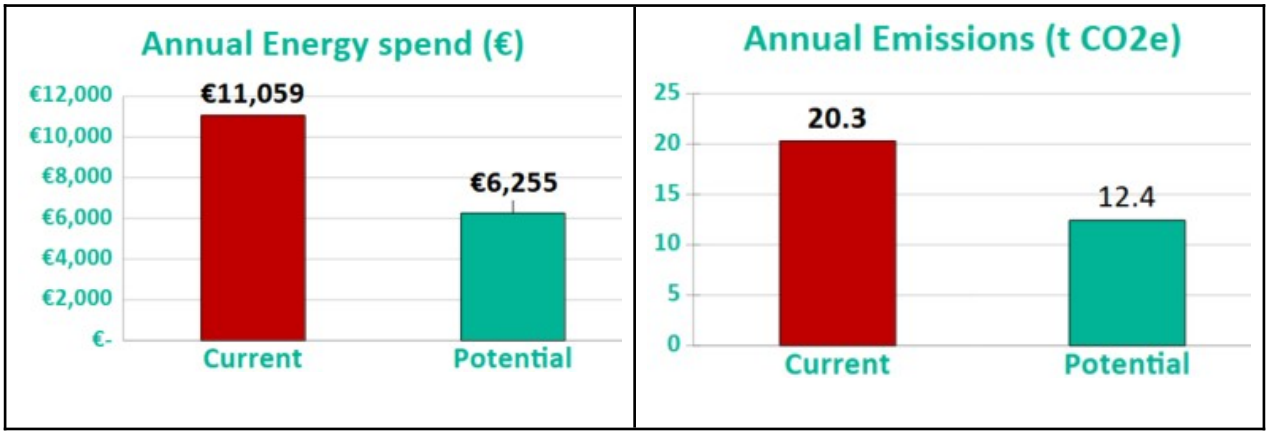
For: St.Flannan's NS, Inagh, Co. Clare



Energy & Emissions



Recommended actions

Description	Energy saved (€)	Emissions reduction (t CO2e per year)	Cost of Action (€)	Payback period (years)	First Steps
Expand Solar PV system	€3,060	3.50	€14,800	4.8	* Request Quotes * Apply to SEAI
Cavity pumping of all the 1985 and 2004 external walls	€541	1.53	€2,000	3.7	* Engage with a Project Coordinator
Seal all conduits/pipes/cables to attic	€271	0.77	€200	0.7	* Engage with a Project Coordinator
TRV's on all radiators	€271	0.77	€1,125	4.2	* Engage with a Project Coordinator
Improve attic insulation in all older classrooms	€271	0.77	€3,000	11.1	* Engage with a Project Coordinator
Improve ceiling insulation when repairs to the flat roof are done.	€108	0.31	€0	€0	Separate project
Identify non-school hours waste	€282	0.25	€300	€1	Behavioural + monitor
Total	€4,803.65	7.9 tCO2e	€21,425	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	St.Flannan's NS
Site address	Inagh
County	Co. Clare
Eircode	V95 HX20
Useful floor area (m2)	1491
No. of personnel working at site	20
Is shift work carried out onsite?	No
Size of company fleet (no. of vehicles)	0
Typical operating hours per year	1344
Sector	Education
Build date (estimate if necessary)	1984 / 2004 / 2010
Facility owned or leased	Owned

Table 1: 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 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: 03/2024-02/2025				
Energy source	Annual Cost (€)	Annual Use (kWh)	Annual Emissions (t CO2e)	Information source
Oil - Fuel Oil	€5,414.20	55930 kWh	15.3 tCO2e	Bill
Electricity - imported	€5,644.41	15397 kWh	5.0 tCO2e	Bill
Electricity -Solar PV	€-	5400 kWh	0.0 tCO2e	
Total	**€11,058.61**	**76727 kWh**	**20.3 tCO2e**	

Table 2: Energy consumption on-site

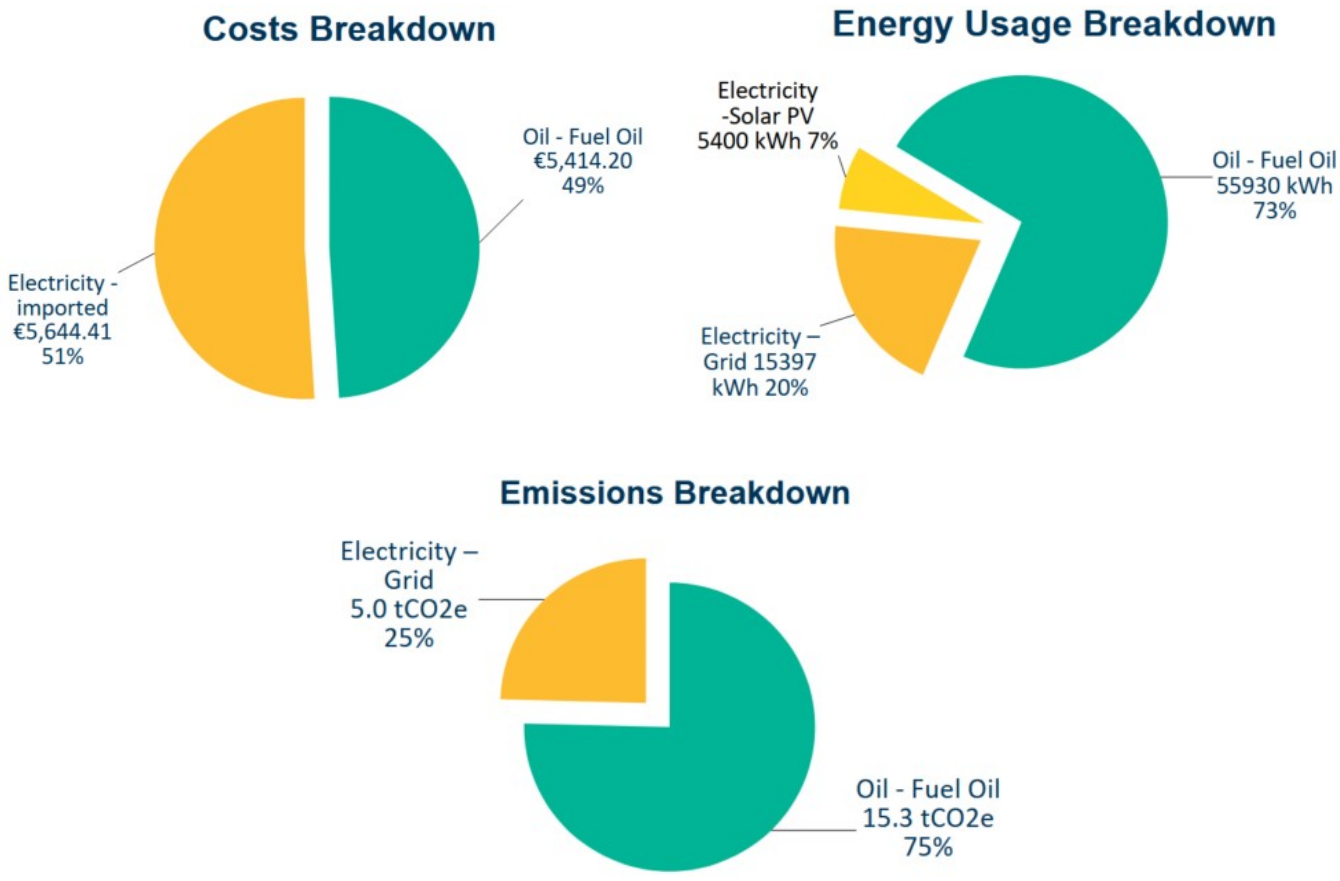


Figure 1: Breakdown of Costs, Emissions and Energy usage

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?	TBC	Market tracking 24 hr rate with Energia.
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 hall 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 3: Energy bills analysis

3.1 Bills analysis summary

- The school is very sensitive to energy use and the associated cost/emissions.
- All data is of good quality as the school has provided detailed bills for the full period.
- Cost / kWh has crept up over the last 12 months (from 30c to 43c) so it would be recommended to look for a competitive 12 month contract.

3.2 Monthly trends in energy use

Your energy use changes over the course of the year, for example your use of diesel will be higher when floodlighting is used. Figure 3a shows the trends in use for Electricity & Oil.
Note that the impact of the Solar PV system installed in the school is not yet included as we are wating for detailed usage and export figures from the Solar PV installer.

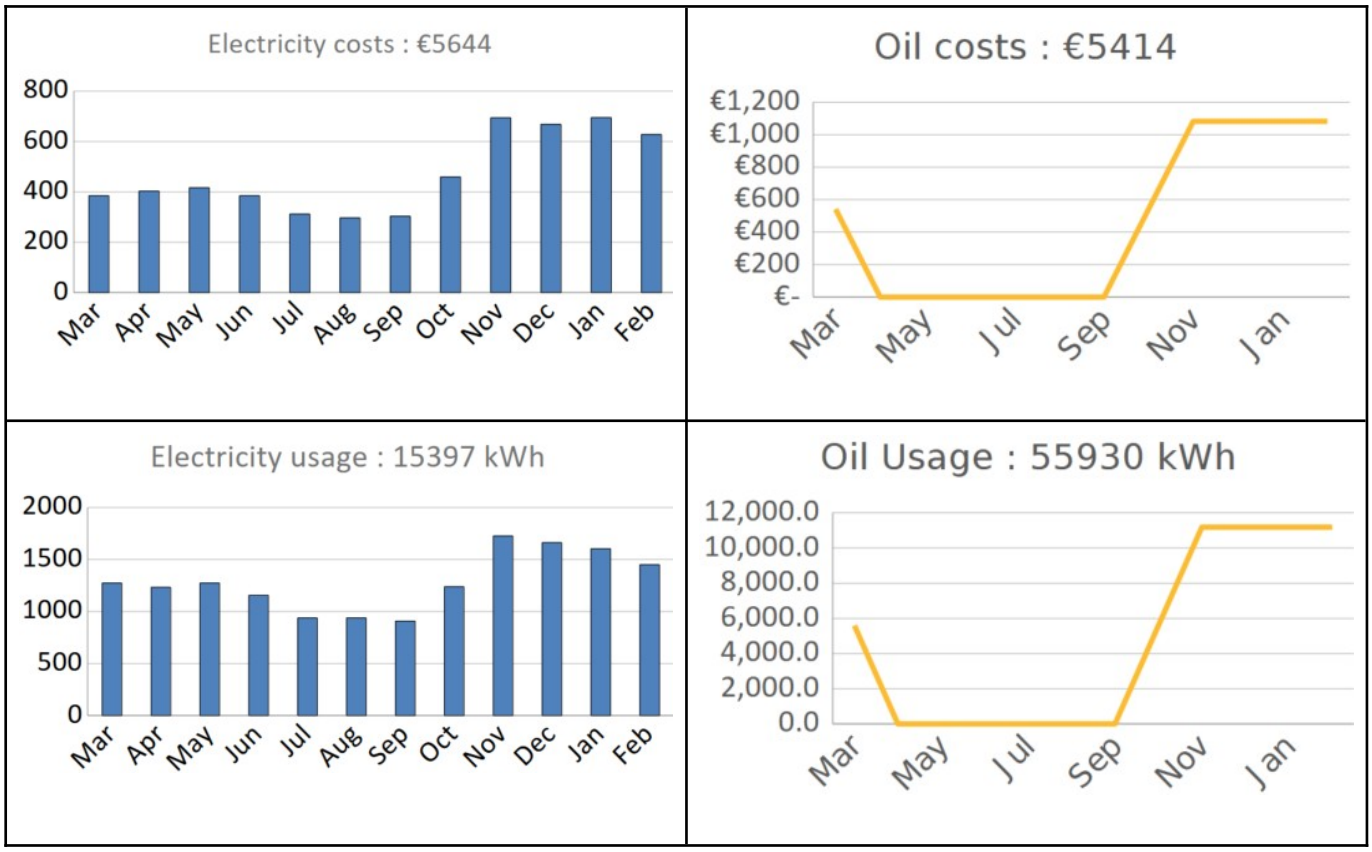


Figure 2: Monthly trends in energy usage

3.3 Monthly trends summary

- We have actual customer readings about every 4 months so the charts above can be considered as accurate in terms of seeing the seasonal trends.
- It is noteworthy that electricity usage in July and August drops but not as much as would be expected considering the school operates for only 2 weeks in July and is entirely closed in August.
- This would seem to indicate that some equipment is left running unnecessarily.
- If would be useful to monitor evening/night/weekend usage because if some equipment is runnig unnecessarily in the summer, we should also be seeing that during the school year.
- Oil usage is based on an estimated breakdown of the oil purchases. Typically oil is purchased twice or three times per heating season.

3.4 Where is your money going?

Given the lack of detail available from electricity and oil bills, it is difficult to identify clearly where the money is going.
Even with the installation of a 6 kW Solar PV installation, a more detailed energy monitoring system needs to be put in place.
Smart metering is not yet available for larger connections such as the school, the rollout is scheduled to begin at the end of 2025#.
The combination of a detailed monitoring system and the smart meter gives the possibility of identifying in better details where further efficiencies can be made.

4 Taking action

4.1 Actions already taken

In the years leading before this energy audit, a number of energy efficiency actions actions have already been taken in order to reduce energy usage in the school.
Changes that you have already made, and the impact they have had, are listed in Table 6a below.

Completed actions	Estimated impact (kWh)	Comments
6 kW Solar PV installation	NA, no reference	Installed in May 2024
All doors/windows in 1985/2004 sections replaced in 2015	NA, no reference	focus on energy efficiency when upgrading equipment
TRV's on some radiators.	NA, no reference	As above
Ceiling insulation upgraded in 2004 section following remedial works	NA, no reference	As above
Sensor control for lights in most bathrooms	NA, no reference	As above
LED lighting is used whenever lights are replaced	NA, no reference	As above

Table 4: Actions already taken

4.2 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.

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

Note that the school already has a 6 kW Solar PV system in operation since May 2024.



Figure 3: Location of current Solar PV system

Eircode:	V95HX20
System Size:	6 kW
Roof Direction:	202.5°
Roof Slope:	25°
Annual Production:	**5406 kWh**

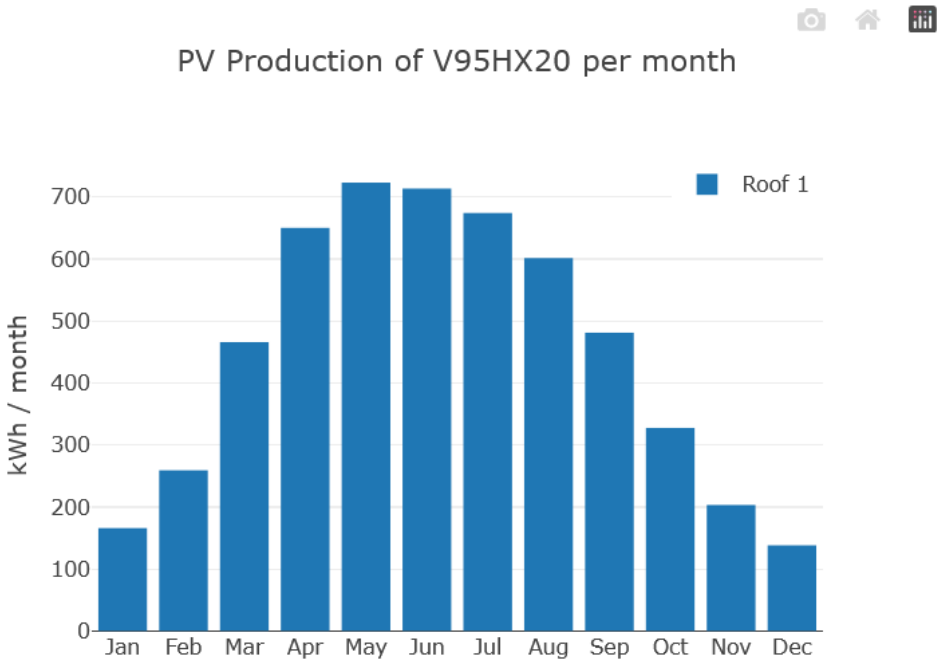


Figure 4: Estimated production from current 6 kW Solar PV system

Overall suitability of the facility for expanded Solar PV system.	The school is an excellent candidate for an expanded Solar PV system. The current roof used for the 6 kW system should take another 12 kW without difficulty.

Impact of solar PV:

If facility is suitable for expanded solar PV:	
Estimated annual kWh savings (only from PV)	10,800
Estimated emissions saved (tCO2e)	3.50

Table 6a: Impact of solar photovoltaics

Study of Solar PV suitability and sizing



Figure 5: Example of location for further 12 kW (see yellow lines)

Current system

- The area highlighted would allow for a potential further 12 kW Solar PV system.
- We would recommend a total 18 **kW system** , given the current usage of the school.
- Given the location/orientation of the roof this would produce **16215 kWh per year** (taken from this online calculator
- This is slightly higher than the total electricity usage of the hall currently.

- Recommendation summary
  - Additional Solar PV System size : 12 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
Solgrid	091 335335		www.solgrid.ie	hello@solgrid.ie

Table 5: Contacts for regional Solar PV installers

4.3 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
Expand Solar PV system	10,800	Electricity – Grid	€3,060	3.50	€14,800	4.8	Microgeneration scheme	* Assuming the system is expanded by a further 12 kW of PV panels plus a 20 kWh battery system * Assuming a cost of ~€19k ex. Vat for a 12 kW system + 20kWh of batteries * Assuming an SEAI grant of €4200 * Assuming that 50% of PV production is used in the school(saving ~35c/kWh) * Assume the remaining PV production is exported at 20c/kWh	* Request Quotes * Apply to SEAI
Cavity pumping of all the 1985 and 2004 external walls	5,593	Oil - Fuel Oil	€541	1.53	€2,000	3.7	Communities grant	* Assuming a 10% reduction in kWh for heating * Assuming 200m2 of cavity wall to be pumped in 1985 and 2004 sections * Assuming cost of €20/m2 * Assume 50% funding from Community Grant scheme as worst case	* Engage with a Project Coordinator
Seal all conduits/pipes/cables to attic	2,796	Oil - Fuel Oil	€271	0.77	€200	0.7	Other - please specify in comments	* Assuming a 5% reduction in kWh for heating * Assuming the work is carried out by the school maintenance man and/or volunteer parents	* Engage with a Project Coordinator

TRV's on all radiators	2,796	Oil - Fuel Oil	€271	0.77	€1,125	4.2	Communities grant	* Assuming a 5% reduction in kWh for heating * Assuming a cost of €150/TRV incl labour and 15 radiators * Assume 50% funding from Community Grant scheme as worst case * Assume initial cost of €40k	* Engage with a Project Coordinator
Improve attic insulation in all older classrooms	2,796	Oil - Fuel Oil	€271	0.77	€3,000	11.1	Communities grant	* Assuming a 5% reduction in kWh for heating * Sealing all zones of major heat loos from classrooms to attic, particular focus on attic hatches substandard ceilings in bathrooms * Assuming a cost of €1500 per classroom in rooms 5,6,7,8 * Assume 50% funding from Community Grant scheme as worst case	* Engage with a Project Coordinator
Improve ceiling insulation when repairs to the flat roof are done.	1,119	Oil - Fuel Oil	€108	0.31	€0	€0	Other - please specify in comments	* Focussing on bathrooms / storage rooms (anyplace where ceiling is replaced) * Assuming a 2% reduction in kWh for heating * Assuming the cost is included in remedial works required on flat roof	NA
Identify non-school hours waste	770	Electricity – Grid	€282	0.25	€300	€1	Other - please specify in comments	* Assume that improved monitoring can avoid unnecessary electricity usage during closed hours, weekends and holidays * Assume that this amounts to a 5% reduction in overall electricity usage * Assume a monitoring system costs ~€300 and the school implements a monitoring program with pupils.	

Table 6: Recommended Actions