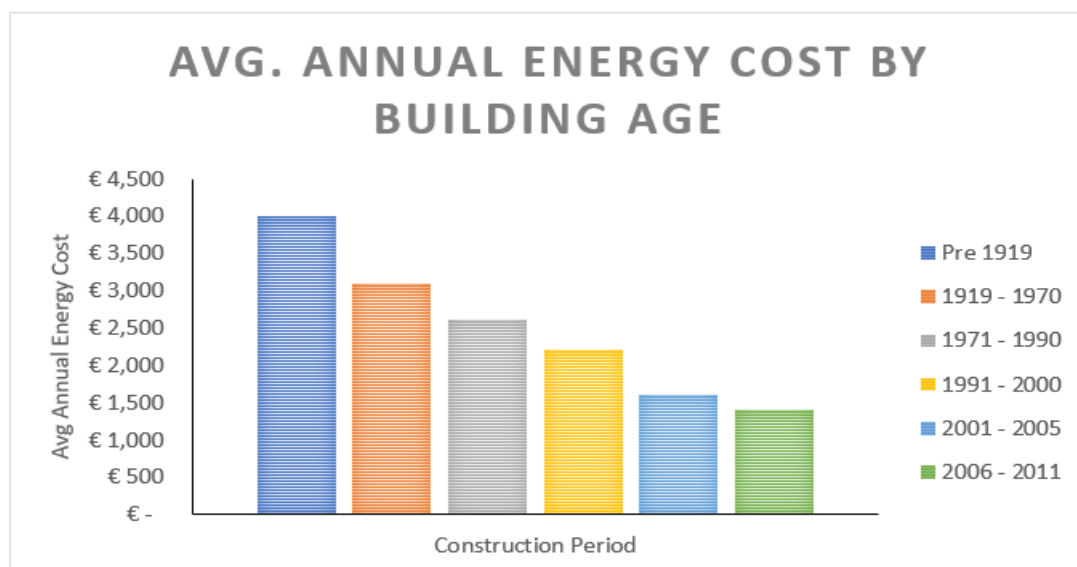
**Figure 10: Housing stock by construction period - Source: CSO**



**Figure 11: Breakdown of heating fuel type used - Source: CSO**



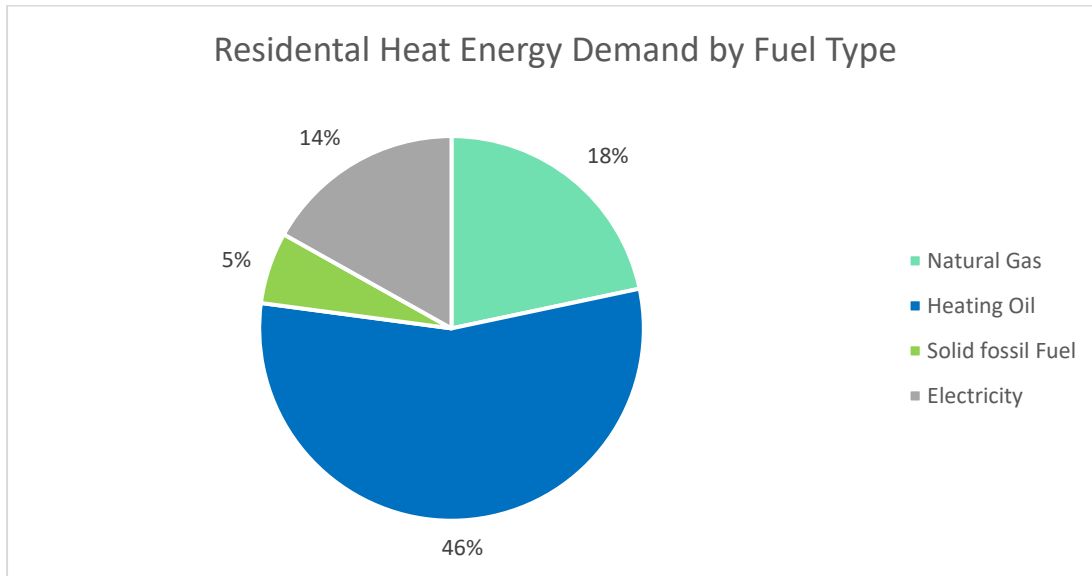
**Figure 12: Average annual energy consumption by construction period – Source: SEAI**



**Figure 13 - Average Annual Energy Cost by Building Age – Source: SEAI**

**Note** that the data shown in Figure 13 is representative of a 150 m<sup>2</sup> semi-detached house with an oil or gas central heating system.

Bottom-up analysis was using data from the online surveys and energy audits conducted by South East Energy Agency engineers. The response rate and data obtained reflects a small percentage of the local population (approx. 1%). Analysis of the responses received, and results of the energy audits carried out produced the following results:



**Figure 14: Survey – Residential energy demand**

## 7.2 COMMERCIAL/BUSINESS DATA



From the top-down analysis, commercial/business energy consumption represents 14% of the energy demand in High Park. To review the commercial sector further, national and county level commercial data was acquired through SEAI's 'Extensive Survey of Commercial Building Stock in Ireland' and broken down to local level using GeoDirectory and Local Business pages. There are approximately 10 businesses operating in the area covered by the High Park SEC area.

Bottom-up analysis was conducted using the survey data collected from the businesses within the SEC area, there was less than a 1% response from businesses in the SEC area, for this reason no data analysis from these responses will be included in the report.

There is potential in this sector to lead the way in the community by setting the example. Many people engage with these companies every day meaning simple actions taken by business, both small and large, will reach a wide audience. Steps such as hosting an energy awareness day or installing solar PV with the aid of grant funding, can be used to promote the idea of energy awareness and sustainability within the local community. The provision of electric vehicle charging points throughout the community and in business parking lots might also encourage an uptake in electric vehicles, reducing the carbon emissions and improving the air quality of the locality

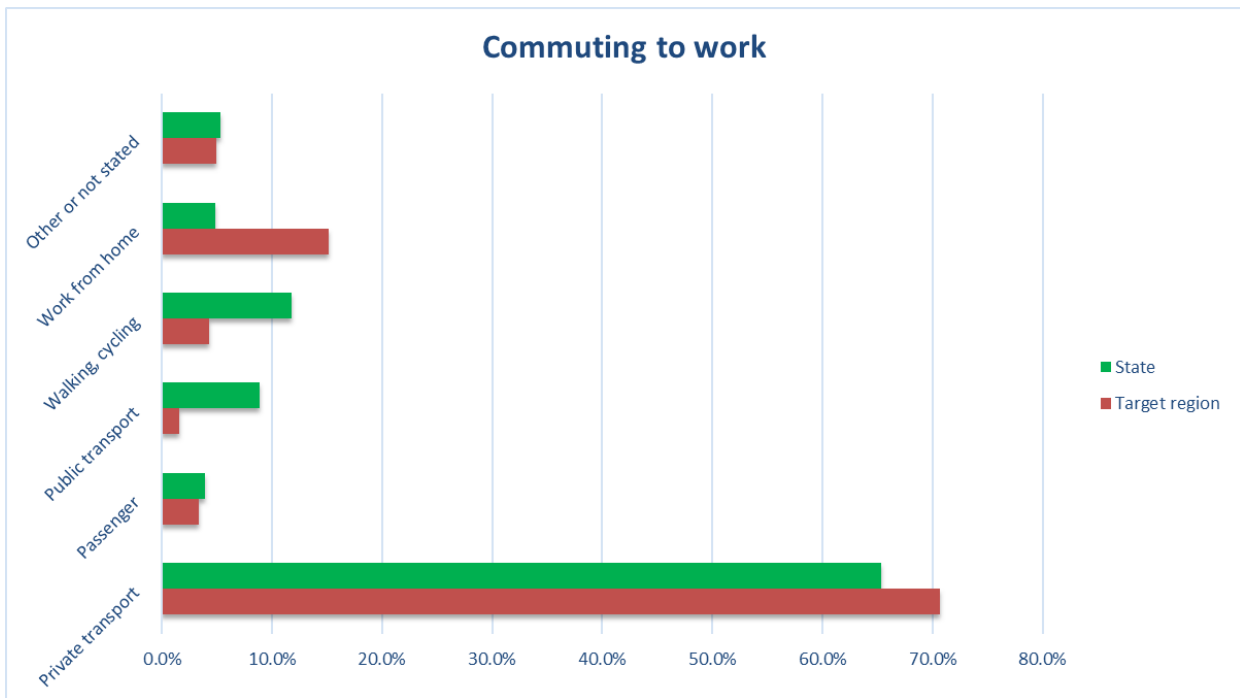
## 7.3 TRANSPORT DATA



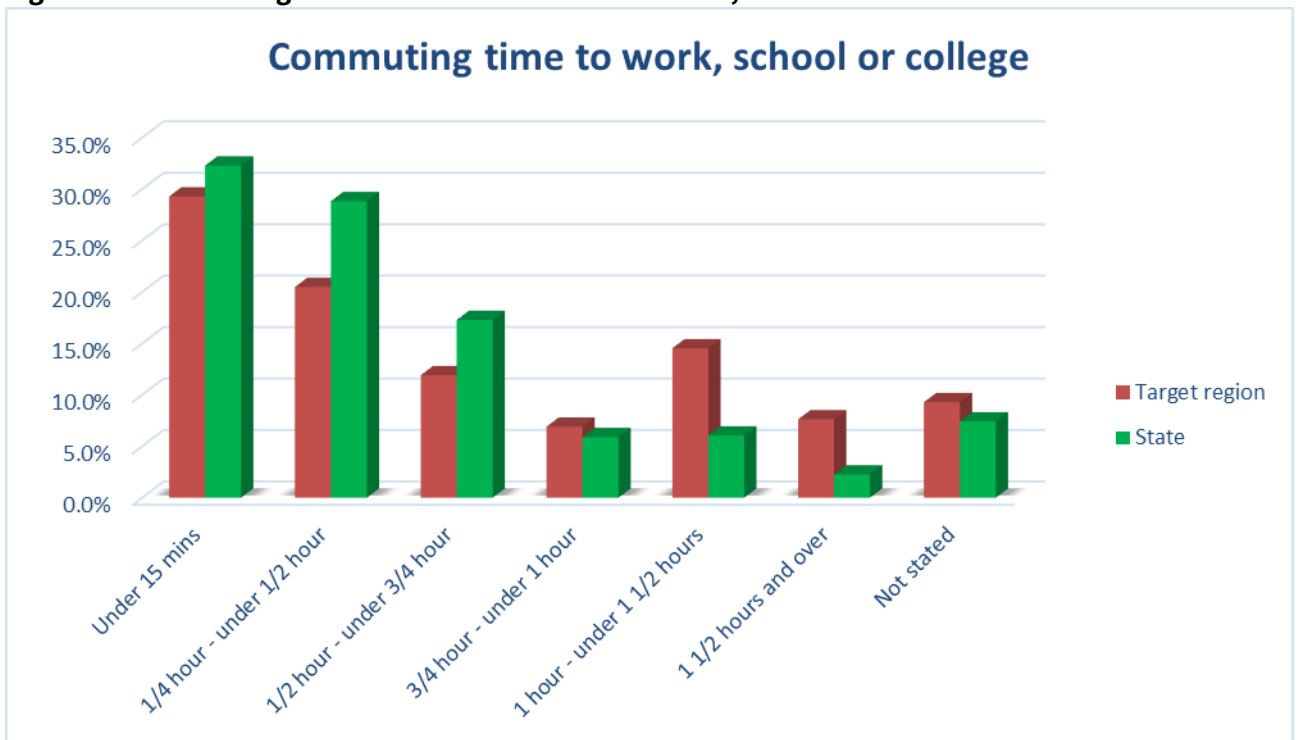
From the top-down analysis, transport energy consumption represents 4% of energy demand in High Park SEC area.

To review the transport sector further, national and County level data was obtained through the National Travel Survey (NTS) conducted by the Central statistics Office. The granular town data was obtained through the CSO's Small Area Population Statistics (SAPS), which records commuting times, methods of commuting, and numbers of households with private vehicles.

Figures 15 - 18 show the commuting methods, commuting times, vehicle type and fuel type for transport options for High Park. Most people commute using a private vehicle. Travelling by foot/bicycle, car sharing, and public transport combined represent nearly the same proportion as those who drive alone.

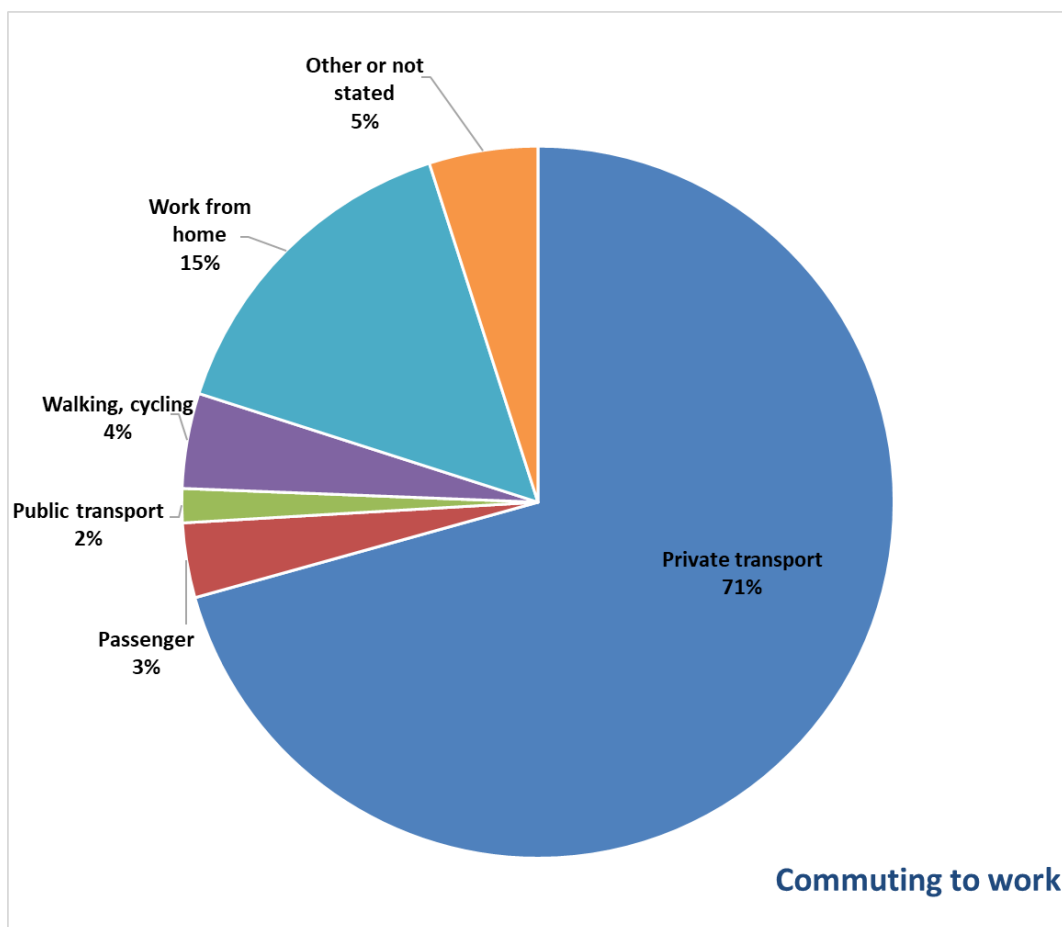


**Figure 15: Commuting Method in SEC Area – Source: CSO, 2016**

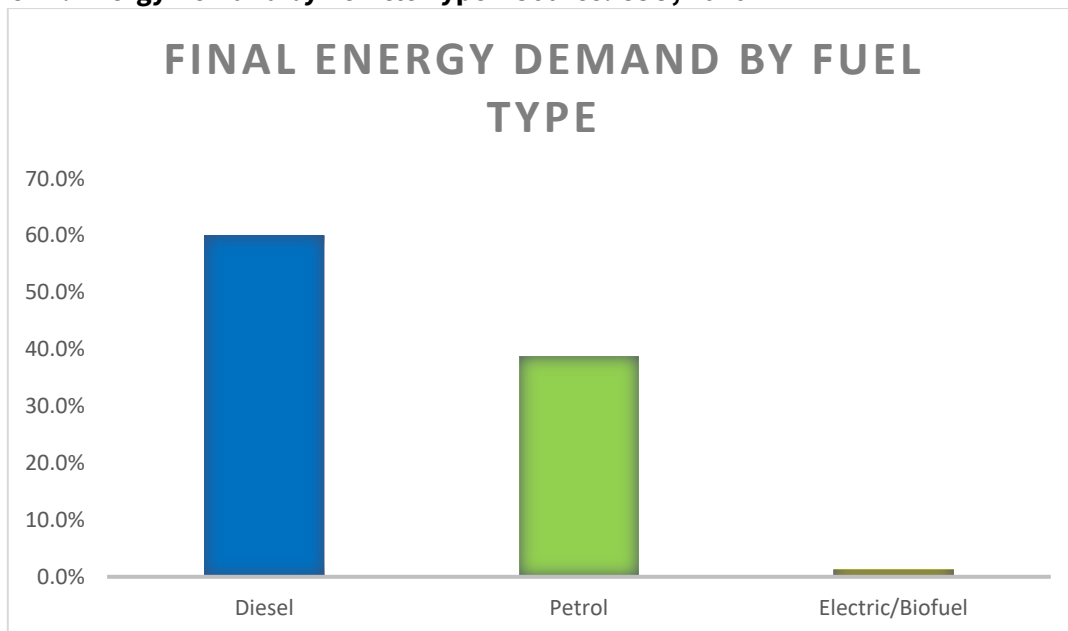


**Figure 16: Commuting Times in the SEC Area – Source: CSO, 2016**

The high number of short journey times tells us that a large number of journeys are under 5km and are therefore cyclable or walkable.



**Figure 17: Energy Demand by Vehicle Type – Source: CSO, 2016**



**Figure 18: Energy Demand by Fuel Type – Source: CSO, 2016**

Cars are the most popular mode of transport, analysis of this data shows it follows the trend seen in the top-down data with greatest demand being for diesel at almost 60%, and demand for petrol coming in at just over half of that with 38%. A small number of residents own electric vehicles in the area these may have not been captured by the 2016 census data as national data shows us that the largest numbers of electric cars have been sold within the last two years.

This data is representative of the residents of SEC area only and does not consider the traffic volumes resulting from commuting or from tourism in the region. At the same time, it provides an ideal location from which to explore the natural wonders of Co. Wicklow. With over 500,000 tourists domestic and international, visiting Wicklow annually, these figures have not been accounted for in the top-down or bottom-up analysis, although they will have a considerable effect on transport-based emissions and need to be considered when looking at sustainable transport improvements. Services such as ample electric vehicle charging points and increased public transport options can help reduce the emissions associated with all transport without inhibiting the volume of visitors to the region.

It is not reasonable to expect everyone to immediately switch to electric vehicles, but it is possible to provide alternative options to encourage people to reduce the use of petrol and diesel vehicles. Improved foot and cycle pathways will encourage people to travel by more sustainable modes of transport, simultaneously allowing users to appreciate fully that natural beauty of the area. Creating pedestrian only areas, even if only on weekends, can motivate the community members and tourists alike to leave the car at home.

Additional information on the current transport infrastructure and services was collected by High Park SEC, their findings can be found below:

- No bicycle lanes, but there could be the possibility of having a footpath from the village to the Primary School to encourage more walking of the pupils.

- No Electric Vehicle charging points yet.
- No Public bike/e-bike sharing scheme available in the area
- Some limited car sharing/car club vehicles stationed in the area
- Green schools with sustainable travel programme in local school

#### Bus Services in the SEC area:

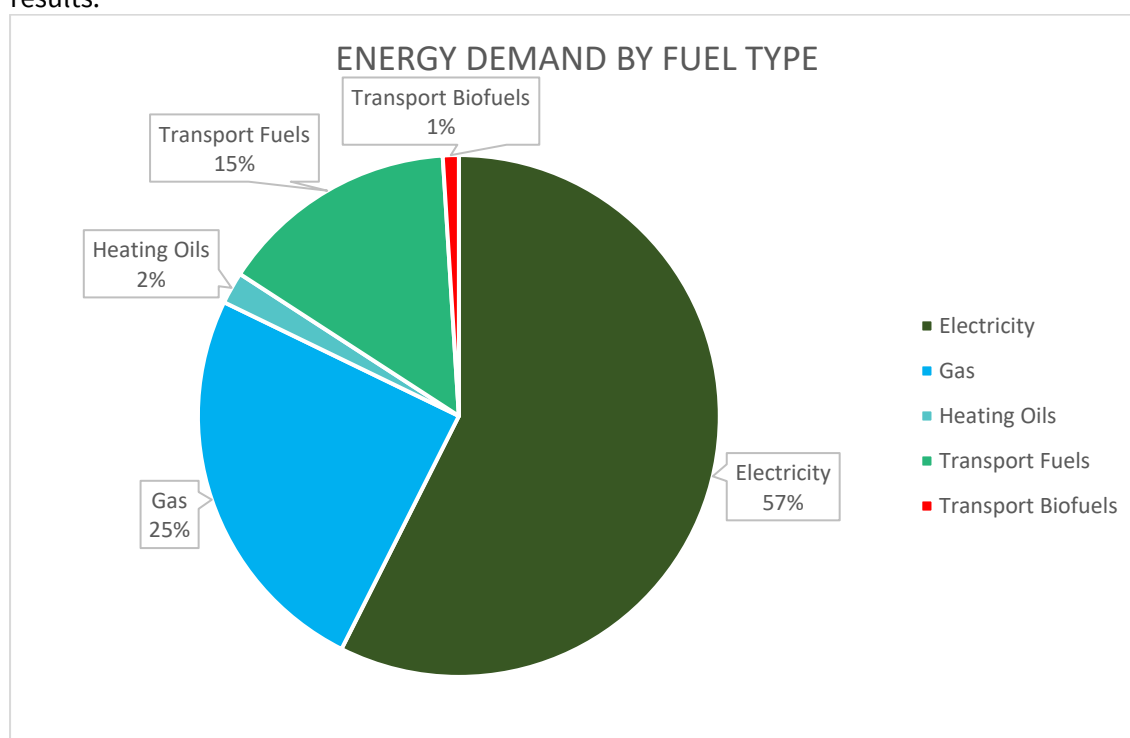
There is a local link bus service available. The SEC state that there are no sheltered bus stops in the area and that none of bus stops have sheltered bike spaces either. Bus services in the area will become more sustainable over time. Bus Éireann for example will achieve a 50% reduction in greenhouse gas emissions by 2030. No new diesel-only bus will be added to their city and regional bus fleet after 2020. By 2030, half of their fleet will be zero emissions and all diesel vehicles will be at least of EuroVI engine emission standard. That means 92% lower particulate matter, 90% less nitrous oxides, 75% less hydrocarbons than in 2000 and 30% less carbon monoxide from our remaining diesel coaches.

## 7.4 COMMUNITY & PUBLIC SECTOR DATA

From the top-down analysis, community and public energy consumption represents 3% of energy demand in the High Park SEC area. This sector includes all public sector buildings, schools, community centers, sports facilities etc. There are several community buildings in the area including a Community Center, school and churches.



National and County level data was acquired through SEAI's Annual Public Sector report and Public Bodies Energy Reporting. The data was further broken down to local level using percentage of population figures. Analysis of the top-down data provides the following results:



**Figure 19: Community & Public Sector Energy Demand in the SEC Area by Fuel Type – Source: SEAI's Annual Public Sector report**

Bottom-up analysis was conducted using the survey data collected from community/public sector buildings within the SEC area, there was less than a 1% response from community/public sector buildings in the SEC area, for this reason no data analysis from these responses will be included in the report.

At present the overall use of renewables in the area is low. In 2011 a 150Kw wind turbine was installed in St Patrick's and has been working successfully since then. Generating data and consumption have been kept and calculations show that an average of €30,000 was saved annually over that period.



In July 2018 30kW of solar PV panels was installed on the roof of St Patrick's. In the first twelve months it produced 30,000 kWh yielding electricity savings of approximately €10,000.

The use of renewable technologies in conjunction with improving the efficiency of existing systems through enhanced controls, can have a significant impact on energy consumption. Having these features displayed in some manner and visible to the visiting public can help generate interest and appreciation for the steps being taken by the community e.g., solar panels on a community building. This could also inspire the younger generations to take an interest in sustainability and renewable technologies.

## 8.0 REGISTER OF OPPORTUNITIES

The register of opportunities presents a list of opportunities for High Park SEC to consider in making their community more sustainable. Opportunities are listed for residential, commercial/SME, transport, community & public sector, agriculture, and renewable energy.

South East Energy Agency carried out 4 domestic energy audits and 3 non-domestic energy audits in the High Park SEC Community. The Register of Opportunities was generated from these audits. The projects identified are based on availability of information, data and access to buildings.

It is recommended that when selecting suitable projects, the following criteria should be considered:

1. Capital cost of project and available funds
2. Payback period – The shorter the payback period, the quicker the initial capital investment will be paid back. Household or business owners could then invest these energy savings in future energy efficiency or renewable energy projects.
3. Other priorities e.g. fuel poverty in vulnerable members of the community / serious issue with comfort levels of a building / issue with functioning / operation of building / facility

Please bear in mind that:

- The information and results shown in the following tables are based on data available at the time of the site visits.
- For each measure and before the start of any efficiency upgrade, the feasibility of works must be confirmed by a contractor. The contractor will be able to give the exact energy efficiency characteristics of the new product installed (efficiency of new equipment, thermal information of new insulation etc.).
- The capital costs of projects are estimated using SEAI Contractor rates and average rates of similar projects completed between 2013 and 2020 by South East Energy Agency. Please note that these are best practice estimates and may differ from actual quotes received for site specific projects. A quotation from a contractor is needed to confirm the feasibility and investment.
- The costs listed do not include professional or project management fees, and/or other incidental works which might need to be carried out before the energy efficiency works or are chosen to be carried out simultaneously by the client.

## 8.1 REGISTER OF OPPORTUNITIES - RESIDENTIAL

### 8.1.1 ENERGY EFFICIENCY UPGRADES FOR HOUSING

Since 2009, it has been mandatory in Ireland to have a Building Energy Rating (BER) certificate and advisory report for homes being sold or rented, new dwellings, and to qualify for energy efficiency improvement grants. However, protected structures are exempt from these assessments.

The opportunities for home upgrades are listed in the table below. As all dwellings are different, each homeowner should look at the list and pick some measures depending on the characteristics of their home. The list below is ranked on a fabric first approach. Upgrading can also help to make homes healthier places to be, by increasing the household temperature it can help sustain metabolic health and movement, reduce the risk of falls, decrease the likelihood of mold, and can improve air quality.

A fabric first approach involves improving the energy efficiency of the main elements of the building (roof, walls, floors, windows), before considering the use of mechanical or electrical building services systems.

Taking the fabric first approach means comprehensively insulating your whole home including high performance double or triple glazed windows. In as much as possible you should also make your home airtight to reduce heat-loss and infiltration of cold air. At the same time, you must maintain a good level of ventilation to protect your home from damp and mold. These are the first steps towards making your home energy efficient and are therefore ranked 1-5 in the home upgrades list below.

**Table 2: Register of Opportunities for Residential**

Home No.	Initial BER Rating	Energy Savings (kWh/yr)	Energy Savings (€/yr)	Final BER Rating	Estimated Capital Expenditure with no grant funding (€)	Estimated Capital Expenditure with SEAI grant funding (€)	Simple Payback (Years)	Year of construction
1	E1	21,000	1,890	A3	€ 45,000	€ 33,000	17	1970-1980s (bungalow)
2	D2	16,500	1,485	A2	€ 55,000	€ 40,000	27	1800s
3	D2	15,500	1,395	A3	€ 55,000	€ 40,000	20	1990s
4	C1	12,500	1,125	A3	€ 60,000	€ 45,000	40	1990s

Each measure carried out on a domestic dwelling will increase the energy efficiency of the building and in turn will reduce energy consumption while maintaining comfort levels within the home.

## 8.1.2 LEVELS OF DOMESTIC UPGRADE

Different levels of upgrade are achievable, depending on the budget available and whether you are happy to do several works at once to reach a BER of B2 or higher.

Three levels of upgrades are explained below. Residents of High Park will find a comfort and an energy saving benefit from carrying out works to the standards listed below. All three can be done together (Home Retrofit upgrade) or one building element at a time:

### Level 1: Basic upgrade

A first level of upgrade can be undertaken with low investment. It consists of roof insulation upgrade, cavity wall insulation upgrade (pumping the cavity with beads), and the replacement of non-efficient lights by low energy lights. These works can be carried out without disturbing the functioning of the house. Some grants are available from SEAI for this work but only for standalone measures (insulation, heat pump, heating controls). New windows and doors are not eligible for a grant under this style of upgrade.

### Level 2: Advanced upgrade

The next step taken could be to upgrade the heating system. Potential upgrades would be the replacement of an old boiler with a new condensing boiler with heating controls and zones or replacing a fireplace with a new stove. This level is more expensive than the Basic upgrade but still more affordable than the Home Retrofit upgrade (level 3). However, there is no grant available for a new fossil fuel boiler, a grant is only available for the upgrade of heating controls. New windows and doors are not eligible for a grant under this style of upgrade

### Level 3: One Stop Shop

In 2022, SEAI launched the One Stop Shop, aimed at engaging groups of households, registered Housing Associations and Local Authorities and Energy Utilities or other organisations to participate in delivering a 'One Stop Shop' type of service for energy efficiency works. It is expected that over 5,000 homes will be upgraded to a minimum B2 BER rating, with most of the homes installing a heat pump

This level of upgrade involves building fabric measures and system upgrades which require an achievement of at least a B2 BER rating or an energy uplift or saving of at least 100kWh/m<sup>2</sup>/yr i.e a house rated C1 would need to be improved to achieve an A3 rating. Although this level does include some of the improvements that have already been listed for level 1 and 2, the difference is that for a One Stop Shop Retrofit these improvements would all be done at the onetime to a standard depending on your existing BER rating and the applicant can also apply for funding towards windows, doors, floor insulation and ventilation improvements. The works would be project managed, the savings would be verified and the grant paperwork would be submitted by the One Stop Shop company

For this level, the following measures should be required: wall insulation upgrade (internal or external insulation), windows and doors upgrade, improving ventilation, upgrading an open fire to a stove and the installation of a heat pump. A photovoltaic system might be added to achieve the BER target. This level attracts a high level of grant through SEAI's One Stop Shop Retrofit scheme.

Paybacks are calculated using the grants available for each level in this scenario. However, the grants available depend on the combination of works. Level 3 requires more investment but attracts a higher level of grant. Building comfort is highest at Level 3, the One Stop Shop Home Retrofit Upgrade.

This summary below assumes a Level 3 Home One Stop Shop Retrofit upgrade (where suitable) for each house to show a high level of improvement, to give an idea of all the measures available, and to reflect government policy

**Table 3: Summary table of Domestic Reports Results – to bring a building to the B2 BER standard or higher (where feasible)**

House No.	Initial BER Rating	Energy Savings (kWh/yr)	Energy Savings (€/yr)	Final BER Rating	Estimated Capital Expenditure with no grant funding (€)	Estimated Capital Expenditure with SEAI grant funding (€)	Simple Payback (Years)	Year of construction
1	E1	21,000	1,890	A3	€ 45,000	€ 33,000	17	1970-1980s (bungalow)
2	D2	16,500	1,485	A2	€ 55,000	€ 40,000	27	1800s
3	D2	15,500	1,395	A3	€ 55,000	€ 40,000	20	1990s
4	C1	12,500	1,125	A3	€ 60,000	€ 45,000	40	1990s

South East Energy Agency carried out 4 domestic energy audits in the High Park SEC area. The Register of Opportunities was generated from these audits. The projects identified are based on availability of information and building access.

Detailed reports for each building, including costings and the impact of each improvement, can be found in the Appendix A.

### 8.1.3 REPLICATION IN YOUR BUILDING

**A detailed list of the actions that can be taken and their impact on building energy efficiency are included in full refurbishment guides for each of the 4 houses in the Appendix.**

These surveys cover houses built from 1800's to 2000. The house types were chosen as representative of building types in High Park SEC area. Residents can compare their home to the surveys above and the detailed reports in the Appendix to see what interventions would work in their home.

For example, an individual with a house built between 1980 and 1990 could use the survey of the house 1 and compare existing building fabric and heating system information, and take the advice given to improve this type of building. For a house built between 1990 and 2000, a householder could compare their home with survey 3 and 4.

Each house is different, and in some cases the houses surveyed have already had energy efficiency upgrades carried out. However, these surveys can still be taken as a guide for making energy efficiency improvements in similar households.

**Table 4: Houses surveyed and years of construction**

House no	Year of Construction
1	1970 -1980
2	1800's
3	1990s
4	1990s

## 8.2 REGISTER OF OPPORTUNITIES – COMMERCIAL/ BUSINESSES

### 8.2.1 REGISTER OF OPPORTUNITIES

The opportunities for non-domestic building upgrades are listed in the table below. As all buildings are unique, with different energy uses, business owners are encouraged to look at the list and pick measures depending on the characteristics of their building. The list below is ranked using a fabric first approach.

A fabric first approach involves maximising the performance of the components and materials that make up the building fabric itself, before considering the use of mechanical or electrical building services systems.

**Table 5: Register of Opportunities - Commercial/Businesses**

Rank	Category	Measures	Estimated cost
1	Energy management	Awareness campaign for staff and occupants	
2	Building fabrics	Roof insulation	15 – 30 €/m <sup>2</sup>
3	Building fabrics	Cavity Wall Insulation	15 - 25 €/m <sup>2</sup>
4	Building fabrics	Internal/ External Wall Insulation	90 – 140 €/m <sup>2</sup>
5	Building fabrics	Floor insulation	90 – 150 €/m <sup>2</sup>
6	Building fabrics	Window/ Door upgrade	375 - 900 €/m <sup>2</sup>
7	Others	Lighting Upgrade	10 €/Fitting
8	Heating systems	Heating upgrade - Heating control	
9	Heating systems	Heating upgrade - Condensing boiler	Varies depending on size
10	Heating systems	Heating upgrade - Heat Pump	Varies depending on size
11	Heating systems	Heating upgrade - Biomass boiler	Varies depending on size
12	Heating systems	Heating upgrade – CHP Combined Heat and Power	Varies depending on size
13	Domestic Hot Water	Hot water heat pump	Varies depending on size
14	Renewables	Solar PV	
15	Renewables	Solar Thermal	Dependent on size
16	Others	Specific equipment upgrade (catering,...)	
17	Others	EV charger	€1,000 -€31,000 dependant on kW

## 8.2.2 EXAMPLE OF EXISTING BUILDINGS

A summary of all the recommended refurbishment works in the non-domestic buildings in High Park SEC area is listed below.

**Table 6: Energy and CO<sub>2</sub> savings estimated for the recommended refurbishment works in the non-domestic buildings in High Park.**

Building name	Kilowatt-hour savings	Savings [€] per year	Tonnes CO <sub>2</sub> /year	Estimated Cost exc. VAT
O Toole Memorial Hall	5,046	€839	1	€58,060
Sli an Chroi	27,358	€1,505	0.2	€102,376
High Park Farm	16,692	€3,813	5.6	€50,300

**Table 7: High Park Farm**



The dairy farm consists of steel sheds construction with flat roof panels and a solid concrete floor. The original building dates back to 1990, and there is a single story for the milking parlor, calves, and sheds. The total area of the floor and roof is 740 m<sup>2</sup> each. The lighting in the facility includes CFLs, T8 tubes, and LED spotlights. The facility is occupied for approximately 3,240 hours per year. It is connected to single-phase electricity.

The milking process in the facility involves a traditional milking parlor and operates using various equipment. This includes a 1.5 kW compressor, two 3.5 kW vacuum pumps, two 0.75 kW motors for the feeders, and a 2 kW pump for washing up the milking parlor. The cows are milked twice a day, with each milking session lasting for 2 hours, followed by a 10-minute hot wash-up. Based on the Energy audit completed for High Park Farm, here is a summary of the energy efficiency measures (EEMs) and their associated savings:

EEM-01: Energy Management - Conduct energy awareness days and implement a switch-off policy for plug loads and lighting after hours.

EEM-02: Energy Management - Record and submit electrical meter readings to the utility company on a monthly basis.



EEM-03: Energy Management - Change energy provider by using a comparison website. No specific energy savings, cost savings, or carbon savings are provided.

EEM-04: HVAC - Install a new cooling and DHW (domestic hot water) system, including various components. This measure yields energy savings of 8,981 kWh, cost savings of €1,538 per year (excluding VAT), and carbon savings of 2.9 tonnes of CO<sub>2</sub> per year. The estimated cost of the installation is €32,500 (excluding VAT), but with a 30% grant, the cost after the grant is €22,750. The simple payback period after the grant is 14.8 years.

EEM-05: Lighting - Install LED fittings and lamps to replace fluorescent tubes and incandescent bulbs throughout the premises. This measure results in energy savings of 768 kWh, cost savings of €227 per year (excluding VAT), and carbon savings of 0.3 tonnes of CO<sub>2</sub> per year. The estimated cost of the installation is €2,500 (excluding VAT).

EEM-06: Renewables - Install a 9 kW PV (photovoltaic) system. This measure offers energy savings of 6,943 kWh, cost savings of €2,048 per year (excluding VAT), and carbon savings of 2.4 tonnes of CO<sub>2</sub> per year. The estimated cost of the installation is €15,300 (excluding VAT), and with a 30% grant, the cost after the grant remains €15,300. The simple payback period after the grant is 7.5 years.

The total savings across all measures combined are as follows: energy savings of 16,692 kWh, cost savings of €3,813 per year (excluding VAT), and carbon savings of 5.6 tonnes of CO<sub>2</sub> per year. The estimated total cost of implementing all the measures is €50,300 (excluding VAT), but with a 30% grant, the cost after the grant is €40,550. The simple payback period after the grant is 10.6 years.

### 8.2.3 REPLICATION IN YOUR BUILDING

The non-domestic building surveys cover a small number of commercial buildings in the High Park SEC area, and it is hoped that the interventions recommended could also be used by other businesses. For example, the register of opportunities proposed for the High Park Farm surveyed could be used for the other farms in the area.

### 8.2.4 REMOTE WORKING / SHARED WORKSPACES

Shared workspaces have become increasingly popular as an option for both self-employed persons and employees who are given the option of working remotely for part or all of the week. This reduces the frequency and duration of journeys and therefore reduces traffic congestion and greenhouse gas emissions. Shared workspaces also provide a fantastic opportunity for networking and socializing for people who may otherwise become quite isolated in the work that they do. They also boost the local economy by encouraging workers to stay local during the week, where they may avail of local services.

Since the COVID-19 pandemic, remote working has become more accepted as an option among employees / self-employed persons who may be travelling to work. This also reduces the frequency and duration of journeys and therefore reduces traffic, congestion, and greenhouse gas emissions.

## 8.3 REGISTER OF OPPORTUNITIES - SUSTAINABLE TRANSPORT

It is quite challenging to have an impact on transport at a local level. It requires an examining and adjustment of local infrastructure (related to electric cars and cycling) and engaging with locals to encourage alternative modes of transport such as walking, cycling, and carpooling.

This section discusses the Register of Opportunities for Transport for the community. These opportunities are not based on firm facts and figures as with those identified for buildings, but are developed from knowledge, experience and understanding.

### 8.3.1 ELECTRIC VEHICLES

Electric Vehicles (EV's) are not a new technology. They have been commercially available for almost 15 years. Over this time, advances in battery technology and innovations in design have all but ironed out teething problems associated with EV's. Certain models have even become more popular than their fossil fuel counterparts and are fast becoming a viable and popular option for the environmentally conscious family.

The move to electric vehicles is not a simple switch as there are a variety of factors for a person to consider. These factors include local e-charging infrastructure, typical journey lengths, e-charging infrastructure along typical routes travelled and the cost of purchasing an electric vehicle. Technological improvements in electric cars are being made each year. New electric cars in 2022 have a range of up to 400 km (250 miles) per charge - all but eliminating concerns around "range anxiety".

**There are no number public charge points within the SEC area:**

As a first step, the SEC should contact Wicklow County Council to find out more about any additional e-charging infrastructure planned and to inform the council that they may be interested in installing EV chargers in public spaces in the High Park area (car parks, on public buildings).

The High Park SEC area residents and visitors may be able to avail of funding when it comes to electric vehicles. For those interested in purchasing an electric car there is a grant available through SEAI. A full list of the available EV associated grants can be found in Chapter 9.1.3 Transport – Electric Vehicles below.

### 8.3.2 WALKING

This opportunity is simply based around encouraging and motivating the local community to walk when and where possible. Walking provides a range of benefits and opportunities, such as:

1. Improved health (through exercise)
2. Reduction in transport related emissions (that contribute to health issues as well as climate change)
3. Reduced demand on available parking

4. Increased opportunity for members of the community to walk through and see all parts of their town and surrounds
5. Increased opportunity for people in the High Park SEC area to meet and connect on a day-to-day basis.

School children in particular benefit from an active start to the day be it on foot or by bike. There are some great programmes that help promote walking in your community, such as Get Ireland Walking, Move More Walking Challenge and Marchathon. In addition to this you could engage with your local Doctor's offices, HSE clinics etc. to put up promotional material on walking or arrange to deliver short informative talks designed to inspire the community to get walking. The provision of safe and joined up footpaths and cycle ways will encourage more people to consider these options for short trips, which will in turn reduce short unnecessary car journeys.

### 8.3.3 CYCLING

Cycling is a great form of exercise that brings lots of health benefits. As with walking, it also reduces the reliance on travelling by car, which then reduces, traffic congestions and transport related emissions. Cycling requires more specific infrastructure compared with walking, such as cycle lanes and bicycle shelters.

There are many low quality paths (road marking only), and no cycle lanes as part of existing footpath space. There are currently no public bike / e-bike sharing schemes in the village.

The SEC should encourage locals to take up cycling as an alternative form of travel, the SEC could do this by:

- Organising social events that are family friendly, accessible to new cyclists, fun & visible.
- Advocating for infrastructure that supports specific and widely used needs e.g. school bike parking
- Developing cycle buddy projects that increase accessibility and social inclusion with cycling
- Partner with cycling and bicycle repair to deliver youth inclusion projects e.g. working with young people to develop skills and confidence.

If cycling isn't an option due to distance or fitness level, then the SEC could encourage the use of electric bicycles for some people. The benefits of electric bicycles include:

- They allow you to travel longer distances and navigate steeper routes
- If you worry about your fitness level, an electric bicycle can be integrated into your journey to help you recover when you are tired.
- Electric bikes can be a much cheaper alternative to a car.

The development of cycle lanes is likely to be a more long-term goal as it requires significant infrastructure work, which would be under the responsibility of the local authority. It is likely to be

already part of the local development plans, but this Energy Master Plan (EMP) is an opportunity for the community to engage with the local authority on the matter and find out more about what is planned and what is achievable.

Funding for public cycle parking is currently administered by the National Transport Authority through the councils. Businesses who install cycle parking at their premises could benefit from the business of the cyclists that travel through the area. Secured parking that can be monitored will appeal to cyclists.

The addition of bicycle parking outside large shops and businesses in the village could remove car traffic locally.

For those who are ready to take to two wheels purchasing a bike is easier than ever. The Cycle to Work Scheme allows employees to purchase a new bike, tax free, and pay for it through their wages each month.

### **8.3.4 CAR POOLING, CAR SHARING AND PARK&RIDE**

Carpooling can be an option for sharing work commutes or school drop offs. Both offer commuters and parents the chance to take turns driving. This can lead to a significant reduction in the volume of traffic around the school gates, which creates a safer local environment around the school, reduces congestion and allows parents to have days / weeks where they can get to work earlier than normal.

## 8.4 REGISTER OF OPPORTUNITIES - COMMUNITY & PUBLIC SECTOR

### 8.4.1 REGISTER OF OPPORTUNITIES

The opportunities for non-domestic building upgrades are listed in the table below. As all buildings are different, with different usages, each owner could have a look at the list and pick up some measures depending on the characteristics of the building. The list below is ranked on a fabric first approach.

**Table 11: Register of Opportunities – Community & public sector**

Rank	Category	Measures	Estimated cost
1	Energy management	Awareness campaign for staff and occupants	
2	Building fabrics	Roof insulation	15 – 30 €/m <sup>2</sup>
3	Building fabrics	Cavity Wall Insulation	15 - 25 €/m <sup>2</sup>
4	Building fabrics	Internal/ External Wall Insulation	90 – 140 €/m <sup>2</sup>
5	Building fabrics	Floor insulation	90 – 150 €/m <sup>2</sup>
6	Building fabrics	Window/ Door upgrade	375 - 900 €/m <sup>2</sup>
7	Others	Lighting Upgrade	10 €/Fitting
8	Heating systems	Heating upgrade - Heating control	
9	Heating systems	Heating upgrade - Condensing boiler	Varies depending on size
10	Heating systems	Heating upgrade - Heat Pump	Varies depending on size
11	Heating systems	Heating upgrade - Biomass boiler	Varies depending on size
12	Heating systems	Heating upgrade – CHP Combined Heat and Power	Varies depending on size
13	Domestic Hot Water	Hot water heat pump	Varies depending on size
14	Renewables	Solar PV	
15	Renewables	Solar Thermal	Dependent on size
16	Others	Specific equipment upgrade (catering,...)	
17	Others	EV charger	€1,000 -€31,000 dependant on kW
18	Others	School programmes	

## 8.4.2 EXAMPLE OF EXISTING BUILDINGS

A summary of the recommended refurbishment works in a community building in the High Park SEC area is listed below. This section focused on two building. There were no public sector buildings audited as part of the Energy Master Plan.

Building name	Kilowatt-hour savings	Savings [€] per year	Tonnes CO2 /year	Estimated Cost exc. VAT
O Toole Memorial Hall	5,046	€839	1	€58,060
Sli an Chroi	27,358	€1,505	0.2	€102,376

**Table 12: O Toole Memorial Hall**



The community hall is a single-story building constructed with solid walls, pitched roof panels, a solid concrete floor, single-glazed wooden windows, and wooden doors. The original part of the building dates back to 1926, with renovations done in 1990. The floor area is 184 m<sup>2</sup>, the roof area is 188 m<sup>2</sup>, and the wall area is 225 m<sup>2</sup>. Currently, there is no wall insulation, and there is no evidence of floor insulation. The heating system relies on an oil boiler, and heating controls include thermostatic radiator valves (TRVs) and timer control. The lighting consists of CFLs, T8 tubes, and halogen spots. The community hall is occupied for approximately 540 hours per year. It is connected to single-phase electricity.

A non-evasive site survey was completed of the building to establish the existing construction element of the building. Findings are based on information gathered during the site visit and information given by the building owner/facility manager. here is an summary of the energy efficiency measures (EEMs) and their associated savings:

EEM-01: Energy Management - Conduct energy awareness days and implement a switch-off policy for plug loads and lighting after hours.

EEM-02: Energy Management - Record and submit electrical meter readings to the utility company on a monthly basis.

EEM-03: Energy Management - Change energy provider by using a comparison website.

EEM-04: Building Fabric - Wall insulation. Insulate walls internally to meet a minimum U-value of 0.21W/M<sup>2</sup>k. The total wall area is approximately 225 m<sup>2</sup>. This measure results in energy savings of 1,550 kWh, cost savings of €165 per year (excluding VAT), and carbon savings of 0.3 tonnes of CO<sub>2</sub> per year. The estimated cost of the insulation is €27,000 (excluding VAT), but with a 30% grant, the cost after the grant is €18,900. The simple payback period after the grant is 114 years.

EEM-05: Building Fabric - Roof insulation. Insulate the roof to meet a minimum U-value of 0.20W/M<sup>2</sup>k. The total roof area is 188 m<sup>2</sup>. This measure yields energy savings of 1,187 kWh, cost savings of €126 per year (excluding VAT), and carbon savings of 0.2 tonnes of CO<sub>2</sub> per year. The estimated cost of the insulation is €11,560 (excluding VAT), but with a 30% grant, the cost after the grant is €8,092. The simple payback period after the grant is 64 years.

EEM-06: Building Fabric - Windows & Doors. Replace single-glazed windows (approx. 5 m<sup>2</sup>) and doors to achieve a U-value of 1.4W/m<sup>2</sup>K. This measure offers energy savings of 158 kWh, cost savings of €17 per year (excluding VAT), and carbon savings of 0.03 tonnes of CO<sub>2</sub> per year. The estimated cost of the replacement is €8,500 (excluding VAT), but with a 30% grant, the cost after the grant is €5,950. The simple payback period after the grant is 353 years.

EEM-07: HVAC - Install a new heating system, including boilers, controls, pumps, valves, etc. This measure results in energy savings of 1,784 kWh, cost savings of €422 per year (excluding VAT), and carbon savings of 0.3 tonnes of CO<sub>2</sub> per year. The estimated cost of the installation is €9,500 (excluding VAT), but with a 30% grant, the cost after the grant is €6,650. The simple payback period after the grant is 16 years.

EEM-08: Lighting - Install LED fittings and lamps to replace fluorescent tubes and incandescent bulbs throughout the premises. Additionally, install absence detection sensors. This measure yields energy savings of 368 kWh, cost savings of €108 per year (excluding VAT), and carbon savings of 0.1 tonnes of CO<sub>2</sub> per year. The estimated cost of the installation is €1,500 (excluding VAT), and there is no mention of any grant or reduced cost.

The total savings across all measures combined are as follows: energy savings of 5,046 kWh, cost savings of €839 per year (excluding VAT), and carbon savings of 1.0 tonnes of CO<sub>2</sub> per year.

**Table 12: Sli an Chroi**



The retreat centre is a three-story building constructed with solid block walls, pitched roof panels, a solid concrete floor, double-glazed PVC windows, and PVC doors. The original part of the building dates back to 1935, with an extension and window upgrade completed in 1997. With a floor area of 651 m<sup>2</sup>, a roof area of 255 m<sup>2</sup>, and a wall area of 382 m<sup>2</sup>, the building currently lacks evidence of wall and floor insulation. It is heated using a biomass system, and heating controls include timer control and thermostatic radiator valves (TRVs). The lighting consists of CFLs and halogen spots. The building is occupied for approximately 2,920 hours annually. It is connected to three-phase electricity.

Below is summary of the energy efficiency measures (EEMs) and their associated savings for the retreat centre:

EEM-01: Energy Management - Carry out energy awareness days and implement a switch-off policy for plug loads and lighting after hours.

EEM-02: Energy Management - Record and submit electrical meter readings to the utility company on a monthly basis.

EEM-03: Energy Management - Change energy provider using a comparison website.

EEM-04: Building Fabric - Wall insulation. Pump the cavity wall with platinum eco bed insulation to achieve a minimum U-value of 0.27W/M<sup>2</sup>k. The total wall area is approximately 598 m<sup>2</sup>. This measure results in energy savings of 11,557 kWh, cost savings of €567 per year (excluding VAT), and no specific carbon savings are mentioned. The estimated cost of the insulation is €45,854 (excluding VAT), but with a 30% grant, the cost after the grant is €32,098. The simple payback period after the grant is 57 years.

EEM-05: Building Fabric - Roof insulation. Install new roof panels with 100 mm core insulation covering an area of approximately 1,147 m<sup>2</sup>. This measure yields energy savings of 2,257 kWh, cost savings of €111 per year (excluding VAT), and no specific carbon savings are mentioned. The estimated cost of the insulation is €6,380 (excluding VAT), but with a 30% grant, the cost after the grant is €4,466. The simple payback period after the grant is 40 years.

EEM-06: Building Fabric - Windows & Doors. Replace single-glazed windows (approximately 16 m<sup>2</sup>) to achieve a U-value of 1.6W/m<sup>2</sup>K and service the rest of the windows and doors. This measure offers energy savings of 12,885 kWh, cost savings of €632 per year (excluding VAT), and



no specific carbon savings are mentioned. The estimated cost of the replacement is €47,287 (excluding VAT), but with a 30% grant, the cost after the grant is €33,101. The simple payback period after the grant is 52 years.

EEM-07: Lighting - Install LED fittings and lamps throughout the premises, replacing fluorescent tubes and incandescent bulbs. Additionally, install absence detection sensors. This measure yields energy savings of 660 kWh, cost savings of €195 per year (excluding VAT), and carbon savings of 0.2 tonnes of CO<sub>2</sub> per year. The estimated cost of the installation is €2,005 (excluding VAT), and there is no mention of any grant or reduced cost.

EEM-08: Sub Metering - Install electricity and heat meters. No specific energy savings, cost savings, or carbon savings are provided.

The total savings across all measures combined are as follows: energy savings of 27,358 kWh, cost savings of €1,505 per year (excluding VAT), and carbon savings of 0.2 tonnes of CO<sub>2</sub> per year. The estimated total cost of implementing all the measures is €102,376 (excluding VAT), but with a 30% grant, the cost after the grant is €72,264. The simple payback period after the grant is 48 years.

### 8.4.3 REPLICATION IN YOUR BUILDING

The buildings surveyed in this report are limited but should cover general community buildings upgrades in the High Park SEC area.

For example, the register of opportunities proposed for the Community Hall surveyed could be used for the GAA club house or another community centre in the area, taking into account the differing characteristics of the two buildings.

### 8.4.4 SCHOOLS SEAI PROGRAMME

There is a dedicated Sustainable Energy Authority of Ireland (SEAI)<sup>1</sup> programme for schools, that provides training, workshops, and ideas for creating a sustainable culture within your school and identifying energy efficiency / saving opportunities. This programme provides a fantastic opportunity not just to create efficient and sustainable schools, but to educate students in all matters relating to energy efficiency and sustainability that will inform their studies, work, and way of living.

## 8.5 REGISTER OF OPPORTUNITIES – AGRICULTURE

One Energy audit was carried out in the SEC area, a brief description of the findings from the audit can be found above in the commercial section of the ROO. The following list mentions other relevant recommendations for agriculture:

---

<sup>1</sup> <https://www.seai.ie/community-energy/schools/primary-school/>

- Carry out energy awareness days for staff and occupants frequently using the building. Employ a switch off policy on all plug loads and lighting after hours.
- Record and submit electrical meter readings to utility company monthly. This will assist in more accurate reporting
- Replacement on internal and external not efficient lighting with LED. Install presence sensors.
- Installation of PV system on farm sheds.
- Review of processes (e.g., milking): Replacement of old equipment by more efficient equipment, installation of electronic management system, optimization of functioning duration.

Irish farms can significantly reduce fossil fuel emissions by using more energy efficient machinery and by also taking part in the production of biofuels and bioenergy products by choosing to grow crops that can be used for biofuels. Irish farmers are encouraged to make use of emerging technology as a way to increase their productivity but also to make their job less energy intensive and more sustainable. Some of these new “Smart farming” technologies include moisture sensors, drones, smart irrigation, terrain contour mapping, self-driving and GPS enabled tractors. Smart farming technology will in no way replace a farmer directly as their knowledge or passion is what makes Irish agriculture what it is today. With that being said, smart technology can provide the farmer with essential and instant information about their soil, grassland or animal welfare that allows them to make more efficient and effective decisions in a more timely manner.

Addressing the carbon footprint of the Irish agricultural sector means Irish farmers must look at the possibility of utilising solar PV, battery storage, bi-directional flow of energy in electric tractors and other farm vehicles, transitioning to more energy efficient milking machines and adopting more autonomous technology.

Cheaper and simple solutions can be utilised too, for example: fuel consumption within farming is a small contributor to GHG emissions but it should not be overlooked. Engine idling accounts for 6% of fuel use, this could equate to hundreds of euro per year depending on a farmers fleet and usage.

An EU Funded research project called AgroRES aimed to develop measures that encouraged the production and use of renewable energy in the agricultural and rural sector. The project produced a “Good Practices Guide” that provided solutions to agricultural energy needs in a sustainable, economically viable and socially responsible way using practical examples from seven countries: Spain, Poland, United Kingdom, Finland, Romania, Italy and Ireland. This Good Practices Guide is a fantastic example of what Irish farmers can do to reduce their energy consumption and their overall carbon GHG emissions.

**The Solar Capital Investment Scheme (SCIS):** The [Solar Capital Investment Scheme \(SCIS\)](#) is a grant program administered by the Department of Agriculture. It provides a 60% grant toward the cost of solar PV panels and new batteries. The grant has a separate investment ceiling of €90,000, allowing farmers to receive funding for solar PV systems without affecting their eligibility for other grants in the Targeted Agricultural Modernisation Schemes (TAMS) III.

To be eligible for the grant, farmers need to obtain planning permission or meet exemption requirements. For roof-mounted systems, planning permission is generally not required unless the farm is located in a Solar Safeguarding Zone (SSZ), in which case planning is necessary for developments above 300m<sup>2</sup>. Ground-mounted systems may require planning permission if the area of the panels exceeds 75m<sup>2</sup> or if the height exceeds 2.5m.

The electricity generated from grant-aided panels must be used on the farm for agricultural purposes, including powering the farmhouse. Exporting or selling the electricity through the grid is not allowed to prevent unfair advantage to other industries. The Department of Agriculture, however, cannot physically prevent farmers from exporting electricity, but it limits the size of the solar PV system eligible for the grant based on the farm's electricity consumption.

To determine the farm's electricity requirements and planned supply from the solar PV system, an on-farm solar PV survey must be completed and submitted with the application. The survey includes information such as the Meter Point Reference Number (MPRN) of the electricity meter, yearly, monthly, and daily electricity consumption, size and output of the proposed PV panels and battery, and mounting details.

The maximum size of PV panels eligible for the grant is 62kW. If the applicant wishes to apply for non-TAMS support for a larger area of panels, the TAMS III unit must be an "isolated and discrete" system. The appropriate grid connection through ESB Networks must also be secured.

Grid connection limits depend on whether the system is single-phase or three-phase. Single-phase systems have a maximum size of 17kW (supporting approximately 22-25kWp output), while three-phase systems allow up to 50kW at the inverter level (around 75kWp solar PV output). The farm's maximum import capacity also determines the allowable system size.

There are different connection processes for microgeneration (up to 9kWp single-phase or up to 11kWp three-phase) and minigeneration (6kW to 17kW single-phase or 11kW to 50kW three-phase). Microgeneration connection involves a straightforward "inform and fit" process with no cost, while minigeneration requires a technical assessment with a fee of approximately €1,000.

The application and claim requirements include providing a farmyard layout plan, farm structure layout plan with the position of the solar panel array, on-farm solar PV survey, maps and ownership details, necessary permissions and environmental impact assessments if applicable.

By fulfilling these requirements, farmers can access the SCIS grant to invest in solar PV systems, reduce their electricity costs, and contribute to sustainable farming practices.

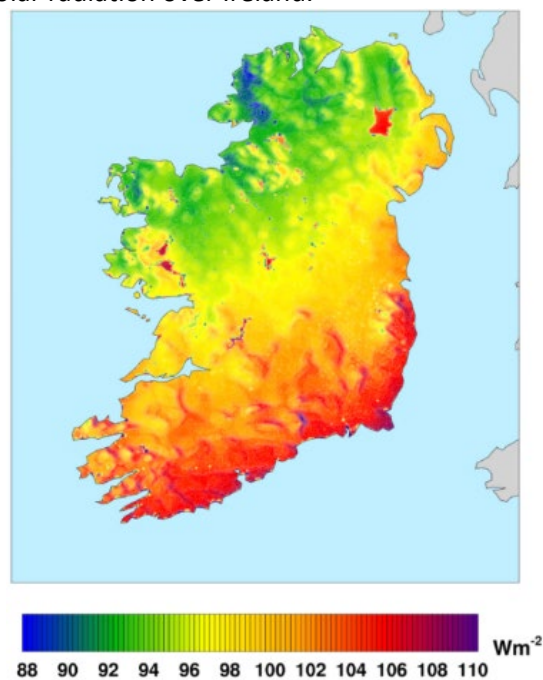
## 8.6 REGISTER OF OPPORTUNITIES – RENEWABLE ENERGY

The renewable energy options for High Park SEC area are reviewed below: This section contains a brief description of the domestic renewable energy opportunities that are suited to rural area like High Park. There is also a short introduction to some other renewable energy technologies that are available in Ireland but would not be suitable for the area. These technologies are included because they are important for the community to understand given the ambitious renewable energy targets Ireland aim to achieve by 2030.

### 8.6.1 DOMESTIC RENEWABLE ENERGY OPPORTUNITIES

#### Solar Energy

Solar Power is energy from the sun that is converted into thermal and electrical energy. Figure 20 below shows the average solar radiation over Ireland.



**Figure 20: Average surface radiation for the period 1981 – 2000**

The south of Ireland has the best solar resource in Ireland, with average horizontal irradiation levels of over 1000 kWh/m<sup>2</sup>. The term ‘solar panel’ is often used interchangeably to describe the panels that generate electricity and those that generate hot water. Solar panels that produce hot water are known as solar thermal collectors or solar hot water collectors. Solar panels that produce electricity are known as solar photovoltaic (PV) modules. These panels generate DC (Direct Current) electricity when exposed to light.

For domestic power users Solar PV panels can save a homeowner upwards of €300 per year on their domestic electricity bills. To have a quality solar PV system installed, it will typically cost between €6000 to €15,000, including batteries. However, if the home that was built and occupied before 2021,

the homeowner can apply for a solar PV grant to pay for up to €2400 of the installation cost. VAT for domestic solar installations will be cut from 13.5% VAT to 0.0% from May 1st 2023.

All homeowners whose dwellings were built and occupied before 2021 can apply for a solar water heating grant of up to €1200. Another advantage of thermal solar panels is that they are very suitable for houses in remote locations not connected to the gas network.

**Planning Permission Exemptions for rooftop solar panels on homes and other buildings (October 2022):**

For solar panel installations on houses: which can be installed on rooftops of homes, anywhere in the country. there is no limit to the area of solar panels.

For solar panel installations on rooftops of all other existing classes of development (Industrial; Light Industrial and Business Premises; Agricultural, Apartments; educational building/ health centre or hospital/ recreational or sports facility/ place of worship/ community facility or centre/ library/ certain public utility sites): rooftop solar installations covering the entire roof are exempt from requiring planning permission.

However, in the 43 designated Solar Safeguarding Zones, a rooftop limit remains:

Exemptions for wall-mounted and free-standing solar panel installations: free-standing solar panel installations for houses are exempted from the requirement to obtain planning permission subject to a 25 square metre area limit and conditions requiring a certain amount of private open space to be maintained for the use of occupants.

## Heat Pump Systems

Heat pump systems are an alternative to fossil fuel heating systems, heat pumps are devices that transfer, or ‘pump’, heat from one place to another. Heat pumps are used as a greener alternative to efficiently heat your home. Heat sources used by heat pumps include warm air (which is the most common), ground, and water (such as lakes and rivers).

In the table below, you’ll find the Individual SEAI grant values available for each type of heat pump system.

**Table 13: Individual SEAI grant values available for each type of heat pump system**

Heat Pump System	Grant Value
Heat pump technical assessment	€200
Air to air	€3,500
Air to water	€6,500

This type of system works very efficiently at low temperature making it ideal for underfloor heating systems where heat is released gradually over long periods of time. Heat pumps operate using electricity meaning that no fossil fuel is burned in heating the home, greatly reducing emissions, and increasing the BER of the home.

It is important to note that heat pumps work best in a well-insulated building so a fabric first approach is required by SEAI before installing a heat pump, reduce the energy requirement of the house with installation and then install a heat pump. Heat pumps work by producing 3 units of heat for every one unit of electricity used and therefore have a very high efficiency of up to 300 – 400%. There is savings in replacing an old inefficient boiler operating at 65% efficiency with a heat pump.

Please note that uninsulated homes built more than 30 years ago may require substantial and costly upgrades to qualify for a heat pump system grant. Heat pumps can only be installed in homes which are already energy efficient, (well-insulated, for example) and a registered technical advisor will need to inspect your home prior to commencing work.

Before applying for a heat pump system grant, the homeowner must engage an independent, SEAI Registered Technical Advisor. The Technical Advisor will carry out a technical assessment of the home, and will advise the homeowner on what steps to take to make their home “heat pump ready”, i.e. to reduce the heat loss in their home. They will provide the homeowner with independent guidance on measures necessary to ensure that the dwelling fabric heat loss is lowered to an acceptable level for a heat pump system to perform effectively and efficiently. The required heat loss level is expressed as a Heat Loss Indicator of 2 Watts/Kelvin/m<sup>2</sup>. In some cases, where upgrades may not be cost-optimal, a value of HLI up to 2.3 Watts/Kelvin/m<sup>2</sup> can be accepted provided additional requirements are met. The homeowner will receive an additional grant of €200 towards the cost of the registered technical advisor’s inspection after completing the heat pump installation. As with other SEAI grants, this grant can be applied for online. Note that in order to qualify for a grant, the home must have been built and occupied before 2011.

### **Micro Generation**

The Micro-generation Support Scheme (MSS) has been announced by Minister Eamon Ryan of the Department of the Environment, Climate, and Communications. The scheme aims to provide various supports for homes, businesses, farms, and communities to develop renewable energy generation for self-consumption. It introduces payments for micro-generators who export electricity to the grid. The target is to support 380MW of installed micro-generation capacity, contributing to the overall goal of 2.5GW of solar renewables. Domestic applicants can receive a Clean Export Guarantee (CEG) tariff, while non-domestic applicants between 6kW and 50kW can receive a Clean Export Premium (CEP) tariff per kWh exported for 15 years. The MSS will be gradually phased out starting from 2024, and community enterprises can also participate in the scheme. The initiative aims to empower energy citizens, reduce energy costs, and contribute to carbon reduction targets.

The Clean Export Premium (CEP) will be €0.135/kWh in 2022. Any difference between the CEP tariff and wholesale electricity prices will be supported by the Public Service Obligation (PSO) levy. Exported volumes of electricity eligible for the Clean Export Premium (CEP) tariff will be capped at 80% of generation capacity – to incentivise self-consumption. Businesses, farms, community buildings such as schools, sports clubs, generating up to 5.9kW are also eligible for a Sustainable Energy Authority of Ireland (SEAI) grant at the same levels as domestic customers for Solar PV.

#### Who can benefit for the MSS?

The scheme is targeted at domestic (homes) and non-domestic sites generating up to 5.9kW. This equates to approx. 18 solar panels on a roof. It is also aimed at larger, non-domestic sites, farms, business properties, community buildings, generating between 6kW and 50kW. This equates to between 18 and 150 solar panels on the roof of community buildings, or a small factory.

#### [Where to apply?](#)

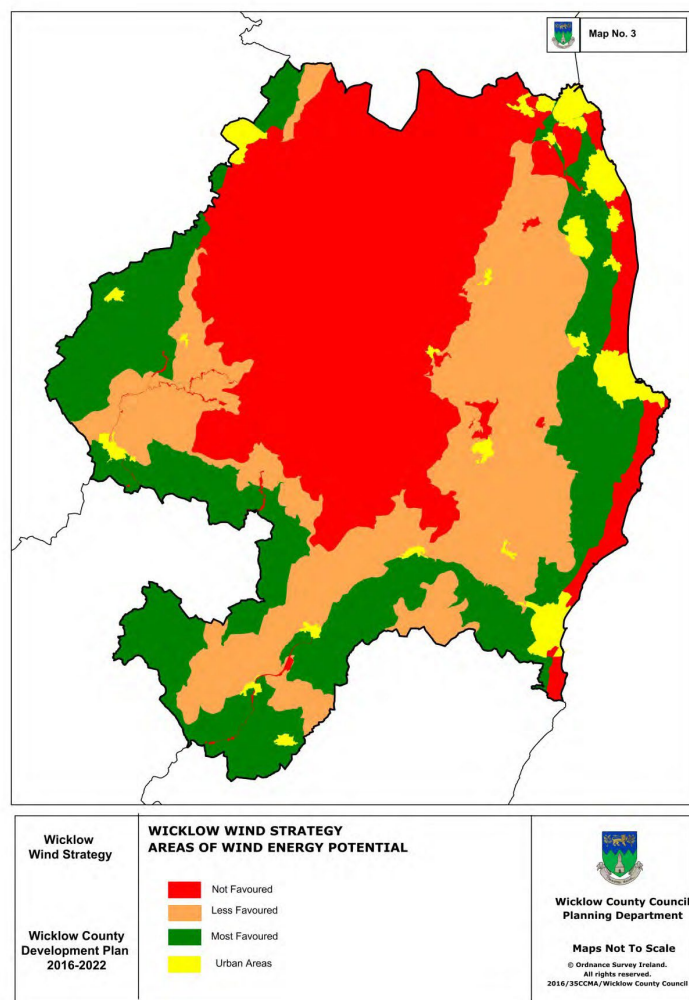
For applicants generating up to 5.9kW, homeowners and small businesses can completed a Micro-Generation NC6 form to begin the process.

For the larger applicants, generating between 6kW and 50kW, the payment process can be started by firstly completing the Mini-Generation NC7 application process

## 8.6.2 OTHER RENEWABLE ENERGY TECHNOLOGIES AVAILABLE THROUGHOUT IRELAND

### Large Scale Wind and Solar Energy Generators

Energy generated using wind turbines has had a significant positive impact on Ireland’s electricity generation in recent years. This energy produces few emissions but as a development that has an impact on our landscape there are several planning requirements that any wind farm must meet. Each proposed development must assess the impact of wind farms on people, wildlife, plant species, waterways and any culturally or historically significant features that may be present in the area, through an Environmental Impact Assessment. According to the “Wicklow County Development plan 2016-2022” the High Park SEC area is defined as an “rural” and would therefore be favoured for wind energy potential.



**Figure 21: Wicklow County Development Plan 2016-22 Wind Strategy Areas of Wind Potential**

Both solar energy and wind energy are progressive alternatives to traditional methods of energy production. Both are intermittent and have certain locations where power production is most



efficient. In Ireland, solar energy is often used to heat and contribute to the electrical demand in homes, businesses, and outdoor infrastructure like lighting and CCTV.

Wind energy is usually used on a much larger scale and can meet higher energy demands. One of the biggest differences between solar energy and wind energy is their capacity factor. In wind energy, the capacity factor is determined by the availability of wind, the swept area of the turbine, and the size of the generator. Large scale wind turbines are efficient and effective, requiring a mean wind speed of 8m/s. In Ireland, this wind speed is achieved at many locations across the country, allowing wind energy to be widely harnessed.

In solar energy, the capacity factor is dependent on the efficiency of solar panels to convert available sunlight into usable electricity. In Ireland, the capacity factor of a wind turbine is between 35 – 40% while solar capacity factors are only 10 – 12%.

Renewable energy generators can contribute direct and indirect investment to the local communities whilst creating jobs for locals in the planning, construction, maintenance and decommissioning phase of the generator.

### **Hydro Energy**

Hydroelectric energy, also called hydroelectric power or hydroelectricity, is a form of energy that harnesses the power of water in motion—such as water flowing over a waterfall or from a river—to generate electricity.

Hydroelectric power costs vary depending on location, technology, and grid connection. The highest costs tend to be in planning and in civil engineering works. Although there are large upfront costs, hydroelectric has the benefit of operating 24/7. Hydroelectric plants must be considerate of the wildlife in the area and flooding concerns.

The amount of electricity a hydroelectric site can generate is dependent on numerous factors including hydraulic head height (the height through which the water falls) and the flow speed of the water. The best sites are those which have large volumes of water all year round, with a large vertical drop in a short distance.

Hydroelectricity is a widely used form of renewable energy. It is considered to be a reliable and generally predictable and consistent source of renewable energy. Once a hydro-electric complex is constructed, the development produces no direct waste, and has a considerably lower output level of carbon dioxide than fossil fuel powered energy plants.

### **Bioenergy**

Bio-energy can be defined as the energy derived from biomass. Bioenergy is a renewable energy form generated when biomass fuels are burned for heat. The three main categories of bio-energy are biomass, bioliquids and biofuels.

Biomass fuels are fuels made up of organic matter such as plants, trees, grasses, and even organic waste. In some cases, biofuel can be generated as a waste product, or by-product of other processes. Biofuel includes energy crops such as oilseed rape and willow etc. Waste wood from sawmills, straw left after the grain harvest, and animal manure are all forms of bioenergy. These

forms of bioenergy are particularly useful as they would normally be considered useless and discarded; they can now be used to generate heat and or electricity. This means that no new emissions are introduced to the atmosphere in generating this type of fuel. Bioenergy is likely to play a significant role in the growth of the renewable energy sector, particularly in the areas of heat and transport, stimulating local economic activity.

Bio-energy technologies have the potential to contribute towards renewable energy targets for heat, electricity and transport in the domestic, commercial and industrial sectors. Examples of bio-energy technologies include:

- Wood log stoves and boilers;
- Wood log gasification boilers;
- Woodchip/pellet boilers;
- Combined heat and power (CHP) plants;
- Anaerobic Digestion Plants.

## 9.0 FUNDING AND SUPPORT OPTIONS

To develop projects, the community should consider investigating options for interest finance loans and grants for energy upgrades and renewable energy projects.

For finance options, Clann Credo who run a Community Loan Finance Scheme. The Community Loan Finance Scheme is aimed at community and voluntary groups, charities, social enterprises and amateur sports club with affordable rates and repayments not available from traditional lenders. [Credit unions](#) and banks can provide Green Loans at a lower interest rate than traditional borrowing.

A full list of other grants available for each sector is listed below.

### 9.1 RESIDENTIAL – HOME GRANTS

#### Individual SEAI Energy Grants:

**Table 14: Individual SEAI grant values**

Grant name	Description	Types of home	Value
Attic insulation		Apartment (any)	€800.00
		Mid-Terrace	€1,200.00
		Semi-detached or end of terrace	€1,300.00
		Detached house	€1,500.00
Cavity wall insulation	Cavity walls are injected from the outside with insulation.	Apartment (any)	€700.00
		Mid-Terrace	€800.00
		Semi-detached or end of terrace	€1,200.00
		Detached house	€1,700.00
Internal Insulation (Dry Lining)		Apartment (any)	€1,500.00
		Mid-Terrace	€2,000.00
		Semi-detached or end of terrace	€3,500.00
		Detached house	€4,500.00
External Wall Insulation (The Wrap)	Insulating materials are fixed to the outer surface of external walls.	Apartment (any)	€3,000.00
		Mid-Terrace	€3,500.00

		Semi-detached or end of terrace	€6,000.00
		Detached house	€8,000.00
Heating Controls upgrade			€700.00
Air to Water heat pump system	The most common heat pump system extracts heat from external air using an outside unit.	Apartment (Any)	€4,500.00
		Semi-Detached/End of Terrace/Detached/Mid Terrace	€6,500.00
Ground Source to Water heat pump system	A ground source heat pump system uses the earth as a source of renewable heat.	Apartment (Any)	€4,500.00
		Semi-Detached/End of Terrace/Detached/Mid Terrace	€6,500.00
Exhaust Air to Water heat pump system	Similar to air to water but includes mechanical extract ventilation and heat recovery from the property.	Apartment (Any)	€4,500.00
		Semi-Detached/End of Terrace/Detached/Mid Terrace	€6,500.00
Water to Water heat pump system	This system uses open water, such as lakes, rivers or streams, as a heat source.	Apartment (Any)	€4,500.00
		Semi-Detached/End of Terrace/Detached/Mid Terrace	€6,500.00
Air to Air heat pump system	This system distributes heat through air units. They do not provide hot water.	Apartment/Semi-Detached/End of Terrace/Detached/Mid Terrace	€3,500.00
Heat pump Technical assessment	This assessment is required before you apply for a heat pump grant.		€200.00

Solar PV grant	per kWp up to 2kWp		€900.00
Solar PV grant	for 2kWp solar panels		€1,800.00
Solar PV grant	for 3kWp solar panels		€2,100.00
Solar PV grant	for 4kWp solar panels		€2,400.00
Solar water heating grant			€1,200.00

### SEAI One Stop Shop Grants:

**Table 15: SEAI One Stop Shop Grant grant values**

Grant name	Types of home	Value
Heat Pump Systems	All Houses	€6,500
	Apartments	€4,500
Central Heating System for Heat Pump	All Houses	€2,000
	Apartments	€1,000
Heat Pump Air to Air		€3,500
Heating Controls		€700
Launch bonus for reaching B2 with a Heat Pump		€2,000
Solar Hot Water		€1,200
Attic insulation	Apartment (any)	€800
	Mid-Terrace	€1,200
	Semi-detached or end of terrace	€1,300
	Detached house	€1,500
Rafter insulation	Apartment (any)	€1,500
	Mid-Terrace	€2,000
	Semi-detached or end of terrace	€3,000
	Detached house	€3,000
Cavity wall insulation	Apartment (any)	€700
	Mid-Terrace	€800
	Semi-detached or end of terrace	€1,200

	Detached house	€1,700
Internal Insulation (Dry Lining)	Apartment (any)	€1,500
	Mid-Terrace	€2,000
	Semi-detached or end of terrace	€3,500
	Detached house	€4,500
External Wall Insulation (The Wrap)	Apartment (any)	€3,000
	Mid-Terrace	€3,500
	Semi-detached or end of terrace	€6,000
	Detached house	€8,000
Windows (Complete Upgrade)	Apartment (any)	€1,500
	Mid-Terrace	€1,800
	Semi-detached or end of terrace	€3,000
	Detached house	€4,000
External Doors (max. 2)		€800 per door
Floor Insulation		€3,500
Solar PV	0 to 2 kWp	€900/kWp
	2 to 4 kWp	€300/kWp
Mechanical Ventilation		€1,500
Air Tightness		€1,000
Home Energy Assessment		€350
Project Management	Apartment (any)	€800
	Mid-Terrace	€1,200
	Semi-detached or end of terrace	€1,600
	Detached house	€2,000

The [Communities Energy Grant](#) opens doors to funding and support for energy efficiency and renewable energy projects in homes. Through this grant program, homeowners can access fixed grant values, ensuring clarity and ease of funding for their energy efficiency initiatives.

The Communities Energy Grant takes a community-oriented and cross-sectoral approach, supporting various sectors, including domestic, public, private, and community buildings.

This grant program operates year-round, providing consistent opportunities for homeowners to secure funding. The support available for home energy efficiency is as follows:

Domestic: Fixed grant values (Same as the One Stop Shop Grant values)

## Domestic Measures

	Communities Grant Scheme
Home energy assessment	✓
Project management	✓
Wall and roof insulation	✓
Floor insulation	✓
Windows	✓
Heating controls	✓
Heat pump systems	✓
Solar water heating	✓
Solar electricity	✓
Ventilation	✓
BER assessment	✓

**Warmer Homes Scheme<sup>2</sup>:** SEAI's Warmer Homes Scheme provides free energy-efficient home upgrades for homeowners that receive certain welfare payments.

This SEAI scheme offers upgrades for the following:

- Attic insulation
- Cavity wall insulation
- External wall insulation
- Internal wall insulation
- Replacement windows
- Heating upgrade
- Heating controls
- Ventilation
- Draught proofing
- Lagging jacket\*
- Compact fluorescent lamps (CFLs)

To qualify for an SEAI grant via the Better Energy Warmer Homes Scheme, you need to own and occupy a home that was built before 2006 and that has not previously received an upgrade under this SEAI scheme.

You must also receive one of the following allowances:

- Fuel Allowance as part of the National Fuel Scheme.
- Job Seekers Allowance for over six months and have a child under seven years old.
- Working Family Payment
- One-Parent Family Payment
- Domiciliary Care Allowance
- Carers Allowance and live with the person you care for

Homes that have previously received improvements under the scheme are eligible.

---

<sup>2</sup> <https://www.seai.ie/grants/home-energy-grants/free-upgrades-for-eligible-homes/>



**Vacant Property Refurbishment Grant:** The [Vacant Property Refurbishment Grant](#) provides funding for refurbishing vacant and derelict homes in Ireland. The grant can be used to make the property suitable for living or renting. The amount of the grant ranges up to €50,000 for a vacant property and up to €70,000 for a derelict property. To qualify, the property must be vacant for at least 2 years, built before 2008, and either owned or in the process of being bought. The grant covers various types of work, and the local authority assesses the cost. The application process involves submitting forms and supporting documents, and the grant is paid after the work is inspected. If the property is sold or not used as intended within 10 years, repayment may be required based on the duration of residence or rental.

The Vacant Property Refurbishment Grant is administered by the Department of Housing, Local Government, and Heritage in Ireland. Here are the eligibility criteria for the grant:

1. Property Eligibility:

- The property must have been vacant for 2 years or more.
- It must have been built before 2008 (before 1993 for applications before May 1, 2023).
- You must own the property or be in the process of buying it.

2. Intended Use:

- You must live in the property as your principal private residence after the refurbishment OR make it available for rent.
- If renting, you must register the tenancy with the Residential Tenancies Board.
- The property must meet minimum standards for rental accommodation.

3. Financial Requirements:

- You must have tax clearance from Revenue and have your tax affairs in order.
- Local Property Tax, if applicable, must be paid.
- You must not be a registered company or developer.

The grant amounts up to €50,000 for refurbishing a vacant property and up to €70,000 for a derelict property. The grant covers various types of work, such as demolition, substructure works, superstructure works, external and internal completions, services, extensions, and more. The local authority assesses the cost of the work.

To apply for the grant, you need to complete an application form and provide supporting documents, including proof of property vacancy, ownership documentation, planning permission (if required), and quotes for the work. The local authority reviews the application, inspects the property, and issues a letter of approval if successful.

If your application is unsuccessful, you can appeal the decision within 3 weeks. Repayment of the grant may be required if the property is sold or not used as intended within 10 years, with the amount depending on the duration of residence or rental

**Housing Aid for Older People Grant:** [The Housing Aid for Older People Grant](#) is designed to provide financial assistance for essential repairs to improve the living conditions of older individuals so they can continue residing in their homes. The grant primarily targets individuals aged 66 and above who are living in inadequate housing conditions, but exceptions can be made for individuals under 66 in cases of genuine hardship.

The grant covers essential repairs, such as roof repairs, electrical wiring upgrades, window and door replacements, and the installation of central heating. The specific repairs covered may vary based on the policies of the local authority administering the grant.

Eligibility for the means-tested grant is determined based on the gross household income of the individual. This includes income from all adults over 23 years old (or over 18 and not in full-time education) living in the home, as well as the income of the registered property owner and their spouse (excluding certain types of income). There are also disregards and deductions for household members under 18, those between 18 and 23 in full-time education, and caregivers.

The amount of the grant is based on the gross household income, with a maximum grant of €8,000 or 95% of the approved work cost, whichever is lower. The percentage of costs covered decreases for households with annual incomes ranging from €30,000 to €60,000. No grant is available for households with incomes over €60,000.

To apply for the grant, applicants must complete an application form and provide evidence of their gross household income for the previous tax year, proof of Local Property Tax (LPT) compliance, and up-to-date tax affairs. Additional information or documents may be required depending on the type of repairs needed.

The application form can be obtained from the government's website or the local authority's website, and it should be filled out specifically for the Housing Aid for Older People Grant. After submitting the application, the local authority will review it, conduct a home visit to assess the feasibility of the work, and notify the applicant of the approved grant amount. The grant should not be used for work started before receiving grant approval. Contractors' quotes, tax reference numbers, and bank account details will be required for payment processing.

If the application is unsuccessful, an appeal can be made within three weeks, and an independent local authority official will reassess the appeal within approximately six weeks.

Homeowners are responsible for ensuring that construction work on their homes is carried out by competent individuals, adhering to safety regulations. The Health and Safety Authority provides guidance for homeowners on getting construction work done safely.

### 9.1.1 COMMERCIAL / SME

**Communities Energy Grant:** Commercial / SMEs can receive funding of up to 30% of capital costs for energy efficiency and renewable energy projects.

**Support Scheme for Energy Audits (SSEA)** supports SMEs registered in Ireland with an annual energy spend of at least €10,000. The audit will review electricity, gas, oil, diesel, and any other energy sources used at their facility. It will also look at the company fleet, if applicable.

SEAI will provide the business with a €2,000 (ex. VAT) voucher towards the cost of an energy audit. This should cover the full cost of the audit for the majority of SMEs. The business then 'pay' the auditor with the voucher once the audit is complete. The auditor will claim the cost of the voucher from SEAI.

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

**SEAI Electric Vehicle grant:** The grant is up to €3,800 for a vehicle of €18,000 or more. There is also a grant of €600 towards the purchase and installation of a home charger unit.

<https://www.seai.ie/business-and-public-sector/ev-for-business/grants-and-supports/>

There are [various initiatives and funding opportunities available](#) to businesses for energy-related purposes:

1. Climate Toolkit 4 Business: SMEs can estimate their carbon footprint and receive a personalized action plan to reduce their carbon footprint and energy costs.
2. SEAI Energy Academy: An online e-learning platform that helps businesses enhance energy efficiency and reduce energy-related expenses through interactive modules.
3. Water conservation for business hub: Irish Water provides resources and guidance to businesses on conserving water and cutting costs.
4. EPA resources: The Environmental Protection Agency offers greening resources, carbon footprint calculators, and a tool for resource efficiency.
5. Steps to energy efficiency: SEAI outlines five steps for businesses to initiate their energy efficiency journey.
6. Skills to Advance: SOLAS provides green skills programs to boost awareness of environmental sustainability issues and equip employees and employers with the necessary skills.
7. Green for Micro: Local Enterprise Office offers intensive mentoring and green transition advice to micro-enterprises with 10 or fewer employees.
8. Climate Ready Programme (Skillnet): Skillnet Ireland offers leadership and skills support for enterprises seeking to enhance sustainability.

9. Innovation Vouchers - Enterprise Emissions Reduction Investment Fund: Enterprise Ireland provides grant funding of up to €5,000 for businesses to explore sustainability and decarbonization opportunities.
10. Climate Action Voucher - Climate Planning Fund for Business: A grant of €1,800 to engage consultants in developing sustainability or circular economy action plans.
11. EXEED Grant Scheme: SEAI offers grants of up to €1,000,000 for organizations planning energy investment projects.
12. Support Scheme for Renewable Heat: SEAI provides financial support to non-domestic heat users for selected renewable technologies and multi-annual payments.
13. Temporary Business Energy Support Scheme (TBESS): Designed to assist businesses with increased electricity or natural gas costs, with eligible businesses able to claim for a portion of the increase in their energy bills.
14. Energy Efficiency Loan Scheme: The SBCI provides loans of up to €150,000 for eligible SMEs to invest in energy efficiency improvements.
15. Accelerated Capital Allowance: A tax incentive encouraging investment in energy-saving technology for companies, sole traders, and farmers paying corporation tax in Ireland.
16. Electric Vehicle Grants (SEAI) – co-funding: Grant supports for the purchase of new electric vehicles for businesses and public entities.
17. Grants for Sustainable Community Projects: SEAI supports energy efficiency community projects with capital funding, partnerships, and technical support.
18. Microfinance Ireland loan packages: Microfinance Ireland provides loans to start-ups and established microenterprises with fewer than 10 employees and an annual turnover of less than €2 million.
19. Lean for Micro: Available to LEO clients, Lean for Micro helps build resilience within microenterprises. Through this program, businesses can receive consultancy support from a LEAN Expert to introduce lean principles, undertake cost-saving projects, and benchmark performance. The program aims to identify improvement areas, provide implementation support, and achieve savings and improvements in capability and capacity.
20. Energy Efficiency Obligation Scheme: Under the Energy Efficiency Obligation Scheme by SEAI, energy providers (gas, electricity, and solid fuel) are obligated to assist customers in decarbonizing. Businesses can contact these obligated parties to assess available support options and explore opportunities for energy efficiency improvements.

These initiatives cater to businesses of various sizes and sectors, providing opportunities to improve energy efficiency, reduce costs, and contribute to environmental sustainability.

## 9.1.2 TRANSPORT – ELECTRIC VEHICLES

### **SEAI Electric Vehicle grant:**

A grant of up to €5,000 for private EV buyers or up to €3,800 for commercial EV buyers to offset the purchase cost of a new electric car.

Approved EVs with a full price of more than €60,000 and less than €14,000 will not receive a grant.

*\*Note: The maximum grant for a private M1 (passenger car) will change to €3,500 from the 1st July 2023.*

**EV Home Charger Grant:** A grant of up to €600 towards the installation cost of an electric vehicle home charger for private EV owners.

The grant is now open to homeowners to apply for a grant, whether they own an electric vehicle or not. This charge point can also be used for visitor use or at rented accommodation.

When purchasing your new electric vehicle, the car dealer will apply for this EV grant for you. The amount will then be deducted from the total price of your new EV. Note that SEAI grants are not available for second-hand EVs.

**Other benefits:** EVs receive VRT relief and a reduced motor tax of €120. Revenue also allows for Benefit in Kind exemption for company electrical cars.

The [Shared Island Sports Club EV Charging Scheme](#) provides funding for installing electric vehicle charge points at sports club facilities across Ireland. The scheme is funded through the government's Shared Island Fund and administered by Pobal on behalf of Zero Emission Vehicle Ireland (ZEVI). Sports clubs meeting certain requirements can express their interest through National Governing Bodies of Sport. Shortlisted sites will undergo a technical site visit, and the final selection will be based on criteria such as site attributes and geographical location. For more information, visit the ZEVI website.

**Table 17: Corresponding cost of different EV chargers**

Size	Description	Charging time	AC/DC	Estimated cost
3 kW	Domestic charger –off street	8 hours	AC	Less than €1,000
3–7kW	On streetcharging from a streetlight	8 hours	AC	€2,000 - €4,000
22 kW	Fast charger in a residential area	3hrs	AC	€10,000 - €15,000
22 kW	Fast charger on a community property	3hrs	AC	
50 kW	Rapid charger – needs special infrastructure	30 minutes	DC	€15,000 - €25,000

### 9.1.3 COMMUNITY & PUBLIC SECTOR

**Communities Energy Grant:** Community and voluntary organisations can receive funding of 30% of capital costs for energy efficiency and renewable energy programmes through this scheme. This figure could rise to 50% following SEAI approval.

Works must be paid in full, and the grant is refunded by SEAI. No works should commence until grant has been confirmed by SEAI after the application has been submitted. An energy audit is required for all grant applications to SEAI. An Energy Audit should include all relevant information requested at application stage.

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

## Community Measures

#### GAA and other sports

- Water heating
- Floodlighting
- Insulation
- Heating

#### Churches and Community halls

- Heating
- Insulation
- Windows / Doors

It is recommended that prospective fund applicants check for the latest processes and funding levels at the time of enquiry. The latest information available at the time of publication of this document can be accessed at: <https://www.seai.ie/grants/community-grants/project-criteria-andfunding/Communities-Grant-Guidelines-2022.pdf>.

**The Community Climate Action Program:** The [Community Climate Action Programme](#), administered by the Local Authorities, provides funding and support for projects and initiatives that promote community climate action through education, capacity building, and practical implementation.

The Wicklow Community Climate Action Programme, led by Wicklow County Council in partnership with the Department of the Environment, Climate, and Communications, will aim to support both rural and urban communities in taking climate action at a local level.

The program has two strands. Strand 1, titled "Building Low Carbon Communities," for projects that directly impact climate action. Communities in Wicklow will collaborate with the council to implement these projects.

Strand 1a, known as the "Shared Island Community Climate Action," allows communities and local authorities to undertake cross-border projects in partnership with communities in Northern Ireland. Unlike strand 1, funding for strand 1a is not automatically allocated to local authorities and is open for all communities to apply.

Eligible communities must be not-for-profit organizations located within the operational area of Wicklow County Council. They should be registered with a Public Participation Network (PPN) or affiliated with other collectives such as the Wheel, Tidy Towns, or community groups with Articles of Association or a Constitution. Approved minutes of their meetings must be available.

Projects eligible for funding should demonstrate the delivery of national climate action at a local level for strand 1, while strand 1a projects should have a cross-border impact across the island of Ireland. The program encompasses five themes: home/energy, travel, food and waste, shopping and recycling, and local climate and environmental action. Communities are encouraged to incorporate as many themes as possible in their projects.

Funding is available to cover 100% of the project costs, with three eligible project sizes: small-scale projects (< €20,000), medium-scale projects (€20,000 to €50,000), and large-scale projects (€51,000 to €100,000).

Project ideas should be shared with the Community Climate Action Officer once appointed in the council. Expression of Interest forms and supporting documents will be submitted during the application window, which will be announced at a later date.



**Leader Rural Development Programme:** Community groups promoting community enterprises, local amenity projects and community services can receive up to 75% of capital costs for projects from the local rural development company.

The LEADER Programme accepts applications based on projects which improve:

- rural tourism
- enterprise development
- broadband
- basic services targeted at hard-to-reach communities
- rural youth
- protection and sustainable use of water resources
- local biodiversity
- renewable energy

The programme is administered at a local level by 29 local action groups. These contain local representatives from the community, public and private sector.

An initial allocation of €20 million is being made available for the delivery of the Transitional LEADER Programme. The formal programme is due to open in 2023.

**Community Centres Investment Fund:** The 2023 [Community Centres Investment Fund](#) - New Builds Measure aims to allocate approximately €20 million for the construction of new multi-functional community centres. The grants available for this measure range from a minimum of €1,000,000 to a maximum of €6,000,000.

To be eligible for funding, projects must be "shovel-ready," meaning they have obtained all necessary permissions and consents, such as planning consent. The proposed sites should be green or brownfield locations.

Applications must be led by a State-funded body. Those interested in applying can request an application form by contacting [ccif@drkd.gov.ie](mailto:ccif@drkd.gov.ie).

The deadline for submitting applications is 12 noon on July 3, 2023.

For comprehensive information on the application process, interested parties can refer to the Application Guidelines, which can be accessed for full details.

**Town and Village renewal:** The Scheme is targeted at towns and villages with a population of 10,000 or less and all projects funded under the Scheme must be completed within a 12 to 18 month period.

This fund will open later this year. A list of the measures supported in the last call are listed below.

*Measures that will be supported by the 2021 Town and Village Renewal Scheme include:*

- *Tackling dereliction in town centres*
- *Turning vacant properties into remote working and multi-use community spaces*
- *Investing in town centre living*
- *Investing in amenities to make town centre living more attractive*
- *Upgrading and improving shop fronts and streetscapes on Main Streets*
- *Projects that support and enhance the night-time economy and add vibrancy to town centres*

For the 2021 Scheme, the minimum grant available was €20,000. The maximum level of grant funding available is being raised to €500,000 in respect of one application from each Local Authority. A maximum of €250,000 will apply in respect of two applications and €100,000 in respect of four applications. Two applications must be in respect of Towns/Villages that have not previously received funding under the Standard Town and Village Renewal Scheme

**Rural regeneration and development fund:** The Rural Regeneration and Development Fund (RRDF) is a commitment of €1 billion by government to be invested in rural Ireland over the period 2019 to 2027. The Fund is administered by the Department of Rural and Community Development.

The purpose of the fund is to support job creation in rural areas, address de-population of rural communities and support improvements in our towns and villages with a population of less than 10,000, and outlying areas. Initial funding of €315 million has been allocated to the fund on a phased basis over the period 2019 to 2022.

Proposals are being invited from Local Authorities, and other locally/regionally based organisations, such as Local Development Companies, as well as government departments and State agencies. For the purpose of accountability and oversight, the lead partner of all projects must be a State funded body, but collaboration with the private sector is encouraged.

Proposals may be made in respect of towns with populations of 10,000 or fewer and their outlying areas. A limited number of specified towns with a population of 10,000 or fewer will be eligible for support under the Urban Regeneration Fund which is being operated by the Department of Housing, Planning and Local Government; however, funding will only be provided under one fund for any particular project.

**Outdoor recreation infrastructure grant:** Established in 2016, the Outdoor Recreation Infrastructure Scheme (ORIS) provides funding for the development of new outdoor recreational infrastructure. This scheme helps to make use of the resources of the countryside that contribute to healthy active lifestyles. It supports the economic and tourism potential of the area for both local communities and tourist visitors alike.

The aim of this scheme is to fund:

- Development, extensions and repair of trails, walkways, cycleways and blueways
- Improved access to leisure or recreational facilities
- Development of outdoor recreational infrastructure

Applications are accepted from local authorities and/or state agencies under the following measures:

- Measure 1: small-scale maintenance/promotional and marketing projects to include grant aid amounts of up to €20,000
- Measure 2: medium-scale repair/upgrade and new trail/amenity development grant amounts of up to €200,000
- Measure 3: large-scale repair/upgrade and new strategic trail development grant amounts of over €200,000 and up to €500,000

**Community enhancement program:** The Community Enhancement Programme (CEP) provides capital **funding** to community groups across Ireland. This allows these groups to enhance facilities in disadvantaged areas.

The 2020 CEP was funded by the Department of Rural and Community Development and provided €7 million of grant funding towards enhancing the facilities available to communities. The Programme has a focus on supporting groups in disadvantaged areas. Typical enhancements under the CEP include:

- IT and CCTV equipment
- Minor improvements to buildings
- Minor renovation of community centres
- Development of community amenities
- Purchase of equipment for community usage.
- Improvements to town parks, common areas and energy-saving projects

The CEP is administered by Local Community Development Committees (LCDCs) in each Local Authority area.

**Community environmental action fund:** The Community Environment Action Fund promotes sustainable development by supporting small-scale environmental projects at local level. Communities and local groups work with local authorities to take action across areas like waste, biodiversity, climate change, air and water.

Local authorities co-fund successful projects with this department. Funding can also come from other sources, like the private sector, in order to make the projects more successful.

**Green Club Programme:** The [Green Club Programme](#) aims to support Gaelic Games clubs in implementing sustainable practices, specifically in the area of energy. The programme provides resources, guidance, and case studies tailored to GAA clubs and members to promote energy efficiency and conservation.

During Phase 1 of the programme, over 30 participating clubs established Green Teams, conducted club audits, and engaged in sustainability partnerships and projects. Their experiences contributed to the development of the GAA's Green Club Toolkit.

The Green Club Toolkit, launched in December 2022, offers clubs and members information and advice on energy-related initiatives. It includes practical case studies from Green Clubs across Ireland, showcasing successful energy-saving measures and strategies.

The Green Club Programme is a collaboration between the GAA, LGFA, Camogie Association, and local authorities in Ireland. It emerged from the Sustainable Development Goals (SDG) Champions Programme and involves partnerships between the GAA, local authorities, and Climate Action Regional Offices.

For more details on the energy-focused activities of Green Clubs and to access the Green Club Toolkit, interested individuals can visit the [learning.gaa.ie/greenclub](https://learning.gaa.ie/greenclub) page.

## 10.0 ACTION PLAN

The following action plan is given as an example on how to put in place the recommendations listed in the Registers of Opportunities in Year 1. The scale of the action plan is directly related to the ambition of the community, the homeowners and the owners to implement energy efficiency improvements.

### 10.1 YEAR 1

**Table 18: List of possible actions for year 1**

Action type	Actors	Action	Measures	Grant scheme	Payback
All	SEC	Energy awareness campaign to promote the SEC and the Master Plan	- Energy awareness day		Short term
Domestic	Homeowners	Level 1 Basic upgrade - Assess feasibility and cost for implementation of measures - Create economy of scale for costs by grouping the works per contractor	- Roof insulation upgrade - Cavity wall insulation upgrade - Lighting upgrade	Home energy grant	Short term
Transport	SEC/Business owners/Communities	Assess electric vehicle ownership in the area and find out if many plan to purchase electric in the future. Based on your findings consider applying for funding for a lamppost EV charger of up to 6kW		Public charger grant	Short Term
Transport	Business owners/Communities	Speak with local business owners and community leaders to identify the optimum location for cycle parking that will allow residents to go about their daily business by bike	- install cycle parking	Smarter Travel Measures grant through Wicklow CoCo	Short Term
Non Domestic	Business owners	Small and medium businesses in the area			Short Term

		should apply for the Support Scheme for Energy Audits (SSEA) described in the available supports and Grants section			
Non Domestic	SEC/ Business owner/ Wicklow County Council	Upgrade to more energy efficient street lighting for High Park and Rathdangan	Speak to Wicklow County Council		Medium Term
Domestic	Homeowners	Level 2 Advanced upgrade - Assess feasibility and cost for implementation of measures - Create economy of scale for costs by grouping the works per contractor	- Level 1 + - Heating system upgrade	Home energy grant	Medium Term
Action type	Actors	Action	Measures	Grant scheme	Payback
Domestic	SEC/ Homeowners	Begin the process for Level 3 One Stop Shop Retrofit upgrade - Engage an energy agency or project coordinator to submit your proposed projects in a grant application for one of the national schemes (Communities Energy Grant, National Home Retrofit Scheme). - Assess feasibility and cost for implementation of measures for a Home Retrofit upgrade. - Preparation of application in submitting in year 2	- Make residents aware of support and funding - Identify buildings for improvement and list the improvements that are needed. - Decide upon funding stream	BEC, SEC funding, National Home Retrofit	Long term
Non-Domestic	SEC/ Business owners/ Communities	Begin the process for energy efficiency upgrades - Engage an energy agency of any trusted intermediary to include your proposed project			Long Term

		<p>in an application for one of the national grant/funding schemes (Better Energy Communities, National Home Retrofit Scheme).</p> <ul style="list-style-type: none"> <li>- Assess feasibility and cost for implementation of measures.</li> <li>- Preparation of an application in year 2</li> </ul>			
Non-Domestic	SEC/ Business owners/ Communities	<p>Future projects</p> <ul style="list-style-type: none"> <li>- Promote the project to engage with other communities and businesses</li> <li>- Complete an energy audit report (for year 2 and 3)</li> </ul>			Short Term
Renewable Energies	SEC/ Business owners/ Communities	<p>Carry out feasibility studies on renewable energy projects</p> <ul style="list-style-type: none"> <li>- Solar PV</li> <li>- Hydro generation</li> </ul>			Long Term
Transport	Business owners	<p>Speak with Wicklow Co Co about installing Electric Vehicle chargers on their sites</p>			Long Term

## 10.2 YEAR 2

**Table 19: List of possible actions for year 2**

Building type	Actors	Action	Measures	Grant scheme	Payback
All	SEC	Energy awareness campaign to promote the SEC and the Master Plan	- Energy awareness day		Short Term
Domestic	Homeowners	Level 1 Basic upgrade - Investigate feasibility and cost for implementation of measures - Create economy of scale for costs by grouping the works per contractor	- Roof insulation upgrade - Cavity wall insulation upgrade - Lighting upgrade	Home energy grant	Short Term
Domestic	Homeowners	Level 2 Advanced upgrade - Investigate feasibility and cost for implementation of measures - Create economy of scale for costs by grouping the works per contractor	- Level 1 + - Heating system upgrade	Home energy grant	Medium Term
Domestic	Homeowners	Level 3 One Stop Shop Retrofit upgrade	- All measures to reach minimum of BER B2 level	Better Energy Communities/National Home Retrofit Scheme	Medium/Long Term
Non-Domestic	Business owners/Communities	Energy efficiency upgrades	- Energy awareness - Building fabric upgrades	Better Energy Communities	Long Term



			<ul style="list-style-type: none"> <li>- PV Systems</li> <li>- Heating system upgrades</li> <li>- Lighting upgrades</li> </ul>		
Renewable Energies	SEC/ Business owners/ Communities	Tendering process and works	<ul style="list-style-type: none"> <li>- PV system</li> <li>- Other renewable energy generation systems</li> </ul>		Medium/Long Term

### 10.3 EMPLOYMENT OPPORTUNITIES

In November 2021, The Expert Group on Future Skills Needs completed a study on Ireland's "[Skills for Zero Carbon](#)". This was an evaluation of the demand for renewable energy, residential retrofits and electric vehicle deployment skills required to achieve Ireland's Climate Action Plan goals for 2030. The table below summarises the Labour Market Analysis for key occupational groups required to achieve Ireland's Climate Action goals.

**Table 20: Summary of Labour Market Analysis - [Skills for Zero Carbon](#)**

Occupation	Labour Market Analysis Summary
Engineering	Other than Electrical and Retrofit Engineers/Designers, there does not appear to be a significant gap in FTE Labour Demand relative to overall Higher Education Institutions (HEI) supply. There does appear to be a shortage of engineers with the necessary skills and experience to work in the Engineering sector.
Environment, Planning, Legal and Professional	There does not appear to be a labour shortage relative to overall HEI supply. There does appear to be a shortage of professionals with the necessary skills and experience to work in the Environment, Planning, Legal and Professional sector.
Construction	While formal labour supply indicators are not available for many construction occupations, there are likely to be labour shortages among general construction occupations relative to the projected increase in demand.
Other Emerging and Niche Renewable Energy Occupations	A number of new occupations will be required in the Renewable Energy Occupations. Given their novelty, most currently lack direct and obvious routes for new entrants, which acts as a barrier to stable supply.

Electric Vehicles	Current levels of training for EV technicians appears to be sufficient in the short-term, while the inclusion of EV training within the existing Motor Mechanic apprenticeship would likely ensure stable supply for most of the decade.
Craft & Retrofit	There appears to be significant labour and skills shortages among most craft & retrofit occupations relative to current supply indicators. This shortage will be particularly acute in the middle of the decade, when retrofit targets are expected to reach their maximum output. There is also a disparity in the numbers completing apprenticeships, and the low numbers subsequently undertaking further training to work in the retrofit sector (e.g. heat pump installation training for plumbers).

The demand for labour combined with the huge investment expected from government within the next decade to achieve Ireland's Climate Action Goals could mean there is an opportunity for people within the High Park SEC area to upskill or change career path to work within the above identified occupational groups.

## 10.4 NEXT STEPS

As the preliminary stages of this project demonstrated, communication and engagement with the local community is one the most important factors in bringing about change. A communication strategy could be a huge support to High Park SEC in delivering and further developing their Energy Master Plan (EMP) and assist in putting a plan in place to act on the findings from the EMP.

The next steps for the group include:

1. Discuss among the group the best way to disseminate the results – this could be through social media, holding an event with South East Energy Agency, newsletter, local radio slot etc.
2. Inform the community about the results from the energy master plan and the next steps involved.
3. Identify several projects in the Action Plan that could be implemented in 2023 onwards.
4. Access support through the SEAI SEC mentoring programme. Support can be provided for grant applicants.
5. Investigate lead applicant role for Community Energy Grant projects – either community led or partner with a lead applicant.
6. Investigate finance options and complete community energy projects.
7. Provide regular updates to the local community on the project's progress and gather support and opportunities for other project developments.

## 10.5 GETTING STARTED

### 10.5.1 APPLYING FOR AN INDIVIDUAL SEAI GRANT:

The procedure to apply for an individual SEAI grant is relatively painless and consists of a clear series of steps, these may vary slightly depending on the grant you are applying for. Steps to follow include:

- 1) **Choose your energy upgrades** — We advise you to contact a BER\* assessor, building contractor or energy advisor to discuss the suitability of the upgrades you have in mind.
- 2) **Find your BER** — The [BER register](#) contains all of the BERs that have been completed in Ireland
- 3) **Contact an SEAI registered technical advisor** — The advisor will provide you with a written contract for undertaking a technical assessment. This step only applies if you are applying for a heat pump grant.
- 4) **Choose a registered contractor** — The contractor you choose should provide you with a contract for any work before the actual work begins. You will need this contract later for the grant application process.
- 5) **Apply for the corresponding grant or grants** — You can apply either online via the SEAI website or by submitting a postal application. Online applications will receive grant offers immediately. Postal offers will be issued within five working days. You must accept the offer within the 30-day period after receiving it.
- 6) **Have the work on your home carried out** — You must make sure all work is carried out within the following eight-month period. Your grant offer letter will contain the final date for completing the work. Be sure all work is carried out by an SEAI registered contractor. Either pay the contractor outright or organise financing with them, then complete a BER assessment and have a BER certificate published.
- 7) **Receive the grant you applied for** — You must fill out and submit a Declaration of Works form, which the SEAI should have sent to you by post. You will need one form for each upgrade, and each form needs to be filled in by you, your contractor and your BER assessor. Payment will usually be lodged in your bank account within four weeks of submitting the form.

## 11.0 CONCLUSION

The Energy Master Plan is a core document for High Park SEC to manage, build upon and use in their plans a vision for their community. It is important that progress is monitored to

- help identify any obstacles that may arise and develop the solutions needed.
- see projects through to completion.
- ensure the ultimate goals are achieved.

Currently, it is estimated that the High Park SEC area is spending in the region of €3,478,680 per year on energy and using 28,989 MWh per year.

If the residential projects are implemented for the 4 houses surveyed through this plan, this would equate to 65,500 kWh savings or average savings of 16,375 kWh per house.

If the 3 non-domestic commercial projects which were surveyed were implemented, this would equate to a 49,096 kWh energy saving or €6,157 per year. Reaching out to the wider community and identifying projects in the commercial, public sector and community will increase energy and cost savings.

Transport is more challenging to quantify. With the increased role out of electric vehicles and charge points in the coming years our dependence on fossil fuels will be reduced. Renewable projects can be implemented at a local level through roof top solar PV and retrofitting of heat pumps.

Before 2030, Ireland will have transformed its energy sector to a high-renewable, low-carbon system. This will include achieving 70% renewable electricity through increased onshore and offshore wind, solar, microgeneration, and grid system infrastructure. The way we heat our homes and buildings will produce less greenhouse gas emissions and will be more energy efficient and comfortable. Ireland's energy system will be more sustainable, secure, reliable and competitive, and will be on a pathway to net zero emissions by 2050.

Energy powers our daily lives in the way we live at home, how we work in business and how we move people and goods. The use of energy for the purposes of electricity, heat and transport generates almost 60% of Ireland's greenhouse gas emissions. Therefore, action in the energy sector will be critical to the achievement of Ireland's climate targets.

It is the intention of High Park SEC to play an exemplary role in creating a sustainable future and to provide guidance and support to the various stakeholders and sectors in their area. It is important to note that without the will, resources and necessary supports, the completion of projects and the realisation of the goals and vision for High Park SEC area will be far more challenging. The implementation of the EMP will require engagement, time and support by the core team, the wider community, as well as funding from various agencies and organisations.

## 12.0 REFERENCE DATA

- Census 2016 Population Figures obtained from Central Statistics Office (CSO) [available online] <https://www.cso.ie/en/>
- National Energy Balance 2019 data obtained from the Sustainable Energy Authority of Ireland (SEAI) [available online] [www.seai.ie](http://www.seai.ie)
- Small Area Population, Housing and Commuting Data obtained from Central Statistics Office (CSO) [available online] <http://census.cso.ie/sapmap/>
- Building Energy Rating (Ber) data obtained from the Sustainable Energy Authority of Ireland (SEAI) BER Research Tool  
[available online] <https://ndber.seai.ie/BERResearchTool/Register/Register.aspx>
- Business Listing for Co. Wicklow and SEC area obtained from Local Business Pages [available online] <https://www.localbusinesspages.ie/>
- Data on commercial building stock and energy consumption obtained from the Sustainable Authority of Ireland's (SEAI) 'Extensive Survey of Commercial Building Stock in the Republic of Ireland' report. [available online]  
<https://www.seai.ie/publications/Extensive-Survey-of-Commercial-Buildings-Stock-in-the-Republic-of-Ireland.pdf>
- Data on travel/commuting habits of population obtained from the Central Statistics Office (CSO) 'National Travel Survey (2016)' report.  
[available online] <https://www.cso.ie/en/releasesandpublications/ep/p-nts/nts2016/keyf/>
- Energy Consumption data across all sectors at national level taken from the Sustainable Authority of Ireland (SEAI) 'Energy in Ireland 2019' report  
[available online] <https://www.seai.ie/publications/Energy-in-Ireland-2019-.pdf>
- Agricultural data including number and size of farms, number and type of livestock obtained from the Irish Farmer Association's (IFA) 'Value of Agriculture' report.  
[available online] <https://www.ifa.ie/wp-content/uploads/2014/08/Value-of-Agriculture.pdf>.
- Current data on the numbers of livestock in Co. Wicklow obtained from the agricultural department of the Government( [agriculture.gov.ie](http://agriculture.gov.ie)) 'Animal Identification and Movement' report 2018 [available online] <https://www.agriculture.gov.ie/media/migration/animalhealthwelfare/animalidentificationandmovement/AIMBovineStatisticsReport2018100519.pdf>
- Data on emissions generated in agriculture and the breakdown thereof obtained from the Environmental Protection Agency (EPA) Greenhouse Gas emissions in Agriculture report.


[available online]  
[https://www.epa.ie/pubs/reports/air/airemissions/ghgemissions2017/Report\\_GHG%201990-2017%20April%202019\\_Website.pdf](https://www.epa.ie/pubs/reports/air/airemissions/ghgemissions2017/Report_GHG%201990-2017%20April%202019_Website.pdf)

- Employment data by sector for SEC area obtained from Wicklow County Council’s ‘Economic and Community Monitor’. [available online]  
<https://www.wicklow.ie/Living/Services/Community/Community-Planning-Networks/Wicklow-Economic-Community-Monitor>
- Energy Consumption and Emissions in the Public Sector data for national level obtained from the Sustainable Authority of Ireland’s (SEAI) ‘Public Sector Annual Report’ 2019 [available online] <https://www.seai.ie/publications/Public-Sector-Annual-Report-2019.pdf>
- Energy Consumption and Emissions in the Public Sector for county level data obtained through Wicklow County Council and the Sustainable Authority of Ireland’s (SEAI) Public Sector Energy Monitoring & Reporting System [available online]  
<https://psmr.seai.ie/Reports/PublicAnnualReportForPublic?customerId=390&query=undefined>
- Resource Maps including Biofuel Crop suitability maps, Wind Speed maps, Hydro Electricity suitability maps, Solar Irradiation maps, all obtained from the Sustainable Authority of Ireland (SEAI) [available online] <https://www.seai.ie/technologies/seai-maps/>
- Emission Conversion Factors obtained from the Sustainable Authority of Ireland (SEAI) [available online] <https://www.seai.ie/data-and-insights/seai-statistics/conversion-factors/>

Primary data gathered from energy surveys distributed to residents in the SEC area, and energy audits carried out both remotely and by South East Energy Agency energy engineers also made up a large part of the data used in compiling this report. We at South East Energy Agency wish to express our thanks to all who participated and returned energy data to us.

## 13.0 APPENDICES

### APPENDIX A – DOMESTIC ENERGY SURVEYS

Mid Terrace House – 1984 – 120m <sup>2</sup>				
	<b>Existing Building Details</b>			
	<b>Building Elements</b>		<b>Insulation Thickness (mm)</b>	<b>U-Value (W/m<sup>2</sup>.K)</b>
	<b>Walls</b>	300mm solid walls	0mm/75mm	1.1/0.6
	<b>Roof</b>	Pitched Roof insulated at ceiling	200mm	0.2
	<b>Floor</b>	Suspended floor/Solid Floor	Unknown	0.6
	<b>Windows</b>	Double Glazed	N/A	2.2
	<b>Doors</b>	Partially Glazed/Solid Door	N/A	3

Existing Heating Characteristics			
<b>Heating System</b>		<b>Energy</b>	<b>Efficiency (%)</b>
<b>Primary Heating System</b>	Oil Boiler	Oil	70%
<b>Secondary Heating System</b>	Stove	Multi Fuel	NA
<b>Domestic Hot Water</b>	Heated with Primary heating system & Electric immersion		
<b>Cylinder</b>	Insulated Cylinder		
<b>Controls</b>	Programmer		
<b>Renewables</b>	None		

<b>Current BER of your house</b>	<b>E1 (338) kWh/m<sup>2</sup>/yr.)</b>
<b>Current CO<sub>2</sub> Emissions</b>	<b>83.41 (kgCO<sub>2</sub>/m<sup>2</sup>/yr.)</b>
<b>Current Heat Loss Indicator</b>	<b>4.66 W/m<sup>2</sup>K.</b>



**Table 3: Current Energy Performance**

Table 1 provides the upgrade measures proposed for your dwelling. This shows the positive impact, step by step, on your BER (Building Energy Rating) and HLI (Heat Loss Indicator). It is noted that the HLI for this dwelling is below 2.3 W/m<sup>2</sup>/K, therefore the dwelling is currently suitable for an Air source heat pump as its primary heating system.

The below highlights a summary of energy efficiency measures that could be implemented to increase the current energy efficiency of this dwelling.

Domestic Retrofit Guidelines (Step by Step)			Energy Consumption (kWh/m <sup>2</sup> /yr.)	HLI (W/Km <sup>2</sup> )	Building Energy Rating (BER)
Energy Efficient Measures		Target U-Value (W/m <sup>2</sup> . K)	Current Usage 326	Current HLI 4.66	Current BER E1
<b>REQUIRED MEASURES</b>					
1	Roof insulation	0.13	322	4.59	E1
2	External Wall Insulation	0.20	192	2.43	C2
3	Door Upgrade	1.4	190	2.39	C2
4	Window upgrade	1.4	180	2.25	C2
5	Mechanical Ventilation (DCV) and airtightness upgrade.	NA	176	2.12	C2
6	Heating (Primary) Upgrade	N/A	96	2.12	B1
7	Heating (Secondary) Upgrade	N/A	92	2.12	B1
8	Lighting	N/A	91	2.12	B1
9	Solar PV (2kWp)	N/A	64	2.22	A3
<b>Optional Measures</b>					
10	Floor Upgrade	0.18			

### Mid Terrace House - 1984 - 120m<sup>2</sup>



#### Existing Building Details

Building Elements		Insulation Thickness (mm)	U-Value (W/m <sup>2</sup> .K)
<b>Walls</b>	450mm solid walls	N/A	1.1
<b>Roof</b>	Pitched Roof insulated at ceiling/slopes	200mm	0.2
<b>Floor</b>	/Solid Floor	Unknown	0.7
<b>Windows</b>	Single Glazed	N/A	4.0-4.8
<b>Doors</b>	Partially Glazed/Solid Door	N/A	3

#### Existing Heating Characteristics

Heating System		Energy	Efficiency (%)
<b>Primary Heating System</b>	Oil Boiler	Oil	90%
<b>Secondary Heating System</b>	Stove	Multi Fuel	NA
<b>Domestic Hot Water</b>	Heated with Primary heating system & Electric immersion		
<b>Cylinder</b>	Insulated Cylinder		
<b>Controls</b>	Programmer		
<b>Renewables</b>	None		

<b>Current BER of your house</b>	<b>D2 (286) kWh/m<sup>2</sup>/yr.)</b>
<b>Current CO<sub>2</sub> Emissions</b>	<b>70.29 (kgCO<sub>2</sub>/m<sup>2</sup>/yr.)</b>
<b>Current Heat Loss Indicator</b>	<b>4.62 W/m<sup>2</sup>K.</b>

**Table 4: Current Energy Performance**

Table 1 provides the upgrade measures proposed for your dwelling. This shows the positive impact, step by step, on your BER (Building Energy Rating) and HLI (Heat Loss Indicator). It is noted that the HLI for this dwelling is below 2.3 W/m<sup>2</sup>/K, therefore the dwelling is currently suitable for an Air source heat pump as its primary heating system.

The below highlights a summary of energy efficiency measures that could be implemented to increase the current energy efficiency of this dwelling.

Domestic Retrofit Guidelines (Step by Step)			Energy Consumption (kWh/m <sup>2</sup> /yr.)	HLI (W/Km <sup>2</sup> )	Building Energy Rating (BER)
Energy Efficient Measures	Target U-Value (W/m <sup>2</sup> . K)	Current Usage 286	Current HLI 4.62	Current BER D2	
<b>REQUIRED MEASURES</b>					
1	Roof insulation	0.13	253	3.97	D1
2	Internal. /External Wall Insulation	0.20	154	2.25	C1
3	Door Upgrade	1.4	152	2.22	C1
4	Window upgrade	1.4	133	1.92	B3
5	Mechanical Ventilation (DCV) and airtightness upgrade.	NA	129	1.80	B3
6	Heating (Primary) Upgrade	N/A	63	1.80	A3
7	Heating (Secondary) Upgrade	N/A	60	1.80	A3
8	Lighting	N/A	59	1.80	A3
9	Solar PV (2kWp)	N/A	38	1.80	A2
<b>Optional Measures</b>					
10	Floor Upgrade	0.18			

### Mid Terrace House – 1984 – 120m<sup>2</sup>



#### Existing Building Details

Building Elements		Insulation Thickness (mm)	U-Value (W/m <sup>2</sup> .K)
<b>Walls</b>	300mm Partially filled cavity wall construction	N/A	0.6
<b>Roof</b>	Pitched Roof insulated at ceiling	150mm	0.26
<b>Floor</b>	Solid Floor	Unknown	0.7
<b>Windows</b>	Double Glazed	N/A	2.7
<b>Doors</b>	Partially Glazed/Solid Door	N/A	2.7-3

#### Existing Heating Characteristics

Heating System		Energy	Efficiency (%)
<b>Primary Heating System</b>	Range Cooker/Boiler	Oil	80%-85%
<b>Secondary Heating System</b>	Stove	Multi Fuel	NA
<b>Domestic Hot Water</b>	Heated with Primary heating system & Electric immersion		
<b>Cylinder</b>	Insulated Cylinder		
<b>Controls</b>	Programmer		
<b>Renewables</b>	None		

<b>Current BER of your house</b>	<b>C1 (172) kWh/m<sup>2</sup>/yr.)</b>
<b>Current CO<sub>2</sub> Emissions</b>	<b>42.16 (kgCO<sub>2</sub>/m<sup>2</sup>/yr.)</b>
<b>Current Heat Loss Indicator</b>	<b>2.36 W/m<sup>2</sup>K.</b>

**Table 1: Current Energy Performance**

Table 1 provides the upgrade measures proposed for your dwelling. This shows the positive impact, step by step, on your BER (Building Energy Rating) and HLI (Heat Loss Indicator). It is noted that the HLI for this dwelling is below 2.3 W/m<sup>2</sup>/K, therefore the dwelling is currently suitable for an Air source heat pump as its primary heating system.

The below highlights a summary of energy efficiency measures that could be implemented to increase the current energy efficiency of this dwelling.

Domestic Retrofit Guidelines (Step by Step)			Energy Consumption (kWh/m <sup>2</sup> /yr.)	HLI (W/Km <sup>2</sup> )	Building Energy Rating (BER)
Energy Efficient Measures		Target U-Value (W/m <sup>2</sup> . K)	Current Usage 172	Current HLI 2.36	Current BER C1
<b>REQUIRED MEASURES</b>					
1	Roof insulation	0.13	170	2.27	C1
2	Cavity wall insulation	0.35	163	2.06	C1
3	External Wall Insulation	0.20	150	1.94	B3
4	Door Upgrade	1.4	140	1.93	B3
5	Window upgrade	1.4	125	1.73	B3
6	Mechanical Ventilation (DCV) and airtightness upgrade.	NA	122	1.62	B2
7	Heating (Primary) Upgrade	N/A	67	1.62	A3
8	Heating (Secondary) Upgrade	N/A	64	1.62	A3
9	Lighting	N/A	63	1.62	A3
10	Solar PV (2kWp)	N/A	49	1.62	A2
<b>Optional Measures</b>					
10	Floor Upgrade	0.18			

# Driving sustainability today and tomorrow.



South East Energy Agency  
Kilkenny Research & Innovation Centre  
Burrell's Hall, St Kieran's College Kilkenny,  
R95 TP64  
Ireland

Tel: +353 (0)56 7790856  
Email: [contact@southeastenergy.ie](mailto:contact@southeastenergy.ie)