

Executive Summary:

Energy Master Plan for Inishowen Sustainable Energy Community

May 2021

The logo for Inishowen Development Partnership (IDP) consists of the letters 'IDP' in a bold, teal, sans-serif font.

**Inishowen
Development
Partnership**



**Comhairle Contae
Dhún na nGall**

Donegal County Council

The logo for Inishowen Co-operative Society Limited, featuring the word 'Inishowen' in a teal, serif font above 'CO-OPERATIVE SOCIETY LIMITED' in a smaller, teal, sans-serif font.The logo for IT Sligo, featuring the letters 'IT' in a blue, stylized font and 'Sligo' in a green, sans-serif font. Below it is the text 'An Institiúid Teicneolaíochta Sligeach' in a small, teal font.

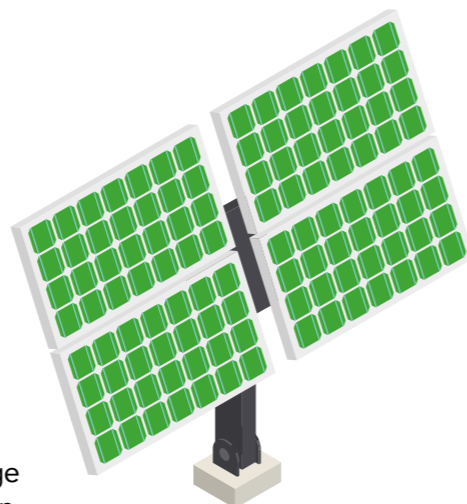
**Contract
Research
Unit**

The logo for the Sustainable Energy Authority of Ireland (seai), featuring the word 'seai' in a blue, lowercase, sans-serif font, with 'SUSTAINABLE ENERGY AUTHORITY OF IRELAND' in a smaller, teal, uppercase font to its right.

Foreword

What the Energy Master Plan from Inishowen Sustainable Energy Community tells us today in July 2021.

Inishowen Sustainable Energy Community (SEC) is the result of a strong collaboration between Inishowen Development Partnership (IDP), Inishowen Co-Op, Donegal County Council and a diverse range of stakeholders across the community. This all started with a common purpose focus on sustainability and was resourced by the SEAls Sustainable Energy Communities Programme. Following a journey of conversations, consultations, awareness raising, research and analysis carried out on our behalf by ORS Consultants, we present to you the Inishowen SEC Energy Master Plan (EMP). We have been working throughout the last year in pulling together this comprehensive plan for Inishowen using a whole community approach.



Why Create a Sustainable Energy Community?

We, the Inishowen Sustainable Energy Communities (SEC) Steering Group believe that never has it been more necessary than today to move to renewable energy, create self-sustaining communities and play our part to address climate change in a meaningful way at a local area level. Just two weeks ago (June 17th) the new Climate Action Bill was passed. Ireland and Europe have committed to carbon neutrality by 2050, with a target of 51% reduction in greenhouse gases by 2030, only 8/9 years away. Working with IDP, we believe this groundwork will support a just transition for our community, reinvesting and ensuring we leave no one behind.

You will read the facts about energy consumption, conservation, and generation across our communities on the Inishowen Peninsula. We have: -

- placed a spotlight on Energy Consumption - electrical, thermal and transport energy demand
- created a Register of Opportunities (RoO)
- Identified projects that can avail of the Communities Energy Grant and the Better Energy Homes grant schemes
- proposed Conserve Actions that can achieve >10% reduction in energy usage over the next five years
- carried out Energy Audits of at least 20 domestic and 11 non-domestic buildings
- identified where electric vehicle (EV) charger points need to be in Inishowen and the cost implications
- scoped out additional/potential energy reductions or alternative energy options and key partners for project delivery and funding options

This is a blueprint – a clear roadmap on the essential steps towards sustainable energy – for residential and non-residential purposes. The facts and figures make the case for capital grants to upgrade existing housing and commercial stock as well as opportunities to explore transport sustainability, renewable energy sources, community power models, and to highlight what a community can do to change behaviour and increase the understanding of climate action.

We start with gauging consumption and focus on what is very ‘doable’ under CONSERVE for example raising awareness, considering changing to low energy lighting, signing up for Community Power or draught stripping. The recommendations progress towards those measures that could further mitigate carbon emissions associated with energy consumption such as insulation, heating, and ventilation systems/controls, and exploring opportunities with renewable energy technologies to GENERATE. We use the audits of the housing and commercial buildings to provide an indicative cost, a simple payback and timeline on the return of investment.

As we build our resilience and recovery from the world-wide emergency caused by the pandemic COVID-19 Inishowen SEC concludes that the focus needs to be on sustainable approaches to retrofitting, refurbishing, rebuilding, and new builds.

Inishowen has immense potential and ample natural resources, from renewable energy to an enthusiastic

population which will lead the charge for sustainable energy use. There are excellent examples of work that has been carried out so far on the peninsula with the focus on tidal/hydro, solar, wind, bio-digestors, bio-diversity, including many more blue and green economy opportunities. The energetic and vibrant community in Inishowen have endless capabilities to transition effectively to a lower carbon and energy efficient community. There is the real opportunity to pilot a green and sustainable development programme here in Inishowen.



This Energy Master Plan can be used in several ways as follows: -

- a guiding document to facilitate the move from fossil fuel intense energy sources to renewable and sustainable energy from the ground up
- a framework for initiatives from small cultural changes to more ambitious larger scale approaches with a selection of specific examples of projects that can be implemented in the short and longer term

The journey has commenced and there is no turning backwards - we are changing how we consume energy with an emphasis on conservation and generation.

1. Overview

The Inishowen Sustainable Energy Community (SEC) has developed from engagement between Inishowen Development Partnership (IDP), Inishowen Co-Op, Donegal County Council and a variety of stakeholders within the community. IDP has partnered with the Inishowen Co-op to explore and support the implementation of best practice solutions focused on sustainability and to communicate learnings to members and the wider community as part of the SEAls Sustainable Energy Communities Programme. The SEC has engaged with the wider community via information sessions and workshops whereby the output has been used to develop a Community Charter and inform this Energy Masterplan design.

The next step in expanding the SEC is through the Energy Master Plan study. This was conducted by ORS, and in partnership with the Inishowen Sustainable Energy Community. This Energy Master Plan provides a comprehensive overview of energy consumption and energy generation on the Inishowen Peninsula. The primary deliverables of the EMP are as set out below:

- 1 Quantify the current energy consumption of Inishowen SEC – Baseline of electrical, thermal and transport energy demand.
- 2 Create a Register of Opportunities (RoO).
- 3 Identify projects that can avail of the Communities Energy Grant and projects that can avail of the SEAls Communities grant fund.
- 4 Propose actions, based on baseline figures, to achieve >10% reduction in energy usage over a 3-, 4- and 5-year period.
- 5 Carry out Energy Audits of domestic and non-domestic buildings.
- 6 Identify where electric vehicle (EV) charger points need to be in Inishowen and costings.
- 7 Identify additional/potential energy reductions or alternative energy options.
- 8 Identify Key Project Partners for project delivery and funding options.

The Energy Master Plan is to be used as a roadmap for Inishowen's progression towards sustainable energy and the information within can be used to apply for capital grants to upgrade existing housing and commercial building stock.



2.0 Findings

The information contained within and presented through the Energy Master Plan for Inishowen SEC originated from various sources such as the Central Statistics Office, the SEAI, the Community and through various energy audits and Building Energy Rating assessments undertaken by ORS. This data was used to understand and quantify current energy use and carbon emissions within the region alongside supporting in the understanding of energy savings that may be achieved through the completion of the respective projects and initiatives identified within the report.

However aside from the development of viable project lists, the Energy Master Plan also identified key partnerships that the community of Inishowen should look to develop and expand. These partnerships will support in the further delivery and development of sustainable opportunities for the region, far outside even the scope of this study. The aim of this study is to also highlight to the public whom these entities are, and to help the readers in understanding the respective roles of each in how they may influence the sustainable development of the Inishowen Peninsula. These would include those groups who drive the Inishowen SEC such as the Inishowen Co-Operative Society, The Inishowen Development Partnership alongside the Local Authority, The North West Regional Team, Education and Training Board (ETB) alongside the Sustainable Energy Authority of Ireland.

2.1 Domestic Energy Use

Publicly available datasets and energy use estimates from a range of sources including the SEAI, CSO, Donegal County Council, and Teagasc were utilised to support the current energy baseline within the region. In summary, and based on the above, the dwellings within the region of Inishowen consume approximately 266,060,212 kWh/year costing in the region of €39.9 million annually. The carbon emissions estimated with this is in the region of 81,870 tonnes of CO₂ equivalent per year, equating to approximately 400,000 double decker buses.

To further understand this high volume of carbon emissions, the type of homes within the region must be examined. From the analysis of the dwellings, a large proportion of homes were constructed between 2001-2010, with a relatively high number constructed between 1991-2000. There are also a high number of homes constructed pre-1919. Oil was established to be the primary source of fuel for central heating in Inishowen, this, along with the quality of insulation typical of home built within the years stated are contributing significantly to the carbon emissions referenced for the region.

From analysis of the SEAI's Building Energy Rating data, the average BER for homes in the Inishowen area is a C2, again highlighting oil as the primary fuel used to heat these homes. Based on these findings, and the analysis of the specific dwellings survey as part of this study, typical measures to improve energy efficiency, and reduce carbon emissions for the average home within the region were identified as follows.

- Upgrade poor lighting to LEDs.
- Remove and seal old open grate fires.
- Upgrade air tightness and reduce draughts.
- Increase quantity of mineral wool to attic spaces.
- Pumping cavities & installing external wall insulation.
- Replacing existing windows & doors.
- Improving heating controls.
- Upgrading to more efficient oil boilers.
- Installing heat pump system in place of oil, gas, or solid fuel boilers.
- Installing solar photovoltaics or solar thermal panels.

From the energy audits of homes within the region, the average cost of the above works to the homeowners is in the region of €24,000, saving significant proportion of energy cost, and carbon emissions.

2.2 Non-Domestic Energy Use

The scope of the Energy Master Plan also included a review of a series of non-domestic buildings within the region. These included the following:-

The objective of these audits, like the residential, is to determine what opportunities exist for such facilities to better improve energy efficiency and introduce low carbon solutions to support sustainable development within the region. The findings of each energy audit can be found within the main Energy Master Plan report and aim to also assist those who manage or occupy similar buildings to understand what works they can complete to achieve similar results. The analysis provides energy, carbon and cost savings alongside investment costs and simple payback analysis.

By implementing the respective projects identified through the audits, the 11 facilities combined have the potential to have up to 355,305 kWh on energy use, saving up to €36,921 in energy costs over a year. This would also reduce local carbon emissions by 122,218 kgCO₂. This energy saving is the equivalent to the typical energy use associated with approximately 15-20 houses.

Buncrana Youth Centre
Sliabh Sneacht Centre
Spraoid Agus Sport
Scoil Cholmcille
St Aengus School
Centra Buncrana
Inishowen Engineering
Scoil Naomh Treasa
Doherty' Newsagents
Greencastle Centre
Ferryport Bar

2.3 Renewable Energy Technologies

As the sustainable energy movement expands within the region, the Inishowen SEC, along with the wider community, are encouraged to further explore the potential identified within this study for small, medium and large-scale renewable energy technologies. This can range from domestic rooftop solar, various heat pump systems to business and community centres utilising similar scaled-up technologies to support self sufficiency.

The region of Inishowen is rich of many various natural resources that can be used in the development of wind and solar farms to hydro and biomass plants. The SEC is encouraged to further explore a community owned renewable energy generating site using one of these resources. Initially a specific feasibility study should be complete to identify a site, establish exact capital cost, expose the energy that can be generated and the financial models of operation. SEAI Renewable Energy Support Scheme should be examined in this process.



2.4 Sustainable Transport

Sustainable transport is central to efforts to control and mitigate greenhouse gas emissions, air pollution and environmental damage. The benefits of sustainable transport, however, extend beyond environmental considerations, delivering improvements in congestion, productivity, health, and quality of life.

From the analysis conducted for this study, it was established that there are approximately 13,837 vehicles used by the residents of Inishowen with estimated fuel costs up to €21,000,000 per year, contributing up to 35,284 tonne of CO2 emissions annually.



To mitigate these emissions a shift must occur toward the use of more sustainable means of transport. Several actions are required to successfully achieve this from behavioural to infrastructural. People must be encouraged to use public transport, or zero carbon alternatives such as walking, cycling and electric cars, however for this to occur the most appropriate resources must be put in place to make such these alternatives are viable, safe, and reliable. This ranges from accurate, consistent, and dependable public transport services to all key locations, to safe and appropriate walking and cycling infrastructure to ensure upmost welfare.

The Local Authority, local businesses, community centre and even homes should consider electric vehicle charging docks to support the use of electric vehicles. The SEC are encouraged to liaise with the local development officers to ensure such consideration are made for the region, and that effective resources are allocated to Inishowen to allow a sustainable transport reality to develop and thrive.

3 Strategic Roadmap

The Energy Master Plan for Inishowen provides the SEC and community with a Register of Opportunities, essentially highlighting projects that the community can undertake to improve energy efficiency, reduce carbon emissions, and introduce renewable energy technologies of various scales. The study also provides a strategic road map for the coming 3 years. This however is a developing movement and must first be embedded within the wider community to allow a culture of sustainability to grow, allowing sufficient buy-in and engagement to be achieved by all within the region. To support the efficient delivery of this message and aim of this group, the SEC is first encouraged to develop training supports in partnership with the SEAI and local Education Training Boards and Local Authorities, producing Energy Champions that can influence stakeholders throughout all the peninsula. This is a journey for the region but must bring all the community if real change is to happen.

4 Conclusion

This Energy Master Plan can be used as a guiding document to facilitate the move from fossil fuel intense energy sources to renewable and sustainable energy from the ground up. It can be used as a framework for initiatives from small cultural changes to more ambitious larger scale approaches. The Register of Opportunities gives specific examples of projects that can be implemented in the short and longer term. Inishowen has immense potential and ample natural resources, from renewable energy to an enthusiastic population which will lead the charge for sustainable energy use.

There are excellent examples of work that has been carried out so far on the peninsula. The energetic and vibrant community in Inishowen have endless capabilities to transition effectively to a lower carbon and energy efficient community.

DDP

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