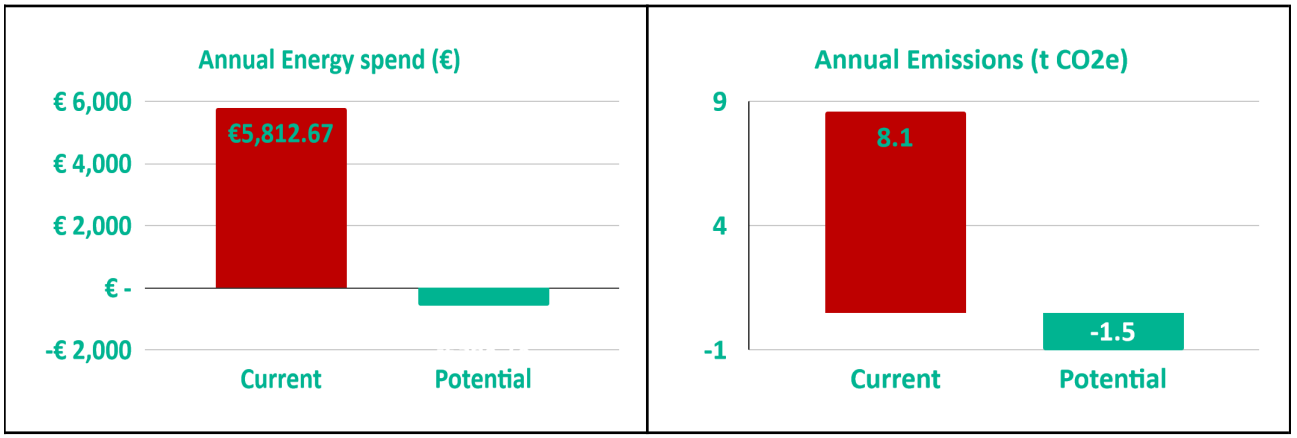
For: Corofin GAA, Corofin, Co. Clare



Energy & Emissions



Recommended actions

Description	Energy saved (€)	Emissions reduction (t CO2e per year)	Cost of Action (€)	Payback period (years)	First Steps
Solar PV : Roof mounted	€5,208.72	5.8 tCO2e	€ 24,400	4.7 years	* Request Quotes * Apply to SEAI
Replace Oil boilers by Air to Water heat pumps	€1,038.84	3.7 tCO2e	€ 7,500	7.2 years	* Engage with a Project Coordinator
Monitoring of electricity usage	€133.89	0.1 tCO2e	€ 500	3.7 years	* Engage with a Project Coordinator
Total	€6,381.45	9.6	€ 32,400	NA	

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1 Site description

This section provides an overview of your site and key information about the visit. A site tour checklist is provided in Appendix A.

Organisation name	Corofin GAA Club
Site address	Corofin
County	Co. Clare
Eircode	V95 RD88
Useful floor area (m2)	200
No. of personnel working at site	4
Is shift work carried out onsite?	NA
Size of company fleet (no. of vehicles)	0
Typical operating hours per year	1840
Sector	Human Health & Social Work Activities
Build date (estimate if necessary)	1980 - 1989
Facility owned or leased	Owned

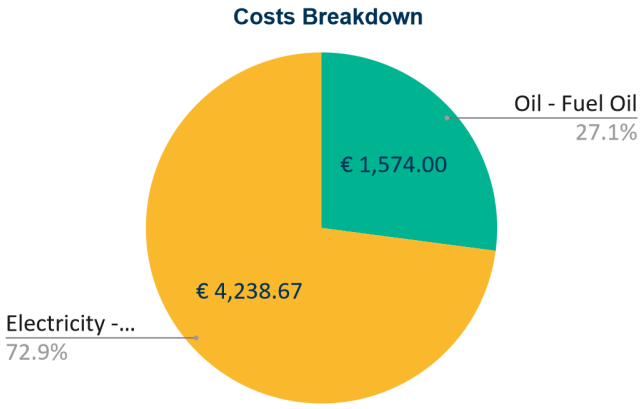
Table 1a: Site information

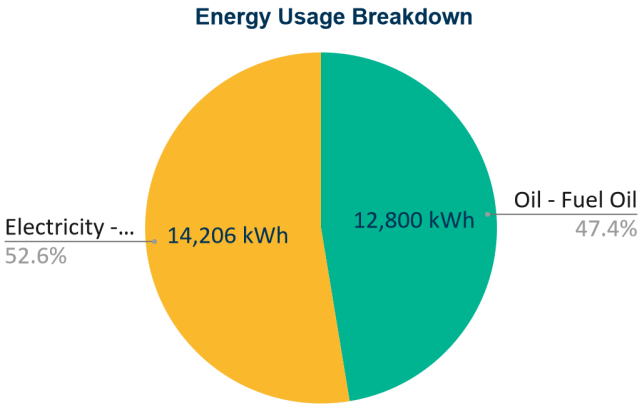
2 What fuels do you use?

A breakdown of the different types of energy used at your site is shown below in Table 2a.
The energy that a business uses can come from a variety of different sources, for example: electricity that is imported to the site from the grid and used for lighting and appliances, natural gas used for heating the building, and diesel to fuel the fleet.
The table below shows you where your business's energy comes from: the annual cost, how much you use in kilowatt hours (kWh) and how many tonnes of CO2 emissions it generates each year. The information has been taken from your energy bills which is the most accurate source.

Reference Period: 07/2023-06/2024				
Energy source	Annual Cost (€)	Annual Use (kWh)	Annual Emissions (t CO2e)	Information source
Oil - Fuel Oil	€ 1,574.00	12,800 kWh	3.5 tCO2e	Bill
Electricity - imported	€ 4,238.67	14,206 kWh	4.6 tCO2e	Bill
Total	€ 5,812.67	27,006 kWh	8.1 tCO2e	

Table 2a: Energy consumption on-site





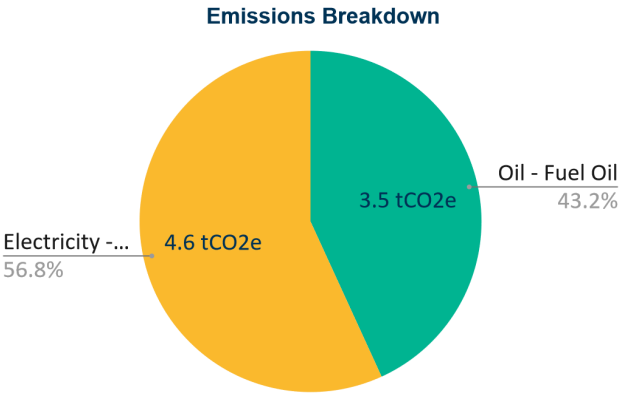


Figure 2: Breakdown of Costs, Usage and Emissions

2.1 Site energy consumption summary

These graphs illustrate the information from the table above. You may find them useful when making your business case for investing in energy management measures.

3 Understanding your energy bills

The auditor analysed your energy bills to determine whether there are easy changes you can make to help you save money.

	Yes/No	Comments
Is the client on an appropriate tariff/tariffs?	Yes	Wholesale Energy : Energia, tracking the wholesale price
Is max import capacity correct for client's requirements?	Yes	
Are there any other penalties?	No	
Comment on day/night/weekend profiles		24 hr rate suits the usage of the clubhouse i.e. very little night usage
Comment on any trends or anomalies in the data		Most readings are estimated
Has the client switched their electricity and/or gas contracts in the past 2 years?		Yes.

Any other comments	Should continue to review prices via brokers every 6 months

Table 3a: Energy bills analysis

3.1 Electricity Bills analysis summary

- Electricity usage is the major part of energy costs, annual usage of more than 14000 kWh and 73% of total energy costs.
- The use of floodlights in the darker months of the year can be assumed to be a major part of
- A lot of readings are estimates. It would be good to assign a specific task for monthly meter reading in the absence of implementing monitoring.
- To lessen the management load, energy brokers can be used for reviewing suppliers. The table below has been provided to the hall management

Company Name	Contact Name	Phone	E-mail	Website	Domestic	Commercial
Jim Joyce	Jim Joyce	086 852 0485	j.jimjoyce@gmail.com	https://www.linkedin.com/in/jimjoyceutilitybroker	Y	Y
Bill Genie	James	086 102 5551	hello@billgenie.ie	www.billgenie.ie	Y	TBC
WeSwitchU			support@weswitchu.ie	https://www.weswitchu.ie/	Y	TBC
Olivia Cantwell	Olivia Cantwell	086 851 5222			Y	TBC
Dolphin Utilities		085 256 3377		https://dolphinutilities.com/energy/	Y	TBC
	Mark	085 744 1079			Y	TBC
SouthEast Energy Brokers	Rory	089 262 8283	southeastenergybrokers@gmail.com	https://www.southeastenergybrokers.ie/cheapest-electricity-prices/	Y	Y
JM Energy Savings	John Moynihan	086 374 2260	john@jmenergy.ie	https://jmenergy.ie/electricity-deals/	Y	Y

3.2 Oil Bills analysis summary

- Oil is not a major cost compared to electricity usage, i.e. €1500 vs €4200 annually
- This is comparable to an average domestic home.

3.3 Monthly trends in energy use

Your energy use may change over the course of the year, for example your use of heating fuel may be higher in the winter months. Figure 3a shows the trends in use for Electricity & Oil

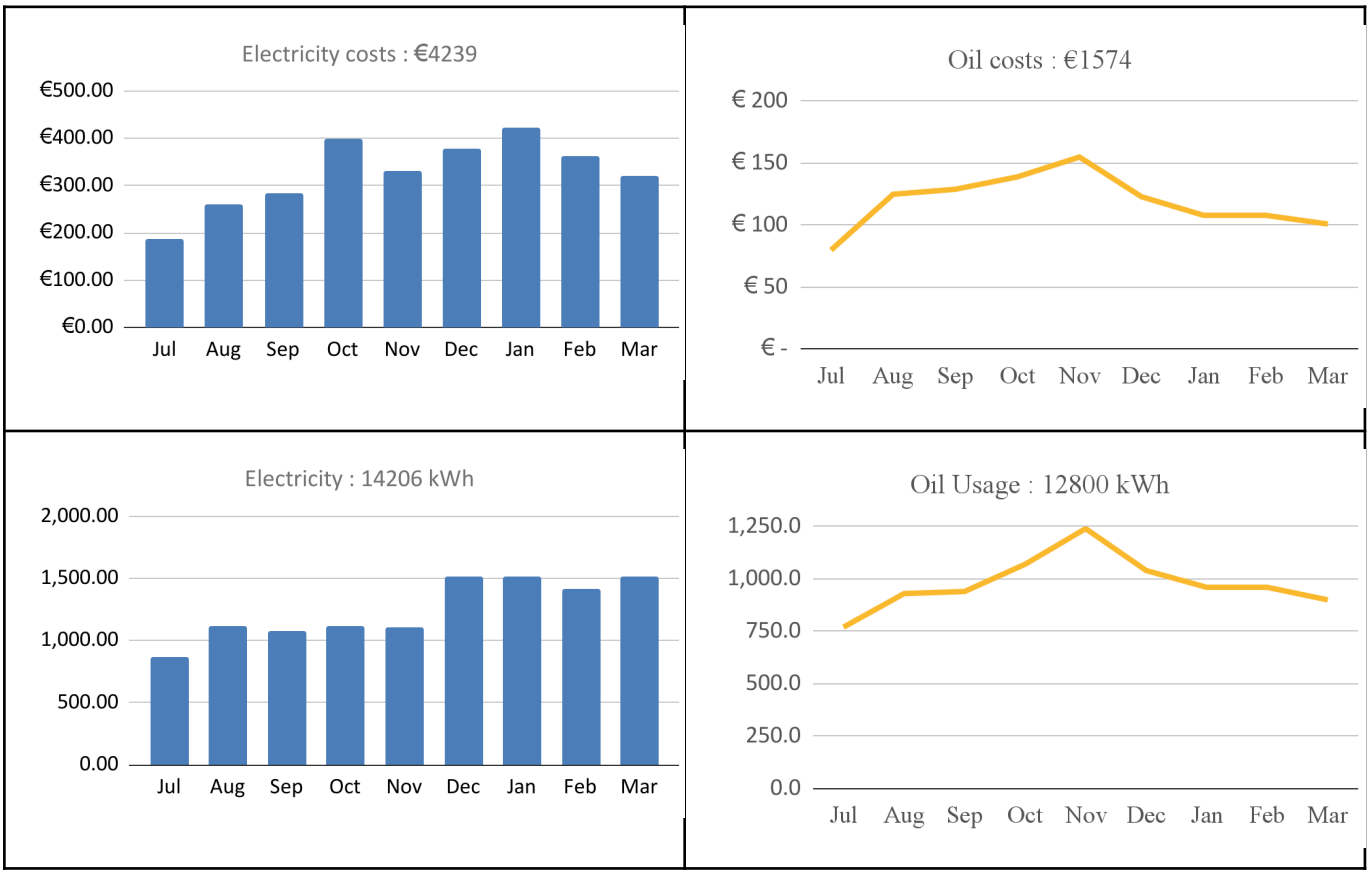


Figure 3a: Monthly trends in energy use

3.4 Monthly trends summary

- From the billing information, we see that usage and costs peak during the winter months. This is to be expected with an increased use of lighting in the hall and on the playing field/walking track.
- Note that most bills are based on estimates so the chart does not show the exact monthly changes.
- One action, in the absence of automated monitoring, is to submit meter readings at least once a month.

- The Oil costs have been levelised through the year as there is no opportunity to see more detailed monthly usage.

- Oil usage would appear to be linked to heating of hot water which could be offset by the use of electricity from a potential Solar PV installation. This is more especially relevant during the brighter parts of the year when there is more activity in the club.

3.5 Actions already taken

Before getting this energy audit, you had already taken action to save energy at your site. Changes that you have already made, and the impact they have had, are listed in Table 6a below.

Completed actions	Estimated impact (kWh)	Comments
LED lighting indoors	NA, no reference	When possible the club has favored investing in more efficient technologies
Floodlights replaced by LED	NA, no reference	As above
External lighting on sensors, all LED	NA, no reference	As above

Table 6a: Actions already taken

3.6 Recommended actions to save energy

Your Auditor reviewed potential actions that your organisation can take to improve energy efficiency and generate renewable energy at your facility (specifically, through heat pumps, biomass, and photovoltaics). A list of actions is provided in Table 6a. Many organisations are interested in opportunities for generating renewable energy. A summary of your facility's suitability for both renewable heating and renewable electricity (solar) is provided below and in Appendices D and E.

6.2.1 Renewable Energy – heating

SEAI's Support Scheme for Renewable Heat supports renewable heating in businesses by offering a grant for heat pumps and a tariff for biomass/biogas boilers and CHP.
As part of this audit, the auditor assessed your facility's suitability for converting to renewable heat.
A brief summary of this assessment is provided below.
The complete renewable heat assessment tool may be found in Appendix D.
Further information about the scheme may be found on the website[1] or by emailing SSRH@seai.ie

Summary of facility's suitability for renewable heat

[1] https://www.seai.ie/business-and-public-sector/business-grants-and-supports/support-scheme-renewable-heat/

Overall suitability of the facility for renewable heat.	A combination of a Solar PV installation and an air-to-water heat pump would be a very good fit for the requirements of the club facilities.

Impact of Renewable Heat

If facility is suitable for renewable heat:	
Estimated annual kWh savings	12,800
Type of energy saved	Oil - Fuel Oil
Estimated emissions saved (tCO2e)	3.50

Table 6b: Impact of Renewable Heat

6.2.2 Renewable Energy – photovoltaics (solar)

Photovoltaics generate electricity using solar energy from the sun, providing a completely renewable, clean source of electrical energy. As part of this audit, the auditor assessed your facility's suitability for generating electricity from solar energy. A brief summary of this assessment is provided below. The complete photovoltaic assessment tool may be found in Appendix E.

Summary of facility's suitability for Solar PV

Overall suitability of the facility for renewable heat.	The GAA club is an excellent candidate for Solar PV and could realistically produce 100% of its total annual energy requirements.

Impact of solar PV:

If facility is suitable for solar PV:	
Estimated annual kWh savings	14,206
Estimated emissions saved (tCO2e)	5.80

Table 6c: Impact of solar photovoltaics

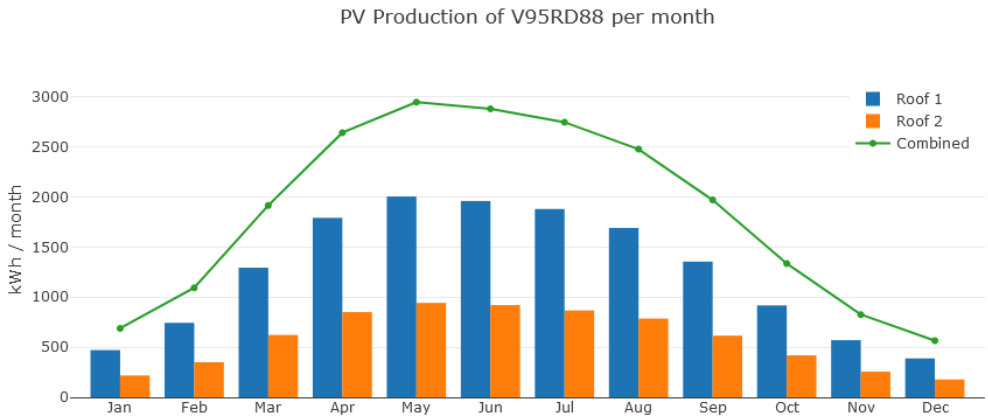
6.2.3 Study of Solar PV suitability and sizing



- The larger area highlighted is 20m * $m. This should accommodate 36 * 470 W panels

- The smaller area is ~10m * 4. This should accommodate 18 * 470 W panels
- Given the location/orientation this would produce **22097 kWh per year** (taken from this online calculator)
- Since this installation would be big enough, there is no need to install on the bigger building. Installation on the indicated buildings would also be cheaper due to accessibility and roof type.
- You can see the monthly distribution of production below

Eircode:	V95RD88
System Size:	17 kW + 8 kW
Roof Direction:	225° + 135°
Roof Slope:	35° + 35°
Annual Production:	**22097 kWh** (15070 kWh + 7027 kWh)



- This more than covers the current electricity usage in the club, i.e 14,206 kWh
- This would also allow for the replacement of the oil boiler by an air-to-water heat-pump and the potential addition of EV charging supplied by electricity from the roof at a later date.
- In order to maximise the usage of electricity within the club, rather than exporting to the grid, a 20 kWh battery system would also be recommended.
- This would ensure the long-term resilience of the energy supply to the hall, significantly reducing the annual energy bill for the community .
- Recommendation summary
  - Solar PV System size : 25 kW
  - Battery size : 20 kWh
- Quotes for such a Solar PV system can be requested from any of the registered SEAI installers.
- Contact details for some local registered installers are as follows:

Company	Phone	Mobile	Website	Email
Futureproof Energy Ltd		086 083 6073	www.futureproofenergy.ie	hello@futureproofenergy.ie
R Fitzgerald Electrical Services Ltd		085 844 2526		info@fitzgerald-electrical.com
Skelect Ltd TA Kavanagh Solar		087 6310244	www.kavanaghsolar.ie/	info@kavanaghsolar.ie

Nusolas	061 719 730		www.nusolas.com	contact@nusolas.com

3.7 Recommended actions

Your auditor has identified the top actions you should take to improve the energy efficiency of your site and save on your energy costs. These actions are listed in Table 6d below.

Description	Energy savings (kWh per yr)	Type of energy saved	Cost savings (€ per yr)	Emissions reduction (t CO2e per yr)	Estimated cost of action (€)	Payback period (years)	Potential supports	Comments / Additional info	First Steps
Solar PV : Roof mounted	14,206	Electricity - imported	€5,209	5.80	€24,400	4.7	Microgeneration scheme	* Assuming a cost of €32k ex. Vat for a 30 kW system + 20kWh of batteries * Assuming an SEAI grant of €7600 * Assuming that 100% of current electricity usage is offset (saving ~30c/kWh) * Assume the remaining electricity is initially all exported at 12c/kWh * Assume the exported electricity reduces load on the grid elsewhere and thus has an overall positive emissions effect	* Request Quotes * Apply to SEAI
Replace Oil boilers by Air to Water heat pumps	8,448	Oil - Fuel Oil	€1,039	3.68	€7,500	7.2	Communities grant	* Assuming a 66% saving by switching to Heat pump technology * Assuming an initial cost of €15k with 50% funding available from Communities grant (based on a domestic sized heat-pump) * Assuming the remaining 33% of energy required is electricity provided by the Solar PV installation	* Engage with a Project Coordinator
Monitoring of electricity usage	355	Electricity - imported	€134	0.12	€500	3.7	Accelerated Capital Allowance	* Only required as an interim measure pre-Solar PV as Solar PV would include monitoring * Assuming a 2.5% decrease in electricity usage due to better management	* Engage with a Project Coordinator

Table 6d: Recommended actions

6.3.1 Information on Funding Sources

Click each Scheme to access the relevant SEAI webpage

Scheme

- Accelerated Capital Allowance
- Commercial Electric Vehicles
- Communities
- Energy Efficiency Obligation Scheme List of obligated pârties
- Energy Academy
- Energy Management training
- Excellence in Energy Efficient Design
- Support Scheme for Renewable Heat

4 Appendices

Appendix A – Glossary of terms

Term	Definition
biogas	Biogas is a form of renewable energy. Biogas is produced through the anaerobic digestion or fermentation of organic feedstocks including biomass, sewage and agricultural and municipal wastes. The biogas can then be burnt as a renewable fuel.
biomass	Biomass fuel is a form of renewable energy generated from burning organic material such as wood, poultry litter, and straw
CHP	Combined Heat and Power: an energy efficient way to generate electricity whilst capturing and using the heat that would otherwise be wasted.
CO_2e	Carbon dioxide equivalent: a standard unit for measuring emissions by expressing the impact of all greenhouse gases (including carbon dioxide, methane and nitrous oxide) in terms of the amount of carbon dioxide that would create the same amount of atmospheric warming
electricity imported	Electricity that has been generated offsite for use at your facility
energy efficiency	Using less energy to perform the same task, i.e. reducing energy waste
fossil fuel	Carbon-based fuels from fossil hydrocarbon deposits, including coal, peat, oil, and natural gas. Fossil fuels produce carbon dioxide (CO_2) when burned, which is a greenhouse gas
GPRN	Gas Point Registration Number (GPRN): a unique reference number assigned to every gas point on the natural gas network. A gas point is a point where gas is taken from the gas network system, measured by a meter and consumed by an end user. Each individual gas point has its own GPRN. GPRNs have up to 7 digits.
heat pump	Electrical devices which convert energy from the air outside of your home into useful heat, in the same way a fridge extracts heat from its inside. Different types of heat pump draw heat from different sources: air, water or the ground.
kWh	Kilowatt hour: a unit of energy, equivalent to operating a 1,000 watt appliance running for one hour.
LPG	Liquefied Petroleum Gas is manufactured in oil refining, crude oil stabilisation and natural gas processing plants and consists of propane and/or butane gases. Typically used in boilers and for cooking.
Maximum Import Capacity	The upper limit on the total electrical demand that a consumer can place on the network system.

(MIC)	
MPRN	A Meter Point Reference Number (MPRN) is a unique 11-digit number assigned to every single electricity connection and meter in the country. Each individual meter has its own MPRN.
natural gas	Natural gas is a naturally occurring fossil fuel that is composed mainly of methane. It is piped through a national gas transmission & distribution network (in gaseous form, under pressure) directly to end users in the industrial, power generation, services and domestic sectors.
renewable energy	Energy from renewable non-fossil fuel sources, e.g. wind, solar (both solar thermal and solar photovoltaic) and geothermal energy, ambient energy, tide, wave and other ocean energy, hydropower, biomass, and biogas
solar photovoltaics	Also called “solar PV”, solar panels that generate electricity when exposed to sunlight
thermal energy	Thermal energy refers to all solid, liquid and gas fuels used for non-transport purposes. This includes both fossil and renewable fuels used in boilers, space & process heating systems, catering, fuel-based electricity generators (onsite), CHP and in all plant, equipment & other non-road mobile vehicles.