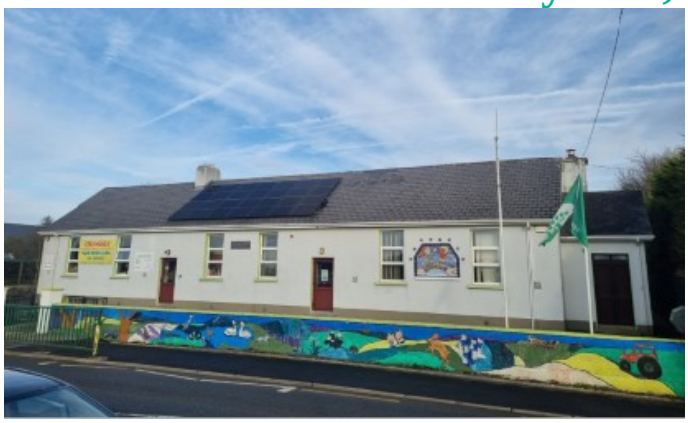
For: Connolly N.S., Connolly, Co. Clare



Energy & Emissions

Recommended actions

Description	Energy saved (€ per year)	Emissions reduction (t CO2e per year)	Cost of Action (€)	Payback period (years)	First Steps
Solar PV 4 kW + 20 kWh battery	€1,203	1.5	€5,600	4.7	* Engage with a Project Coordinator
Pump the cavity on all walls	€625	1.7	€2,000	3.2	* Engage with a Project Coordinator
Improve attic insulation an airtightness over two classrooms	€375	1.0	€2,000	5.3	* Engage with a Project Coordinator
Replace all 58W lightbulbs in classrooms	€116	0.1	€129	1.1	* Engage with a Project Coordinator
Multiple air-to-air heatpumps for classrooms	€1,125	3.1	€9,000	8.0	* Engage with a Project Coordinator
Replace all external doors and windows dating from 1994	€375	1.0	€10,000	26.7	* Engage with a Project Coordinator
Total	**€3,820**	**8.6 tCO2e**	**€28,729.30**	**NA**	

Support Scheme for Energy Audits (SSEA)

Energy Audit Report

Contents

Index of Tables

Table of Figures

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	Connolly National School
Site address	Connolly
County	Co. Clare
Eircode	V95 Y066
Useful floor area (m2)	388
No. of personnel working at site	4
Is shift work carried out onsite?	No
Size of company fleet (no. of vehicles)	0
Typical operating hours per year	1281
Sector	Human Health & Social Work Activities
Build date (estimate if necessary)	1900 - 1919
Facility owned or leased	Owned

Table 1: Site Information

SEAI Application ID	NA
Site Visit Date	11/09/25
MPRN Number	10 306 028 028
GPRN Number	NA
Site Contact name	Sean O'Neill
Site Contact job title	School Principal
Energy Auditor name	Colm Garvey
Energy Auditor company	Clare Community Energy Agency
Comments	

Table 2: Visit 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 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.

Table 3: Energy consumption on-site

Reference Period: 07/2023-06/2024				
Energy source	Annual Cost (€)	Annual Use (kWh)	Annual Emissions (t CO2e)	Information source
Oil - Fuel Oil	€2,500.00	25,423 kWh	7.0 tCO2e	Bill
Electricity - imported	€1,381.13	4,604 kWh	1.5 tCO2e	Bill
Electricity -Self Generation	€0	2,814 kWh	0.0 tCO2e	Bill
Total	€3,881.13	32,840 kWh	8.4 tCO2e	

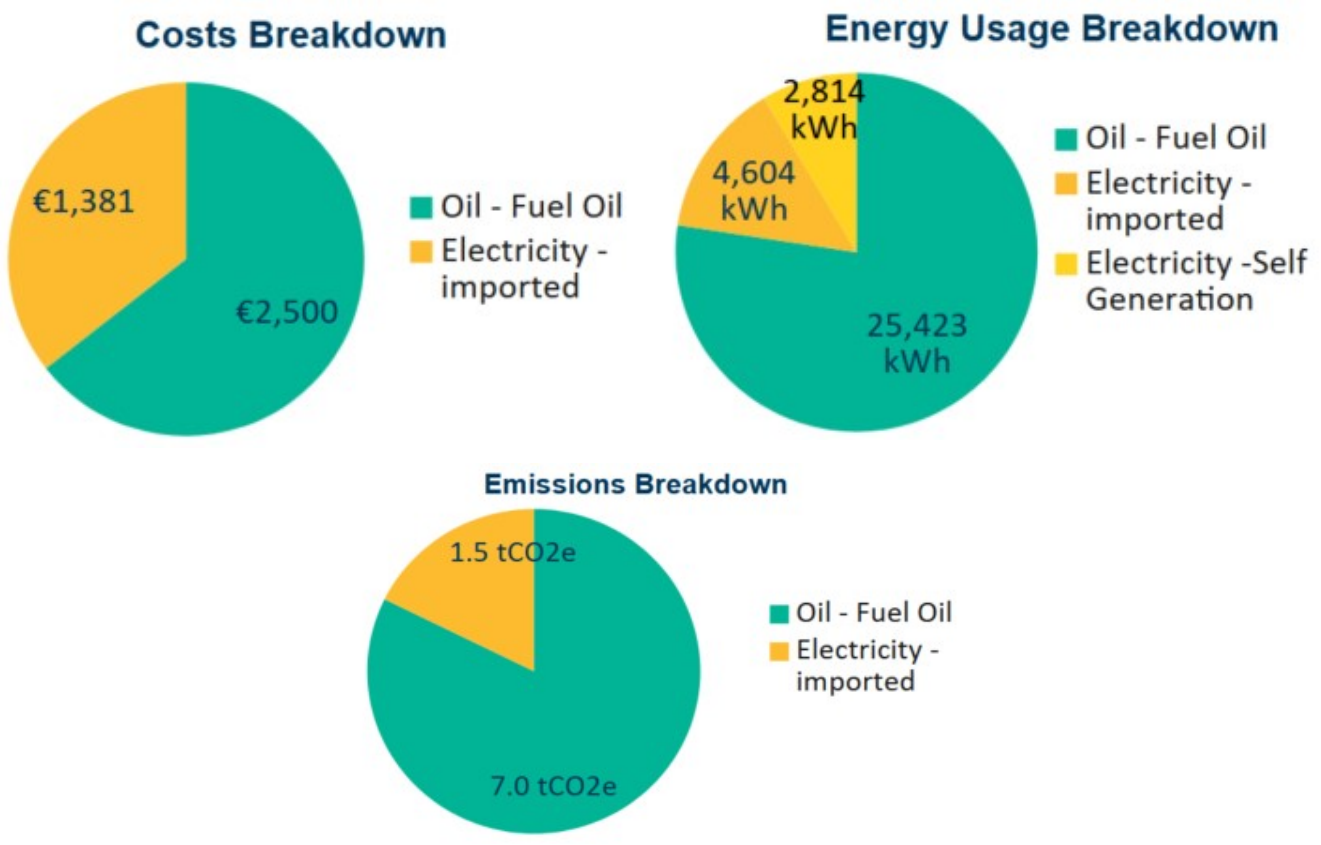


Figure 1: Breakdown of costs, emissions and energy usage

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?	Yes	24 hr rate with Electric Ireland
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 school i.e. very little night usage
Comment on any trends or anomalies in the data		Usgae data is retrieved from Solar PV monitor i.e. good quality
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 4: Energy bills analysis

3.1 Bills analysis summary

- Electricity usage data is of excellent quality as the has a 6 kW Solar PV system which provides detailed monitoring. .
- Cost / kWh is competitive but should be monitored.

3.2 Monthly trends in energy use

Your energy use changes over the course of the year, Figure 2 shows the trends in use for Electricity.

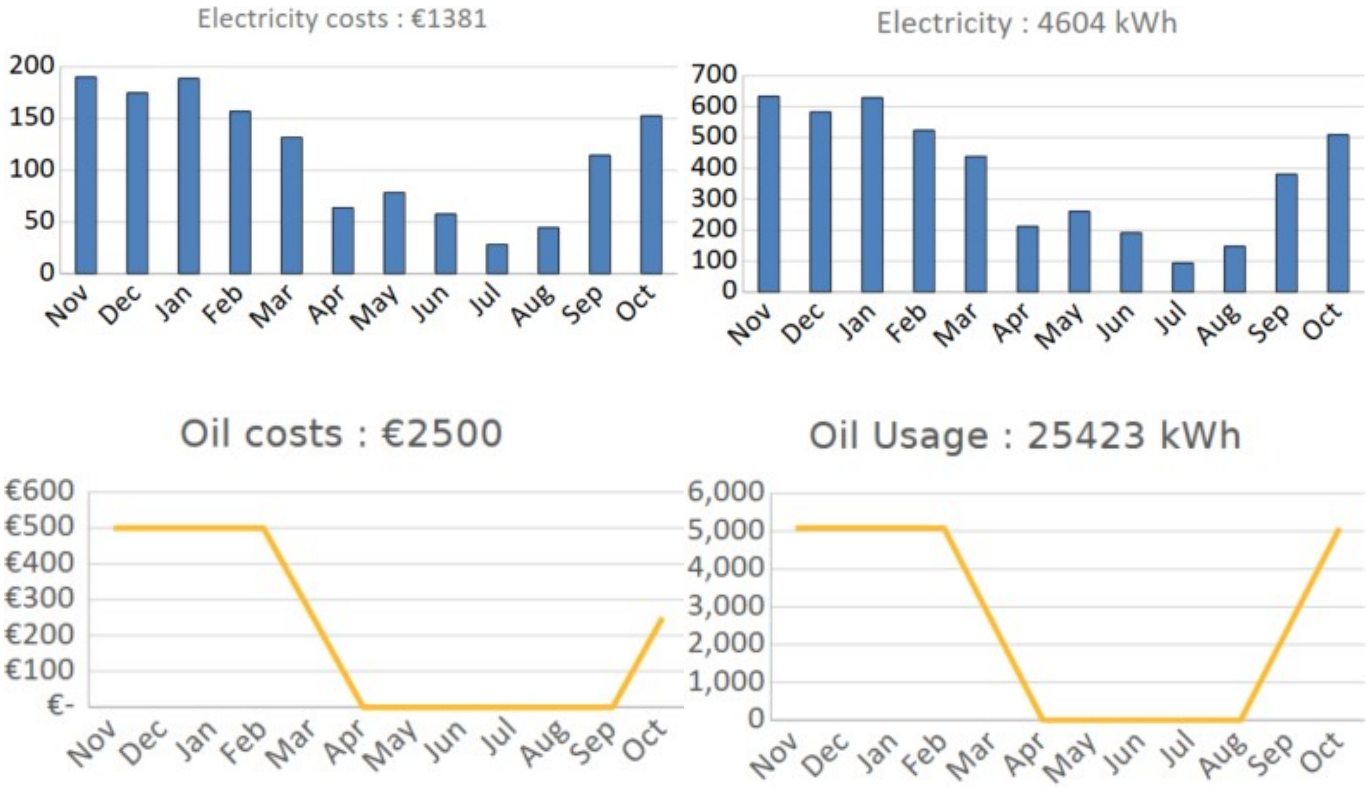


Figure 2: Monthly trends in energy usage

3.3 Monthly trends summary

- We can still see the seasonal trend, i.e. usage considerably higher during the winter months when the lighting and heating requirements are highest.
- The impact of Solar PV production is notable for the months of April to September
- The charts for Oil usage are estimates, assuming 6 heating months of the year spread mostly over Nov to Feb with some usage in October and February
- No detailed oil usage information is available.

4 Electricity, heat and transport

4.1 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 photovoltaics: **SUITABLE**

Overall suitability of the facility for expanded Solar PV system.	The school is an excellent candidate for an expanded Solar PV system in addition to the existing 6 kW. A further 4 kW of panels is recommended with a 10 kWh battery to cover current usage , to cover a potential heatpump installation and to provide resilience in case of grid failure.

Impact of solar PV:

If facility is suitable for expanded solar PV:	
Estimated annual kWh savings (only from PV)	3714
Estimated emissions saved (tCO2e)	1.49

Table 5: Impact of Solar PV system

Study of Solar PV suitability and sizing

- the area with the yellow marker in Figure 3 would allow for a potential 4 kW of additional Solar PV panels.
- We would recommend an additional 4 **kW** with 10 kWh battery, given the current usage of the school.
- Given the location/orientation of the roof this would produce **3714 kWh per year** (taken from this online calculator.
- Recommendation summary
  - Expanded Solar PV System size : 10 kW
  - Battery size : 10 kWh
- Quotes for such a Solar PV system can be requested from any of the registered SEAI installers.

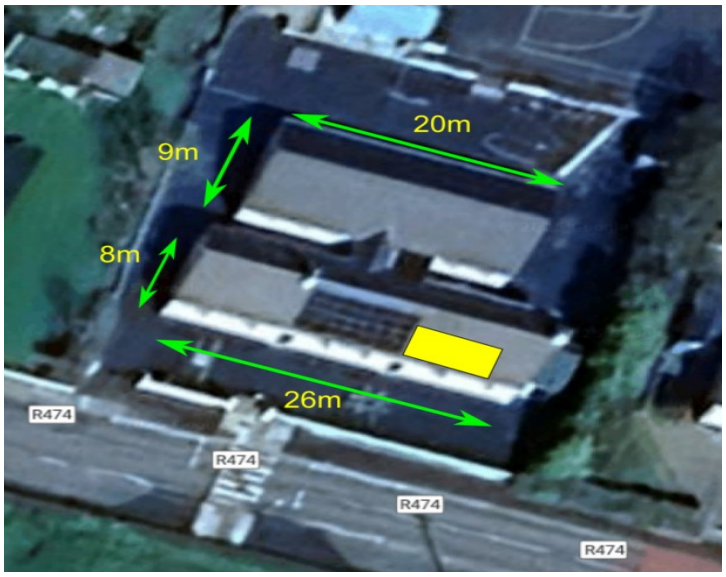


Figure 3: Proposed location of Solar PV system

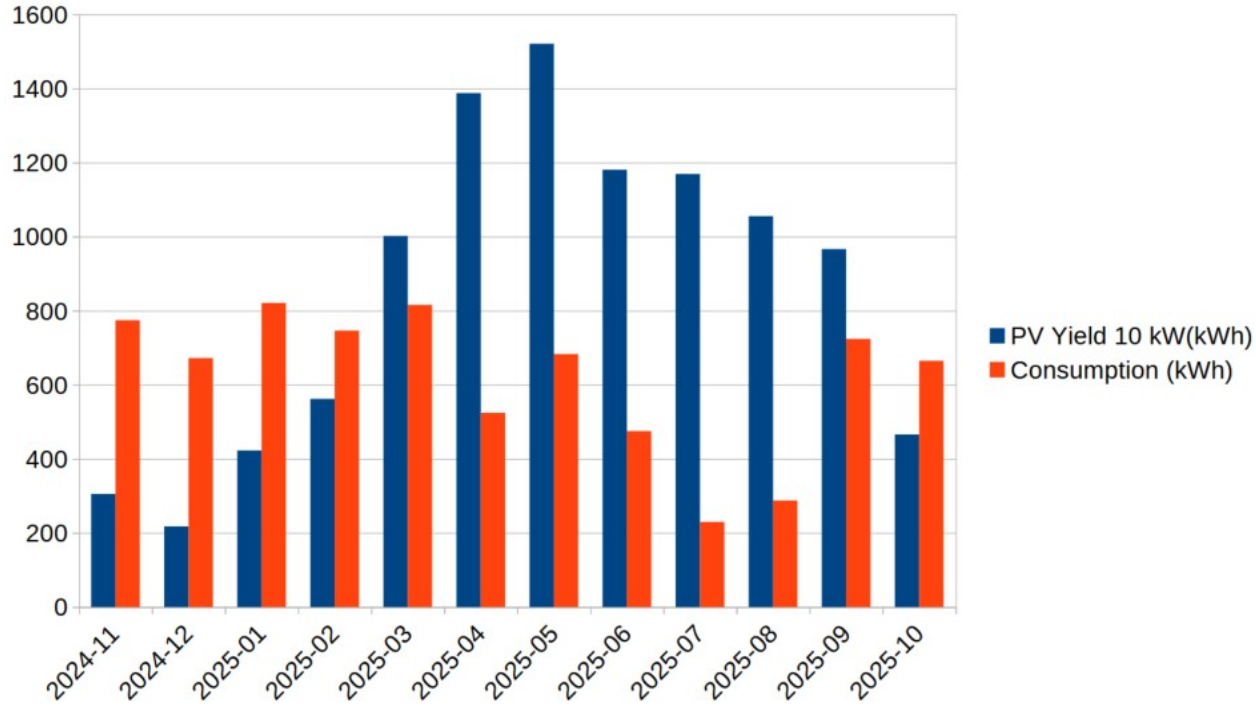


Figure 4: Projected usage and production with a 10 kW Solar PV system

4.2 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 4 kW + 20 kWh battery	4,604	Electricity - imported	€1,203	1.49	€5,600	4.7	Microgeneration scheme	* Assuming a cost of €8k ex. Vat for a 4 kW system + 10kWh of batteries * Assuming an SEAI grant of €2400 * Assuming that 100% of current electricity usage is offset (saving ~30c/kWh)	* Request Quotes * Apply to SEAI
Pump the cavity on all walls	6,356	Oil - Fuel Oil	€625	1.74	€2,000	3.2	Communities grant	* Assuming a 25% saving of kWh required for heating * Assuming cost of €4k before grants * Assuming 50% funding available from Communities grant * This concerns the external walls of the rear classrooms and the connecting corridor	* Engage with a Project Coordinator
Improve attic insulation an airtightness over two classrooms	3,813	Oil - Fuel Oil	€375	1.04	€2,000	5.3	Communities grant	* Assuming a 15% saving of kWh required for heating * Assuming cost of €4k before grants * Assuming 50% funding available from Communities grant * Only the two rear classrooms are to be done	* Engage with a Project Coordinator
Replace all 58W lightbulbs in classrooms	388	Electricity - imported	€116	0.13	€129	1.1	Communities grant	* Assuming all 58W tubes are replaced by 32W tubes * Assuming usage of an average of 4 hours per day * Assuming there are 20 tubes in total in the school * Assuming 50% funding available from Communities grant * Assuming a cost of €12.93 for replacement tubes	* Engage with a Project Coordinator
Multiple air-to-air heatpumps for classrooms	11,440	Oil - Fuel Oil	€1,125	3.13	€9,000	8.0	Communities grant	* Assuming all other fabric improvements have been carried out, reducing the heating requirement by 55% * Assuming cost of €18k before grants * Assuming 50% funding available from Communities grant * All four classrooms to be done with a spar of one to the staffroom	* Engage with a Project Coordinator
Replace all external doors and windows dating from 1994	3,813	Oil - Fuel Oil	€375	1.04	€10,000	26.7	Communities grant	* Assuming a 15% saving of kWh required for heating * Assuming cost of €20k before grants * Assuming 50% funding available from Communities grant	* Engage with a Project Coordinator

Table 6: Recommended Actions

Appendix A – Site tour checklist

The table below shows which areas of your site the auditor checked on during the site visit.

	Yes / No / NA	Comments
Physical Condition of Building(s)	YES	Relatively good overall condition considering the age
In considering the agesulation of Walls, Roofs	YES	Actions required in attics, cavity walls
Windows and external doors	YES	All windows/doors from 1994 to be replaced.
Space Heating	YES	Oil boiler in relatively good condition
Water Heating	YES	Instant undersink heaters
Heating Controls	YES	Good heating controls, zoned and programmable
ICT & office equipment	YES	Minimal office equipment
Ventilation & Air Conditioning	YES	None
Lighting	YES	58W bulbs in all classrooms. Can be replaced by 32W with same lighting equivalent
Refrigeration & Cooling	N/A	
Compressed air	N/A	
Pumps	N/A	
Industrial processes	N/A	
Transport	N/A	
Evidence of Energy Awareness (posters etc.)	N/A	

Appendix B – Benchmarking

The table below provides a benchmark of your organisation performance against a range of energy performance metrics, with scores against each for your current and potential. The “potential” score is based on implementation of all the recommendations identified in this report.

Table 7: Overall benchmarking

	★ Very Poor	★★ Poor	★★★ Satisfactory	★★★★ Good	★★★★★ Excellent	Current
1. Energy Management	0 - 5	6 - 10	11 - 15	16 - 20	21 +	★
2. Building fabric for areas with space heating	Uninsulated, single glazing Typical of BER F-G	No or partial insulation, single or poor double glazing Typical of BER D-E	Minimal insulation and double glazing Typical of BER C-D	High levels of insulation and high performing glazing Typical of BER B	NZEB equivalent building fabric Typical of BER A-B	★★
3. Building services for areas with space heating	Low efficiency heating with minimal controls Very low efficiency lighting (T8s, T12s or incandescent) Typical of BER F-G	10+ year old oil or gas heating Low efficiency lighting (T5s or T8s) Typical of BER D-E	Modern <10 year old oil or gas heating with good heating controls/BEMs Efficient lighting (LEDs or high efficiency T5s) Typical of BER C-D	New <5 year old condensing heating with modern controls and zoning High efficiency lighting (LEDs) Typical of BER B	Significant (>60%) space heating supplied by renewable heat with advanced heating controls High efficiency lighting (LEDs) with controls Typical of BER A-B	★★
4. Significant energy using equipment for manufacturing, processing, production etc.	Low efficiency, older equipment Heavy dependence on fossil fuels in production Evidence of poor operational control and energy wastage	Some lower efficiency equipment in use Medium dependence on fossil fuels	Modern, but not best in class equipment Some dependence on fossil fuels	Modern, best in class equipment Strong use of monitoring and automation Minor dependence on fossil fuels	Modern, best in class, equipment Heavy use of advanced monitoring, automation and energy saving techniques Minimal dependence on fossil fuels	★
5. Control and monitoring For manufacturing, processing, production etc.	No evidence of control or monitoring of equipment	Minimal control or optimisation at a local, but not centralised, level	Good level of control and optimisation in place, ideally centralised Minimal level of data analytics and performance indicators such as weekly reports	Centralised control and optimisation Good level of data analytics and performance indicators	Modern, best in class, centralised monitoring and control Heavy use of data analytics and performance indicators	★

Appendix C – Energy Management matrix

The matrix below shows you how to interpret your Energy Management score. The Scores run from 0 to 4, where 4 is the best. Your facility was assessed according to the 6 aspects of energy management listed across the top. Use this matrix to see what you need to do to improve your Energy Management score.

	Energy management: Definitions of scores					
	Energy Policy	Organising	Communication	Information Systems	Marketing	Investment
4	Top management are actively committed to energy policy, action plan and regular review.	Energy management fully integrated into management structure.	Formal and informal channels of communication regularly at all levels in the organisation.	Comprehensive system sets targets, monitors consumption, identifies faults and quantifies savings.	Routine marketing of the value of energy efficiency and CO2 reduction internally and externally	Positive discrimination towards 'green' schemes; detailed appraisal, inc. energy, of all investment opportunities.
3	No active commitment from top management, but formal energy policy in place	Energy committee representing all users in place, chaired by a member of the managing board.	Energy committee used as main communication channel with direct contact with major users.	Routine M&T reports for individual users based on sub-metering.	Programme of staff awareness and regular publicity campaigns.	Same pay back criteria employed as for all other investment.
2	Energy manager or senior departmental manager have set an un-adopted energy policy.	Energy manager in post, reporting to ad-hoc committee	Contact with major users takes place through ad-hoc committee.	Monitoring and targeting reports based on supply meter data. Energy unit has ad-hoc involvement in budget setting	Some ad-hoc staff awareness training.	Investment using short-term payback criteria only.
1	An unwritten set of guidelines	Energy management is a part-time responsibility along with other responsibilities	Informal energy communication contacts between a few users.	Cost reporting based on invoice data for internal use within technical department.	Informal contacts used to promote energy efficiency.	Only low cost measures taken.
0	No explicit policy	No energy management or delegation of responsibility for energy consumption	No contact with users.	No information system. No accounting for energy consumption.	No promotion of energy efficiency.	No investment in increasing energy efficiency in premises.

Appendix D – Renewable Heat Assessment

	Result	Comments
Is the client using fossil fuel for heating purposes?	N	
Suitability for heat pump		
Could a heat pump offer an alternative? e.g. does the facility have a steady low/medium heating requirement?	Yes	The school has a relatively low heating requirement cinsidering the size of the building and the given usage patterns
o If yes for space heating: Is it likely that the building will achieve the required U values for a heat pump to operate effectively?	Yes	If the recommended actions for the cavity, attic and windows are carrie dout, then it would be suitable.
o If yes for space heating: What fabric and ventilation upgrades may be required? If "Other" please specify in Comments	Roof insulation	Attic / Cavity / Doors / Windows
Rank heat pump readiness for space heating: 1 – major upgrades required to all/most building elements, 2- major upgrades required to one building element, 3 – minor upgrades required to all/most building elements, 4 – minor upgrade required to one building element, 5 – heat pump ready	3	See above
o If yes for process heating: Is it likely that a heat pump could deliver the heat requirement?	N/A	N/A
Estimate of emissions reduction for heat pump conversion	N/A	N/A

Table 8: Renewable Heat Assessment

Suitability for biomass		
Could biomass/biogas offer an alternative? i.e. does the facility have high peak loads?	N	The labour requirements and occupation rate render this unattractive for the hall
o If yes, are there any space constraints, e.g. for the boiler/CHP unit, and the delivery and/or storage of fuel? If "other" please specify in comments	Y	No storage area available
o If yes, are there any local supply of waste biomass or local biomass enterprises that can provide fuel stock? Please specify in comments	N	
o If yes, are there dedicated maintenance personnel on site?	N	

Table 9: Suitability for biomass

Appendix E – Solar photovoltaic assessment

Suitability for solar PV	Result	Comments
Does the client use electricity from non-renewable sources?	Yes	Normal supply from national grid
Does the client appear to have a suitable roof for the installation of solar photovoltaic panels? Consider size, tilt angle, orientation and shading.	Yes	The south facing roof would be suitable for at least another 4 kW Solar PV system
If the roof is not suitable, is there an alternative location available?	N/A	See above
If solar PV is feasible, what is the client's estimated required power output?	10 kWp	This will give an annual output of ~9 MWh which would cover the entire energy requirement of the school (electricity and heating)
Estimate the proportion of the client's electricity requirements that could be met through installing solar PV	> 100%	The system would cover the entire electricity need and would also cover a medium term switch from oil heating to an air-to-air heatpump

Appendix F – 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 (MIC)	The upper limit on the total electrical demand that a consumer can place on the network system.
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.

Appendix G – Completion of Works form

A. Audit Details

Business/Organisation Name	
Applicant SSEA ID	
Facility MPRN	
Facility Address	
Facility Eircode	

B. Auditor declaration

By signing this Completion of Works, the undersigned states that:

- The Energy Audit carried out at the above Facility Address has been delivered according to the SSEA Terms and Conditions and SSEA Guidance for Auditors.
- The information provided in this Energy Audit is true and correct to the best of my knowledge.

Signed	
Date	
Name	
Date SSEA site visit was carried out	
Total cost of this SSEA Energy Audit, including the Voucher	

C. Applicant declaration:

By signing this Completion of Works, the undersigned states on behalf of the Business/Organisation named above that:

- A visit to the above Facility Address was carried on the date referred to in Section B by the Auditor referred to in Section B for the purpose of completing an energy audit,
- I have received a copy of the SSEA Report from the Auditor,
- I understand the Report's findings, and
- I am satisfied with the site visit and with the quality of the Energy Audit Report

Signed	
Date	
Name	
Title/Position in Business/Organisation*	

* Must be signed by a Director or Senior Manager (or equivalent level) of the business/ organisation referenced below.

NOTE: This Completion of Works form should be returned with all other completed documents relating to this application. If any form is incomplete or missing, then the request for payment will be returned.

Notice for Applicants

Applicants please note:

This document was prepared by a Registered Energy Auditor and recommends practical ways that you can improve the energy performance of your business, using information gathered from an assessment of your business's current energy performance. Please seek professional advice before undertaking any energy upgrade works.

Sustainable Energy Authority of Ireland

SEAI is Ireland's national energy authority investing in, and delivering, appropriate, effective, and sustainable solutions to help Ireland's transition to a clean energy future. We work with the public, businesses, communities, and the Government to achieve this, through expertise, funding, educational programmes, policy advice, research and the development of new technologies.

SEAI is funded by the Government of Ireland through the Department Environment, Climate and Communications.

w: www.seai.ie
e: info@seai.ie
t: 01 8082100

Rialtas na hÉireann
Government of Ireland