seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Energy Efficiency Guide For Retailers

Your guide to strengthening your business, saving money, and enhancing your brand through energy efficiency.

Table of Contents

Introduction

Who is this guide for?

This guide is for Irish retailers and aims to introduce simple and effective energy-related advice to help you use and manage energy more efficiently.

The guidance outlined will help your retail business start its energy efficiency journey and point you towards SEAI resources to help ensure successful long-term energy management practices.

Over the coming years, Ireland must use less energy, move to clean energy, and innovate to create new solutions to meet our energy needs. There is significant potential for retailers to influence and benefit from Ireland's sustainable energy future.

Ireland has committed to achieving net-zero greenhouse gas emissions by 2050. With energy costs expected to continue to rise, there are significant benefits to applying energy efficiency initiatives across your stores, distribution centres, and transport.

Reducing your business energy use through energy efficiency can help:

- Potentially save up to 10% off your energy bills with no or low-cost actions, making you more resilient to rising energy costs;
- Reduce your business carbon footprint and environmental impact;
- Improve your reputation as a sustainable business taking genuine steps to reduce your climate impact.

Useful definitions

- Energy efficiency is using less energy to achieve the same output, without affecting quality.
- Renewable energy is energy that is produced from a clean, or natural source which is not depleted, such as solar or wind energy. Always optimise energy efficiency before considering renewable energy options; you can still waste energy even if it is from a renewable source.
- Energy management is the process of monitoring, controlling and reducing energy in your store or premises. It ams to achieve your business objectives with minimum energy cost, through improved energy performance.

Please note: Within this guide we mention energy savings that businesses may achieve. Actual percentage savings will depend on various factors including; efficiency of existing equipment, specification of replacement equipment, relative costs of associated fuels, and general properties of the fabric of the building.

Throughout this guide we've provided you with links to supports that can help you with your energy efficiency journey. These supports include education, training, and grant supports. For more information on all SEAI supports visit www.seai.ie

Getting started

Starting out on your energy efficiency journey, it is critical to get organised and identify when and where energy is used in your business. Start with assessing your current energy management situation and writing the business case for energy management within your store. Below are a few starter questions to consider when starting on your journey.

Review your energy management situation by answering the following questions:

- Has an energy coordinator been appointed in your store to manage energy?
- Have you identified significant energy users?
- Do you have an energy action plan?
- Have you identified factors that may be influencing energy consumption?
- Do you have an energy statement, which outlines your commitment to energy savings, energy efficiency and increasing staff awareness?
- Are your employee's energy aware?

Creating the business case for energy management

LESS WASTE = MORE PROFIT

Typically, 10% savings can be made on energy costs with little or no capital cost. Looking at energy from a financial perspective will help you to determine what resources should be allocated to energy reduction programmes. The energy you don't use is the cheapest. Create your business case for energy management by calculating the % increase in profits by decreasing energy costs by 10%. Use the following table as guidance to calculate this:

Energy Management Financial Indicators	
Store operating costs (€/yr)	€315,000
Store energy costs (€/yr)	€10,579
Energy as a % of total costs	3.36%
Annual profits (€)	€28,900
Energy as a % of profits	37%
% Increase in profits by decreasing energy costs by 10%	4%

Make a Commitment

Once you've reviewed your current energy management situation and considered the business case for energy management, it's important to make a commitment to reduce your energy use. This can be done by writing an energy statement and appointing a dedicated energy coordinator.

Write an Energy Statement

An energy statement details your commitment to dealing with energy including energy efficiency and increasing awareness of sustainable energy use behaviours amongst staff. Share your energy statement with staff, making them aware of your goals and targets.

The energy statement should briefly outline:

- Your overall energy objectives;
- Your store's energy reduction targets;
- How you hope to achieve your energy targets.

Appoint an Energy Coordinator

Consider appointing an Energy Coordinator to monitor and manage energy use. Energy Coordinators are responsible for identifying where energy savings can be made, creating a plan of energy saving actions, monitoring and tracking progress against energy reduction targets, and communicating with staff on energy related matters.

The Energy Coordinator can use the staff engagement advice support tools provided on the next page to help encourage a culture of sustainable energy use.

When writing your energy statement, why not calculate your store's carbon footprint? Check out the Climate Toolkit 4 Business developed by the Government of Ireland.

Your Energy Coordinator can upskill in energy-related topics through the SEAI Energy Academy. The Leading Sustainable Change for Decarbonisation course can help them learn the essential skills needed to lead your store on its energy efficiency and decarbonisation journey.

Staff Engagement

Raising awareness and encouraging staff to participate in sustainable behavioural change has been shown to reduce energy bills by up to 5%.

Your energy coordinator may be responsible for a successful energy management programme, but one person alone cannot drive an effective energy efficiency campaign. All management and staff need to be on board to achieve success.

Some ideas to start changing the energy use culture within your store:

- Provide staff access to training on sustainable energy use and energy efficiency.
- Engage staff by asking them where they think energy could be saved.
- Keep staff up-to-date and part of the conversation on energy use reduction plans and progress.
- Label switches making it clear to staff what can be turned off when not in use.
- Stick posters up reminding staff of the importance of being proactive and mindful of their energy use.
- Run an energy saving competition encouraging staff to reduce their energy use.

The SEAI Energy Academy helps to encourage sustainable energy use behaviours by motivating staff and increasing knowledge of energy efficiency within the workplace. Consider encouraging enrolment in this platform as part of a sustainability initiative.

Take the module on **Behavioural Change** to learn more about best practice in encouraging sustainable energy use behaviours and running energy saving competitions.

Download the SEAI Energy Saving Stickers which you can print and use to encourage colleagues to switch off lights and other equipment when not in use.

Download the SEAI Energy Awareness Poster and place it in a shared space within your store to raise awareness of sustainable energy use behaviours.

Significant Energy Users

No two retail stores are alike and energy consumption of individual retail stores will vary depending on energy needs and equipment. For example, food retailers will use a significant proportion of their energy on refrigeration, while non-food retailers will use a significant proportion of their energy on lighting.

Understanding your patterns of energy use and significant energy users will help you:

- Identify when and where energy is being used.
- Identify where you can make improvements to increase your energy efficiency.

Things to look out for on your bills:

- How many night units are you using?
- Is there something unusual about a bill that cannot be explained, e.g. high gas use during summertime?
- Do you have penalties or charges on your bill?
- Are there any unusual trends in your energy usage?
- Can you reduce the amount of excess wattless units for which you are being charged? Talk to your supplier about your options.

Your energy coordinator should start monitoring and tracking your meter readings and energy bills.

Identify Your Significant Energy Users

STEP 1

How much and when is your energy being used?

Your energy bills are the quickest and easiest way of determining your energy use. Your energy supplier may be able to provide data on your energy usage and demand consumption patterns. They may be able to tell you your average energy spend per year, trends in usage (including peaks and lows) and will highlight seasonal variations in energy use.

Sample energy tracker:

Billing Period	Quality Billed (units)	Total Cost €
28/01 - 28/03	53,416	9,721.71
28/03 - 28/05	52,653	9,582.85

If you want to learn more about how to read your energy bills, take the SEAI Energy Academy module on **Electricity Bill Analysis** and **Gas and Oil Bill Analysis.**

If you want assistance with identifying your energy usage, significant energy users, and actions you can take to save energy get an energy audit. **SEAI** Support Scheme for Energy Audits offers SMEs who spend more than €10,000 per annum on energy a voucher of €2,000 towards an energy audit.

STEP 2
Where is your energy being used?

Identifying your significant energy users will help you find areas where you can make savings. You may also find inconsistencies between the amount of energy you are billed for (as in Step 1) and the amount of energy that you expect to use from your equipment and significant energy users (Step 2). These inconsistencies should be investigated because your business may be wasting energy, or using it inefficiently.

Follow these steps to identify your significant energy users:

1. Make a list of all energy using equipment.
2. Identify the hours per day or week that they are switched on and running.
3. Find the energy rating of each item, this is listed on the nameplate or label of the appliance or equipment e.g. on the bottom on a kettle "2700W" means 2.7kW.
4. Calculate how much energy each uses (per day/week) by multiplying the hours running x energy rating (this gives you the kWh).
5. Once you have calculated the kWh you can calculate the running cost of these items by multiplying the kWh by your unit cost of electricity.
6. Rank in order from largest to smallest energy user, those consuming the most energy are your significant energy users.
7. You can potentially achieve the biggest energy savings by acting on the significant energy users identified for your store.

Note: Equipment can operate below their energy rating. This calculation provides you with an estimate of the amount of energy used.

Check your retail store for the following energy users:

- Space heating
- Water heating
- Cold storage or cold rooms
- Signage
- Display refrigeration units
- Air-curtains
- Display lighting
- Refrigeration system
- Mechanical ventilation
- Background lighting
- Air-conditioning system
- Waste compactors

Sample calculator for significant energy users:

Location	Equipment	Hours Running	Energy Rating (kW)	Energy Used (24 hours)	Running Cost €
Storage Area	Air-conditioner Unit	12	1	1 x 12 = 12 kWh	12kWh per day or 84kWh per week @25c/ kWh = €21/ week

Creating an Energy Action Plan and Maintenance Checklist

You've now started to track your energy use and identified your significant energy users. The next step is to create an energy action plan and embed it in your business. The purpose of this plan is to identify actions, set targets to aspire to, assign responsibilities against actions and review them regularly.

Sample Energy Action Plan:

Target	Priority	Person Responsible	Expected Result	Target Date	Achieved?
Service and maintenance for AC unit	High	Maintenance Technicians	Decrease in energy consumption	Every 6 months	Yes

Establish a maintenance programme for your retail store to ensure that equipment and processes on-site are in good working order and operating at optimum energy efficiency. Link this to activities in your energy action plan.

Sample maintenance checklist:

Area / Equipment	Task	Check Frequency	Person Responsible	Training Required	Completed
Lighting	Are all switches labelled?	Annually	Energy coordinator	No	√

The following pages detail the top energy saving opportunities and associated maintenance checklists for retail stores.

Interested in learning how to write an energy action plan?

Register for SEAI Introduction to Energy Management: Creating an Energy Action Plan Training or download the **SEAI** Energy Management Guide and Workbook which provides with you templates to create your own.

Top Energy Saving Opportunities

Heating, Cooling and Ventilation

Overview of Heating, Cooling and Ventilation Energy Efficiency

CONVECTOR UNIT

Convection heating is often used where it is too costly to install central heating systems.

They are often used in warehouses or to provide top-up heating to areas.

They are the least energy efficient sources of heating.

ELECTRIC STORAGE HEATER

Electric storage heaters should be used in line with the user manual to ensure energy efficiency.

As these heaters consume electricity at night, a night rate electricity tariff should be active with your supplier to avail of cheaper electricity rates.

If installed over 10 years ago, it is likely to use a high level of energy.

FOSSIL FUEL BOILERS

Replacing your oil boiler with a heat pump can save up to 20% on your heating bills.

Get your boiler serviced annually to ensure it operates at optimum energy efficiency.

HEAT PUMP

Heat pumps are more efficient than oil, gas, solid fuel, and electric heating systems.

You can install air, ground, and water source heat pumps.

Least efficient — Most efficient

Myth buster

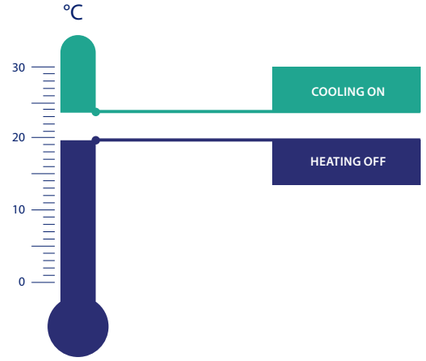
Turning the temperature up high on your thermostat does not warm the room up quicker! Turning it down 2 °C would save around €160 on a €1,000 bill.

Top energy saving opportunities:

1. 30% of heating costs of a building can be saved by preventing cold air entering. Seal up draughts on unused doors and flues and avoid operating extract fans where not required.
2. Do not prop open doors for convenience when HVAC is on and encourage staff to request that the thermostat is turned down before opening doors or windows.
3. Replacing your oil boiler with a heat pump can save up to 20% on your heating bill.

Maintenance checklist:

- Make sure timers are set to the right date and time. Variations in working hours on weekends and Bank Holidays should be considered when setting controls.
- Check in-store heating set to turn off at 19°C and cooling set to turn on at 24°C or higher.
- Check the heating is set lower than 19°C in corridors, storerooms and areas of higher physical activity. Turn off heating in vacant spaces.



Take the SEAI Energy Academy modules **Introduction to Heat Pumps** and **Heating Energy Efficiency** to learn more.

SEAI Support Scheme for Renewable Heat (SSRH) offers financial supports to businesses moving away from fossil fuel systems to renewable alternatives.

Refrigeration

Overview of Refrigeration Energy Efficiency

OPEN CASE

GLASS DOOR

COLD ROOM STORAGE

Least efficient — Most efficient

Open Case Cabinets are frequently used in retail to allow customers easy access to products. These generally operative poorly in terms of energy efficiency mainly due to the "cooled area" being in contact with the ambient temperature of its surroundings.

Glass Door Refrigeration Systems are considered more energy efficient than open case cabinets. This is mainly due to the vastly reduced air leakage in comparison to open case cabinets.

Cold Room Storage outperforms both open case and glass door refrigeration systems in terms of energy efficiency. In retail cold room storage systems are generally not suitable on the shop floor, but are used for back room storage.

Energy Saving Options:

Draughts can increase energy use by up to 95%. Make sure night blankets and curtains are used and well maintained.

Old or worn door seals should be replaced to prevent warm air from entering display cabinets.

Old or worn door seals should be replaced to prevent warm air from entering cold room storage systems.

Retrofit your open case cabinets with glass or solid doors to significantly reduce their air leakage and energy consumption.

Sliding doors can be left open by customers (consider doors that close automatically).

Fit strip or air curtains in cold stores that need to be open for longer periods during loading/ unloading.

Lexan films placed on the inner glass door can prevent condensation and reduce the need for anti-sweat systems.

Top energy saving actions:

Installation:

1. Relocate refrigeration units if they are close to direct heat and draughts.
2. Refrigeration units should have sufficient space around it to allow for circulation and heat dispersal.
3. Check that variable speed drives (VSDs) are installed to reduce energy consumption of evaporators, fans, and compressors. VSDs vary the motor speed, using less energy to meet the requirements.

Operation:

1. Avoid overfilling refrigeration units so cooling air can circulate correctly.
2. Lights inside cooled spaces should be switched off when not in use and refrigerator lights should be switched off at end of day.
3. Defrost freezers regularly to ensure the defrost system is working correctly and to avoid ice build-up.

Maintenance checklist:

- Check and clean door seals weekly and repair when needed. This will help prevent warm air from entering display cabinets and cold stores.
- Check for refrigerant leaks. When refrigerant levels drop energy consumption increases.
- Check that condensers and evaporators are vacuumed and kept clean and free of litter which can affect the ability to expel hot air.
- Check the calibration temperature monthly, making sure stock is only cooled to the temperature you need.
- Have all refrigeration equipment serviced regularly. If you hear unusual noises from the system have them checked out to ensure it is still running properly.
- Install a 7 day timer set to match opening hours for fridges/vending machines that contain non perishable items.

Myth buster

Fitting transparent panels to retail refrigeration display cabinets has been shown to cause no noticeable loss of sales and means a warmer and more comfortable shopping environment.

Take the SEAI Energy Academy **Refrigeration Energy Efficiency** module to learn more about the basics of energy efficient refrigeration systems. For more technical advice read the SEAI Guide to Energy Efficient and Cost Effective Refrigeration.

Check out **Revenue's** Accelerated Capital Allowance Scheme which is a tax incentive encouraging the investment in energy saving technologies if you are interested in purchasing more energy efficient refrigeration systems.

Lighting

Overview of Lighting Energy Efficiency

DESIGN REQUIREMENTS
Aim to maximise the effectiveness of light e.g. correct light levels, colour, positioning and regulatory compliance.

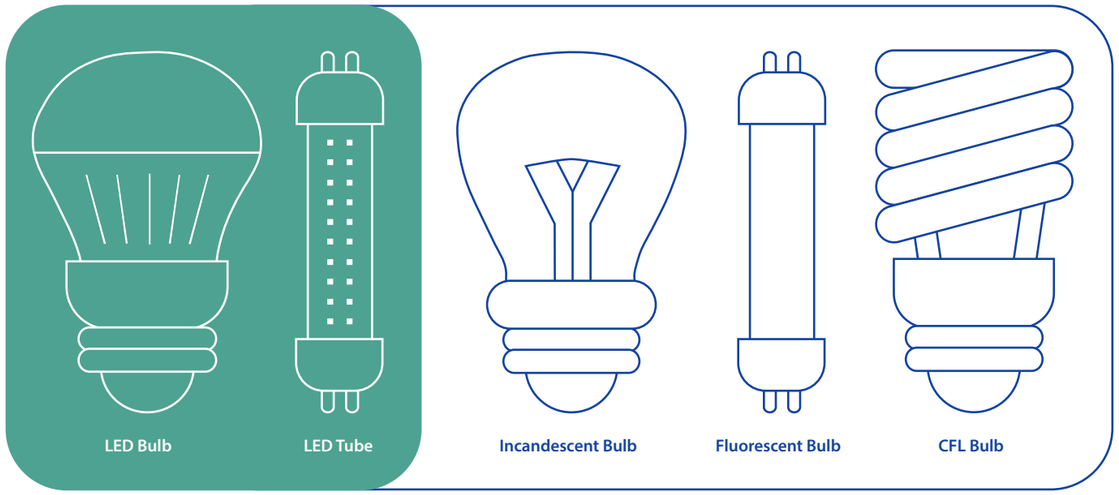
MAINTENANCES REQUIREMENTS
The lower the maintenance required, the better.

Energy Efficient Lighting Requirements

ENERGY REQUIREMENTS
Aim for the lowest energy consumption while maintaining required lumen output.

CONTROL REQUIREMENTS
Aim for the effective controls e.g. presence and/or daylight sensing.

Below are examples of the diverse types of lighting currently used in retail stores



Did you know?
Lighting sensors can reduce your lighting energy use by 30%!

Top energy saving actions

1. Retail is about sales, illuminate what you want to sell. Reposition shelving to make the most of existing light fittings so they illuminate stock.
2. Maximise the use of daylight and consider installing daylight sensors in areas that use both natural and artificial light. These can automate lights to turn off or dim to account for changing levels of daylight in the room.
3. Replace failed light bulbs with LEDs. Select the lowest wattage bulb needed to light the stock or area and considering the size and how much natural light the space receives.
4. Review lighting switches – is there just one switch for all lights? Consider splitting them up with more switches and or basic controls so you have more control over individual areas of the business.
5. Consider motion sensors for infrequently used areas such as storerooms, toilets, and corridors to prevent lights being left on unnecessarily.

Maintenance checklist

- Minimise lighting in non-working areas such as corridors. This can be done by removing tubes from multi-tube fittings, but don't go too far – make sure you maintain safe lighting levels for work.
- Check security and outdoor lighting which can be high-powered and energy intensive. Make sure timer and daylight sensor controls are set accurately.
- Clean light fittings at least once a year to improve lighting without increasing energy use.
- Consider putting labels on switches which should be turned off when an area is unoccupied.

Take the SEAI Energy Academy **Lighting Design** and **Lighting Energy Efficiency** modules to learn more.

Download the SEAI Energy Efficient LED Lighting Guide for guidance on how to deliver a successful energy efficient LED lighting project.

Download the SEAI Energy Saving Stickers which you can print and use to encourage colleagues to switch off lights and other equipment when not in use.

Transport and Deliveries

In addition to the general transport of goods, many retailers offer a delivery service. To improve your transportation energy efficiency and CO2 emissions, consider implementing the Avoid, Shift, and Improve approach.

Eco-driving: Avoid, Shift, and Improve

Avoid emissions

1. Do not send your van out half full, fill it to make the journey as efficient as possible helping you to reduce the number of trips.
2. Replace boxes with bags where possible or re-useable transit packaging (RTPs). These can be flattened when not in use, freeing up space for additional items.
3. Avoid idling and turn off the engine when not moving.

Shift mode of transport

1. Consider purchasing an electric vehicle for transport and deliveries or even replacing your van with a cargo bike.
2. You can also consider using a local delivery service that uses electric and zero emissions vehicles for local deliveries.

Improve performance

1. Anticipate traffic flow: Look ahead as far as possible and anticipate surrounding traffic.
2. Maintain a steady speed and drive smoothly, harsh acceleration and braking can use up to 30% more fuel
3. Shift up a gear between 1,300 (diesel) and 1,800 (petrol) RPM and avoid over-revving the engine.
4. Check tyre pressures frequently and keep them inflated to the correct pressure.
5. Remove any unnecessary extra weight. Remove roof racks/boxes, air-conditioning units or other unnecessary equipment.

Take the SEAI Energy Academy module **"Eco-Driving"** to learn more about eco-driving techniques that can save you energy.

Switching to Renewable

Solar Photovoltaic (PV)

Solar PV uses the photovoltaic effect to harness and convert solar radiation into energy. When light from the sun is directed onto a solar PV cell, it generates electricity.

Solar PV systems are one of the cheapest ways to generate electricity and provide a sustainable and clean source of energy for businesses.

Always reduce your energy consumption first before considering renewable energy technologies.
You can still waste energy even when energy is coming from a renewable source.

Assess your site for Solar PV

- The orientation of the roof will need to be assessed in relation to the path of the sun and to check for any shading from trees or other structures like buildings.
- The pitch of the roof will be assessed for suitability for solar panels. The angle of the panel, like the orientation, impacts its performance. Solar PV panels can be installed on flat roofs and the ground, but additional ballasts may be required to counter high winds.
- The structural integrity of the roof and its suitability for installing panels based on the load of the system and other factors such as local wind loads need to be considered. A structural engineer should be engaged to review prior to installation.
- The roof area will be measured to calculate how many panels can be installed.
- Check how much electricity you could generate and compare this to your annual energy use to ensure your installation is worthwhile.

What can you do with excess electricity?

- Following the creation of the Microgeneration Support Scheme (MSS), all those with PV installations can export excess electricity back to the grid. The rate, which is called the Clean Export Guarantee (CEG) will be set and paid by your individual energy supplier.
- Where your usage matches that of the PV system output but does not align in terms of timing you can consider installing on-site battery storage to store excess electricity generated, allowing it to be consumed when required.
- Excess electricity can also charge electric vehicles and heat hot water through a hot water immersion diverter.

Please refer to the Government of Ireland website for further the details of the **Microgeneration Support Scheme (MSS)**.

SEAI Non-Domestic Microgen Scheme provides a grant of up to €2,400 for up to a max system size of 6kWp (Approx. 16 Panels or 25m2). Please refer to the SEAI website to for more information.

For more information on Solar PV check out the SEAI Best Practice Guide Solar PV for Business.

SEAI Business Grants and Supports

Education and Training Supports

Climate Toolkit 4 Business	Developed by the Government of Ireland, this toolkit provides a clear and accessible starting point for any business, signposting them to useful climate action resources.
SEAI Energy Academy	The SEAI Energy Academy is a free online training resource. It can help to lower energy bills by educating businesses and employees on changing energy use behaviours. It is an ideal platform for all members of your business to upskill on energy efficiency and a great way of engaging staff.
SEAI Introduction to Energy Management: Creating an Energy Action Plan Training	This workshop-based training is hosted by Ireland's leading energy experts and will take you through the six steps to creating an energy action plan which will help you implement energy management practices in your business.

Financial Supports

Support Scheme for Energy Audits	SEAI's Support Scheme for Energy Audits offers SMEs a €2,000 voucher towards the cost of a high-quality energy audit.
Non-Domestic Microgen Scheme	SEAI provides a grant of up to €2,400 for the installation of solar panels of up to a max. system size of 6kWp (Approx. 16 Panels or 25m2). This grant is open for applications from end of September 2022. Please refer to the SEAI website to for more information.
Support Scheme for Renewable Heat (SSRH)	The Support Scheme for Renewable Heat is designed to assist businesses in replacing fossil fuel heating with renewable alternatives: either a heat pump or a biomass/biogas boiler.
Excellence in Energy Efficient Design (EXEED) Grant Scheme	This scheme is for companies planning a major investment and planning in an energy efficient design project. It includes grant funding for project planning and design along with implementation of upgrades.
Energy Efficiency Obligation Scheme (EEOS)	The largest energy companies in Ireland are obligated to achieve energy savings targets every year. They do this by supporting energy efficiency projects in businesses and homes. Businesses can contact any supplier directly to query about support for their project.
Energy Contracting	Energy Contracting is a 'pay for performance' approach to installing and operating energy technologies in your business. The option you choose influences the level of energy and cost savings guaranteed.
Electric Vehicles Grants	SEAI provides support towards the cost of purchase of Light Commercial Vehicles (LCV).
Community Grant Scheme	Grant funding is available to community oriented (grouped) applications. A community is a collection of different organisations, households, and facilities in an area applying for upgrades together with one central Project Coordinator.
Accelerated Capital Allowance Scheme	Accelerated Capital Allowance is a tax incentive scheme for energy efficient equipment. It allows a sole trader, farmer or company to deduct the full cost of the equipment from their profits in the year of purchase. Equipment under the scheme is listed on the Triple E Register.

SUSTAINABLE ENERGY AUTHORITY OF IRELAND

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