



Climate Action Programme 2024
9th July
Buildings Energy



WELCOME



Housekeeping

- Auto-captioning
- Chat and Q&A functions
- Webinar feedback
- Recording and slides available post webinar on Arts Council climate action webpage

<https://www.artscouncil.ie/Arts-in-Ireland/Climate-action/Arts-Council-resources-and-supports/>





Climate Action Programme 2024

9th July

Buildings Energy

Julie's Bicycle EU



Julie's Bicycle
CREATIVE • CLIMATE • ACTION





Our team today

Catriona Fallon



Noreen Lucey



Brecken Byron



Training webinars

4 June 11am-12pm
Policy development I
Getting Started

11 June 11am-12pm
Policy development II
Getting People on Board

18 June 10-11am
Developing Action Plans
Public-facing buildings
+ bigger energy users

2 July 10-11am
Nature & Biodiversity

25 June 10-11am
Understanding &
Measuring Impacts

18 June 2-3pm
Developing Action Plans
Office-based organisations
+ production companies

9 July 10-11am
Buildings Energy

16 July 10-11am
Materials & Procurement

October 1st
Audience Travel

October 7th
Travel &
Transport

September +
October
Festival
Webinars



If you didn't join the previous sessions you can access the recordings and slides at:

<https://www.artscouncil.ie/Arts-in-Ireland/Climate-action/Arts-Council-resources-and-supports/>



The sessions so far should have given you an understanding of:

- What an environmental policy and action plan should cover
- What to focus on in your policy and plan
- How to go about developing them
- Who to involve in the process and how
- How to measure your impact

Webinar 1

Map out
your
activities

Webinar 2

Identify
related
impacts

Webinar 3 & 4

Map and
collaborate
with key
people /
groups

Decide
on
priorities

Webinar 5

Set
aims
and
agree
actions

Impact
Measur
ement



How many of the training webinars have you attended so far?

- 1
- 2
- 3
- 4
- 5



6.8% emissions reduction in 2023 a positive - EPA

Updated / Tuesday, 9 Jul 2024 06:36



This represented the largest ever single-year reduction and brought emissions to their lowest level for three decades



What is the focus of today's session?



Energy is an enormous topic...

Arts organisations within this group include:

- Big energy users
- Small energy users
- Those with control over their suppliers
- Those with access to their bills and data
- And those without control and without data
- Organisations who have undertaken a lot of work to measure, understand and reduce their energy usage and
- Organisations at the beginning of that journey



Which of these best describes your organisation?

- We are based in a large building with access to our energy bills and complete say in selecting our energy providers.
- We are based in a large building with no access to our energy bills and no say in selecting our energy providers.
- We are based in a shared building with access to our energy bills and complete say in selecting our energy providers.
- We are based in a shared building with no access to our energy bills and no say in selecting our energy providers.



What will we cover?

- Focus on building energy
- Understanding energy emissions
- Tips on reducing your energy usage -
Three step approach
- Other guides - Creative Carbon
Scotland, Julie's Bicycle, GAI
- SEAI - available funding and training
- Peer-to-Peer training proposal
- Review of training programme
- Q and A



What are the aims of this session?

- To give you a brief **context** as to how energy usage is contributing to climate change
- To give you a grasp of what the **Irish state's aims** are to reduce the greenhouse gases associated with energy creation.
- To make that **relevant** to you in your arts organisations
- To give you **tips** and **guidance** for both large and small organisations as to how you can use energy more efficiently, and reduce its carbon density
- To identify topics for future **peer-to-peer** exchanges on energy



We Use Energy In So Many Different Ways....

Land and Sea Freight



Road and Rail Travel



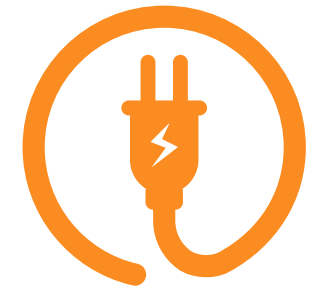
Air Travel & Freight



Heating homes and businesses



Creating electricity to power lighting, machinery and equipment



Concrete & Building



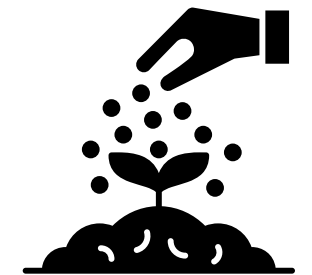
Industry



The goods we buy and consume



Fertiliser & pesticides for agriculture

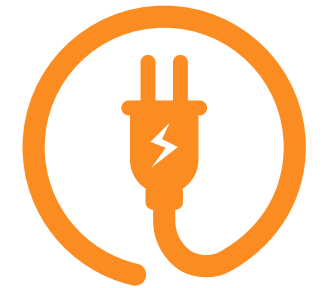


But we are going to focus on energy usage in buildings

Heating homes and businesses



Creating electricity to power lighting, machinery and equipments





Who is this session for?

Building Energy Users:

- Organisations paying their own energy bills (heating and electricity) with the power (!) to change supplier
- Organisations in shared buildings with limited access to energy bills and no power to select their supplier.
- Guidance both for beginners and those more advanced, for small energy users and larger energy users, for those with control over their energy and for those without.

Which of these best describes your organisation's access to building energy?

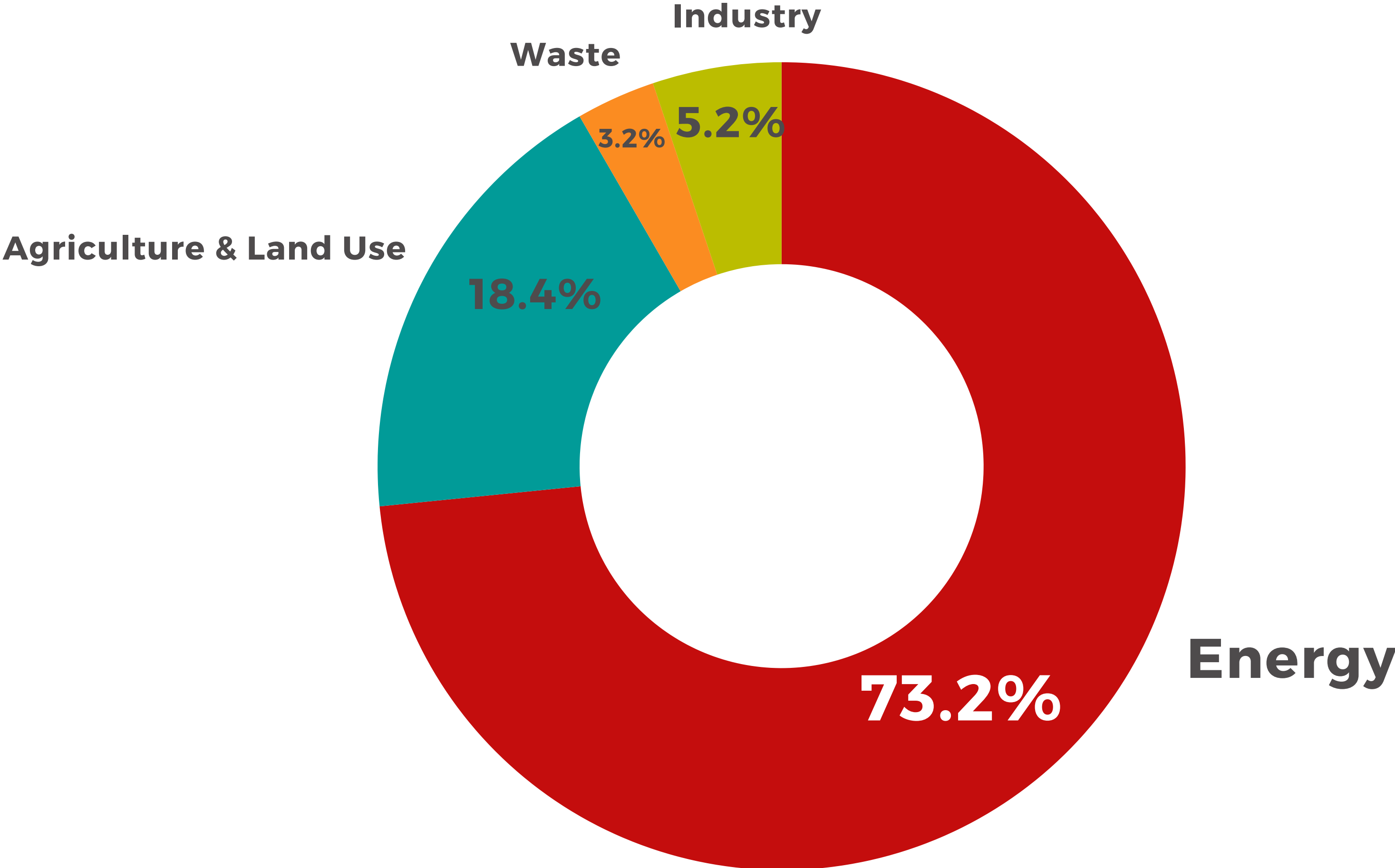
- We have been measuring our energy usage for a number of years and have a good understanding of it
- We have just started to measure our energy usage
- We have not yet begun to measure our energy usage



Global Energy Emissions



Global Emissions by source





Energy: Fossil Fuels & Renewables

Fossil Fuels



Many things contribute to climate change, but the key driver is the burning of fossil fuels.

In terms of the associated greenhouse gas emissions, they rank in the following order from worst to bad: **Turf, Coal, Oil, Gas**. Recent studies have identified additional emissions associated with the extraction and processing of gas which may mean it's equally as damaging as oil.



Renewable or 'Clean' Energy Sources...



The alternative to these 'dirty' energy sources, is to shift to **renewable or clean energy**, for example:

- solar power
- hydro power
- wind power
- and geothermal energy



Some grey areas...it's complicated!



Biomass is recognised by the EU as a source of renewable energy. But there are issues connected to its production, including land use and transport.

Biogas or **biomethane** is similarly recognised as renewable as we will continue to create waste to feed anaerobic digestors. But, both have downsides and impacts which mean they still have a climate impact.

Hydrogen is currently largely created from fossil fuels, particularly gas and coal. 'Green' hydrogen is being developed but is very expensive to produce.





The Good News:

In 2023, 42% of Electricity in the EU came from renewables

And roughly one third of our electricity globally came from renewable sources that year.





The Irish State's Renewable Energy Targets



Renewable energy targets for 2030



34.1%

Overall renewable energy share



80%

Renewable energy in electricity



29%

Renewable energy in transport



24%

Renewable energy in heat



Renewable energy targets for 2030



34.1%

Overall renewable energy share



80%

Renewable energy in electricity



29%

Renewable energy in transport



24%

Renewable energy in heat



Decarbonising other forms of heat is challenging

Biogas or biomethane (biomethane is purified biogas and can be injected directly into the gas network) is a more complex solution to decarbonising our heating systems.

Green hydrogen is another possibility, but is unlikely to be available on any scale before the 2030s. “Reliance on low-carbon gases for significant decarbonisation of heat in Ireland has many associated risks.” (SEAI 2022)

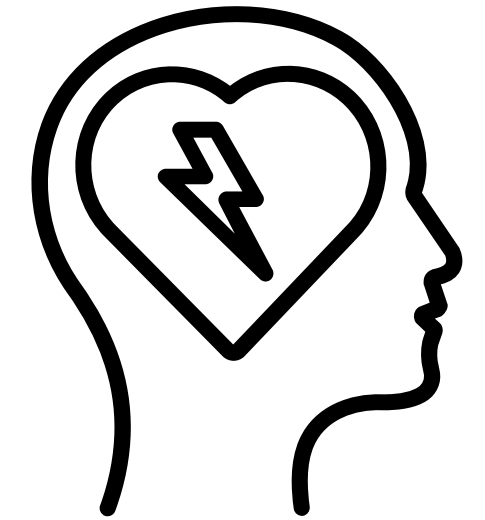
Biomass: Despite its benefits, careless use of biomass fuels is associated with potential threats to climate change, including supply chain emissions, carbon debt and land use issues.



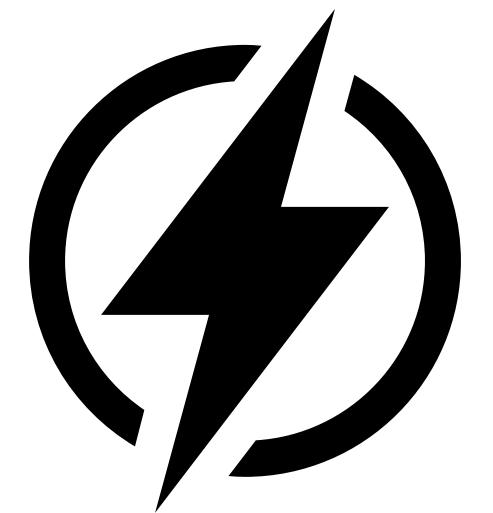
Guiding principles for reducing your energy emissions



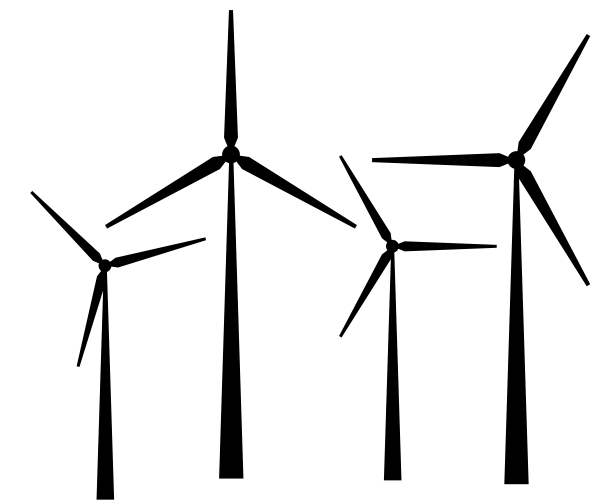
Be Energy Efficient: Stop wasting energy



Increasingly, energy usage should come from electricity



Electricity should be derived increasingly from renewable sources



Be Energy Efficient: Stop wasting energy (mostly behavioural change):

- Turn off equipment when not in use
- Turn down heating to 19 degrees (cooler in corridors etc)
- Turn off lighting in rooms when not in use
- Use only the lighting you need (is daylight sufficient?)
- Don't leave machinery and equipment on standby
- Implement an energy saving campaign with your team - involve them
- Put signage beside light switches etc to remind people to turn off lights when exiting a room
- Start measuring your energy, where possible.



Create a Baseline

Reducing your energy usage will be easier and more meaningful if you can measure that usage and create a baseline (Two years is more useful than one). How to approach this has been covered in the last session.

Consider using the spreadsheet we provided earlier in this programme. Ideally you need monthly data on:

- How much energy you used (kWh / litres)
- The total spend on ELECTRICITY /GAS/OIL only
- Any additional charges (PSO, Standing Charges, Capacity Charges)
- VAT
- Total bill



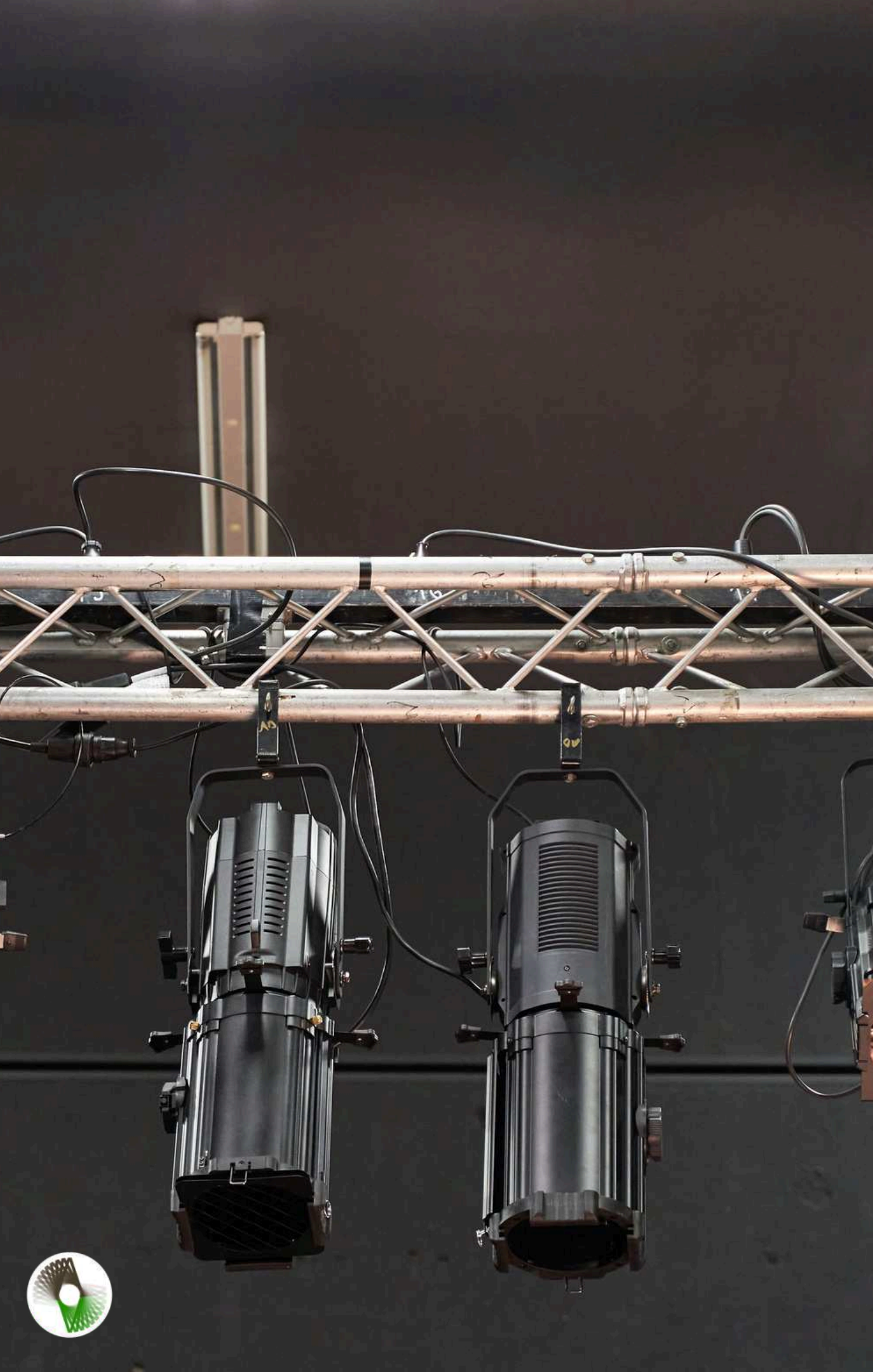
Be more energy efficient (small interventions):

- Put bar fridges on a timer rather than leaving them on constantly
- Replace CFL and incandescent lighting with LED as fittings need to be replaced
- Ensure any new equipment purchased is A rated
- Install sensor lighting in corridors, stairwells, store rooms etc
- Install TRVs on radiators (Thermostatic Radiator Valve) where needed
- Apply for an Energy Audit voucher from the SEAI and identify an energy engineer to carry this out
- Draft proof doors and windows



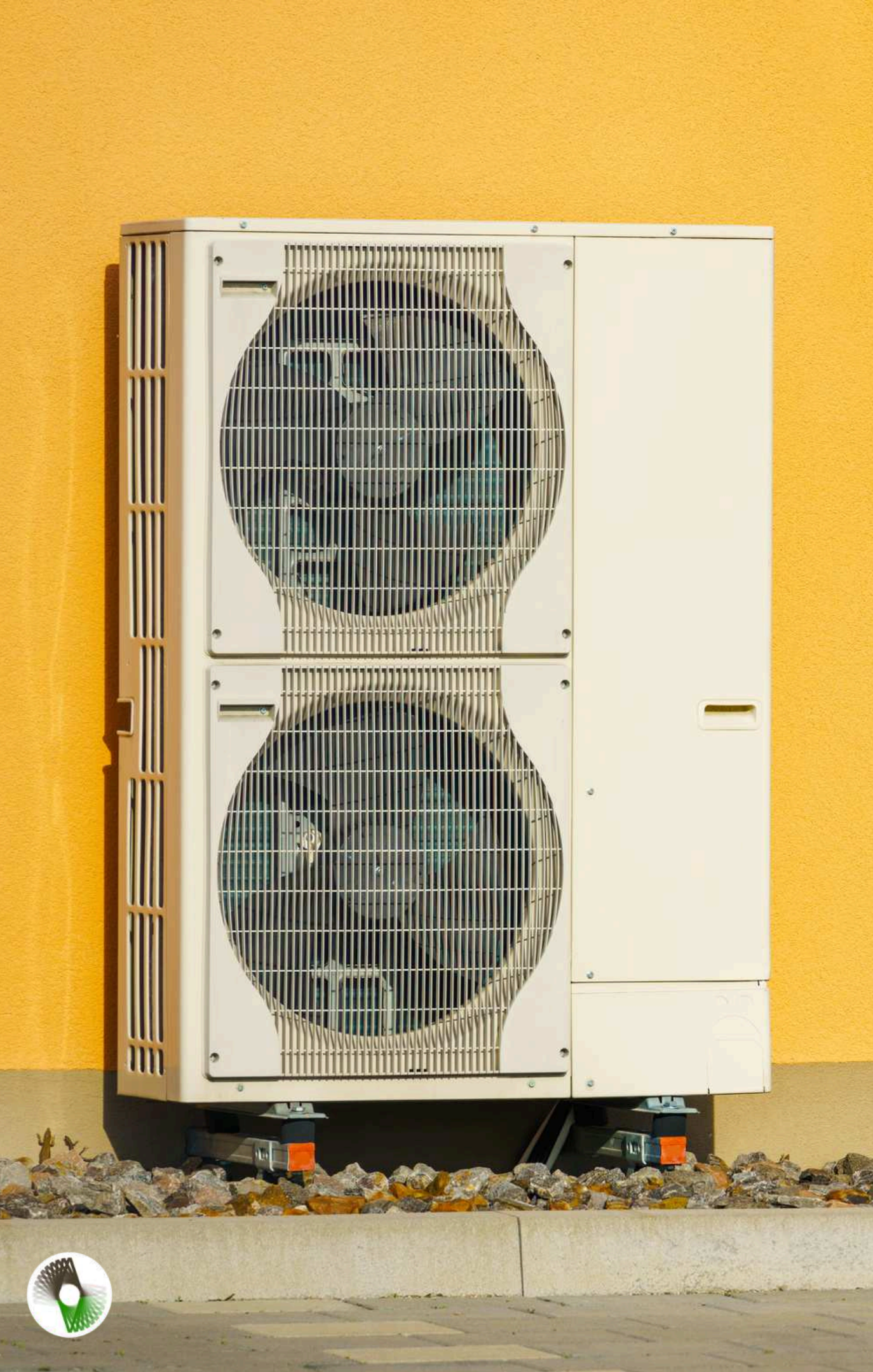
Be more energy efficient (significant interventions):

- Replace all CFL and incandescent building lighting with LED
- Create a plan for replacement of Tungsten stage lighting with LED. Cost this, including any electrical upgrades that will be required.
- Consider re-zoning your heating system
- Carry out recommendations from your energy audit that don't require a large financial outlay
- Consider installing energy monitoring equipment for a granular understanding of your energy usage
- Investigate the feasibility of installing Photovoltaic solar panels
- Insulate your building where possible



Be more energy efficient (large interventions):

- Implement recommendations from your **Energy Audit** to improve building fabric which require significant financial outlay (building retrofit including insulation, draft proofing, triple glazing, airtightness measures)
- Install an alternative heating system such as a **heat pump**, or connect to a district heating system which uses heat recovery as an energy source
- Replace Tungsten stage lighting with LED lamps
- Install Photovoltaic panels on your roof
- Insulate hard to reach areas, such as the roof of your building.



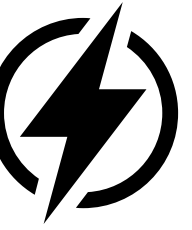
Do you have a Smart Meter for your electricity?

- Yes
- No
- I have no idea
- We have no access to our electricity meter





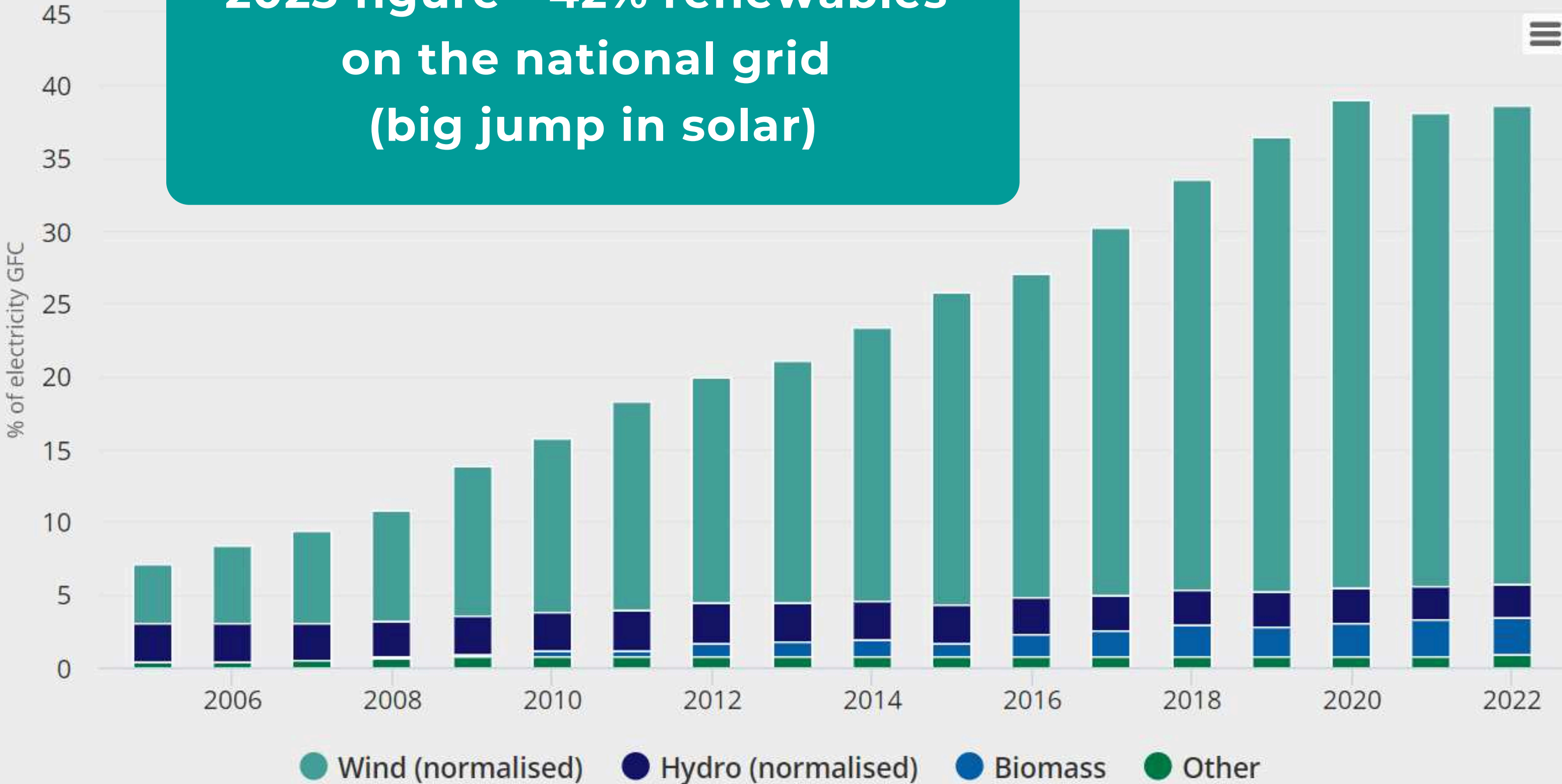
**Increasingly, energy usage should
come from electricity**



WHY?

Renewable energy share in electricity (RES-E)

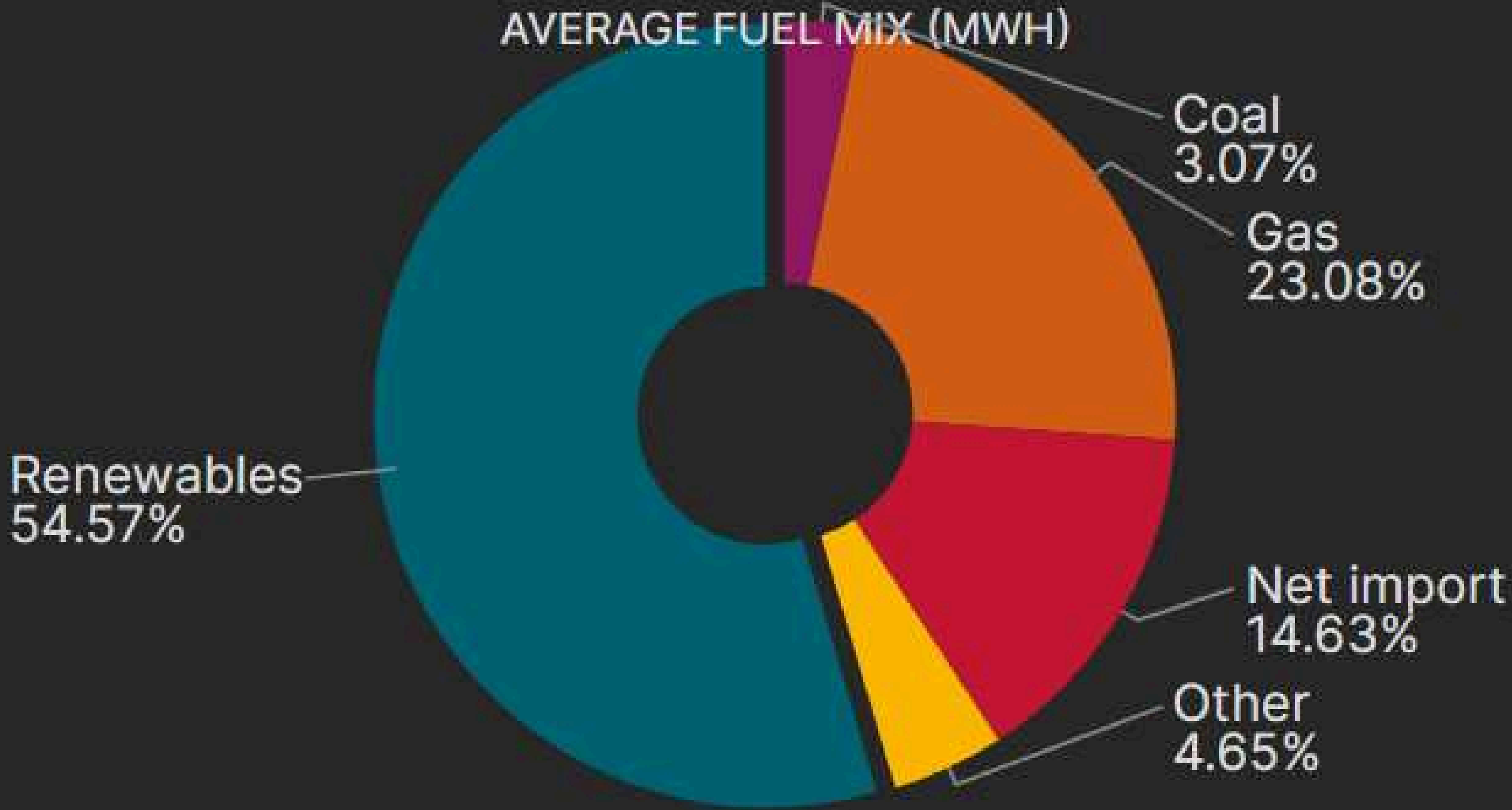
2023 figure - 42% renewables on the national grid (big jump in solar)



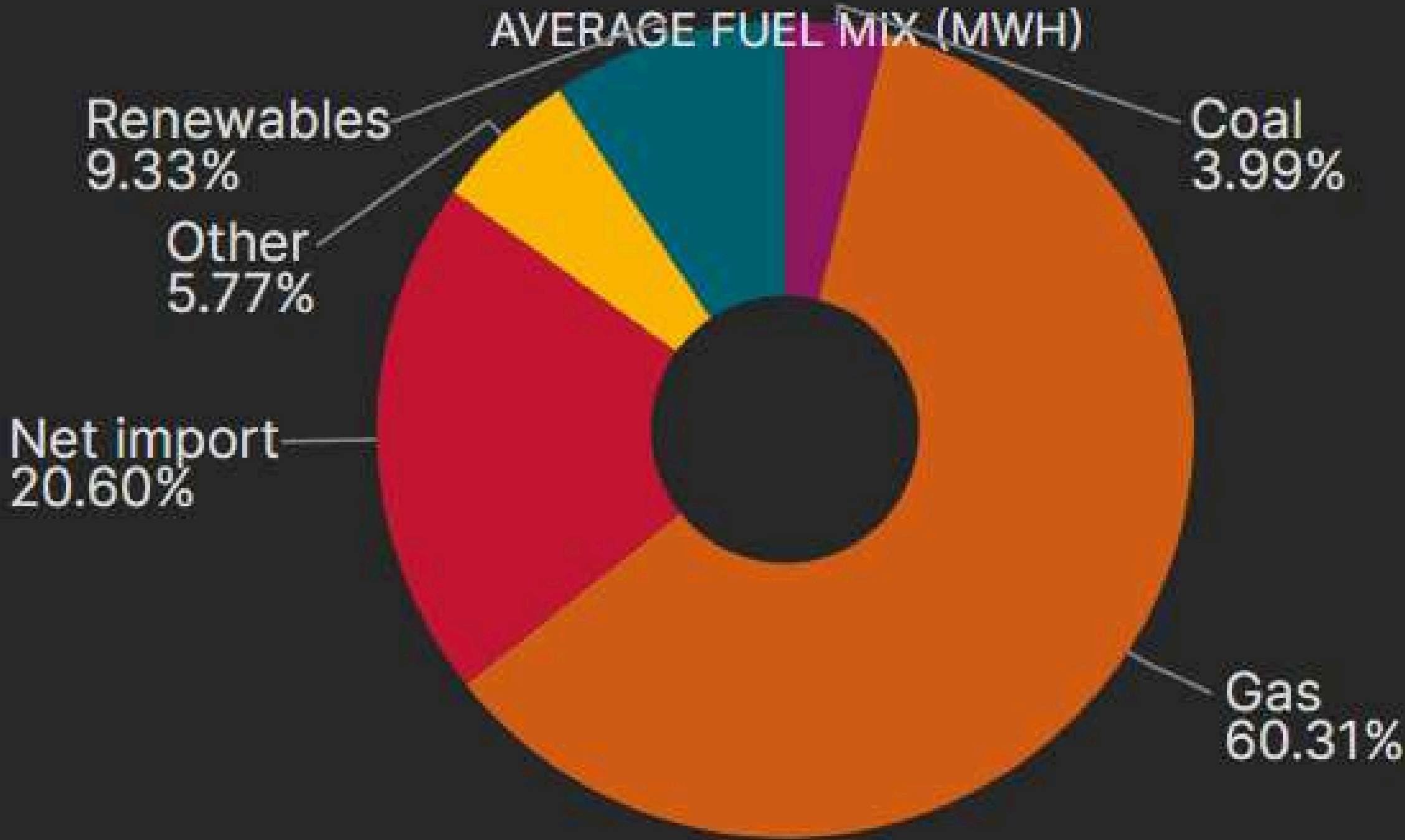
Source: SEAI



Fuel Mix (MWh)



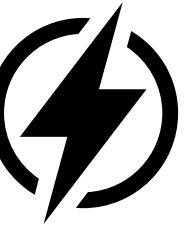
Fuel Mix (MWh)





2

Increasingly, energy usage should come from electricity

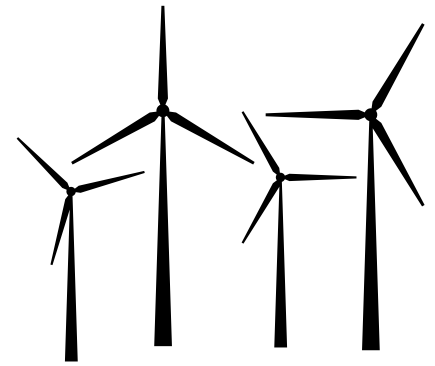


- Essentially, this means having a heating system powered by electricity - Install a heat pump (air to water, air to air, ground source) OR connecting to a district heating system OR biomass system. This is an enormous step for many arts organisations
- Replace, where appropriate, diesel or petrol cars/vans with electric vehicles
- Install electric car chargers in parking areas where relevant
- Use mobile Photovoltaic solar panels instead of diesel operated generators for outdoor events.





Use electricity from renewable sources

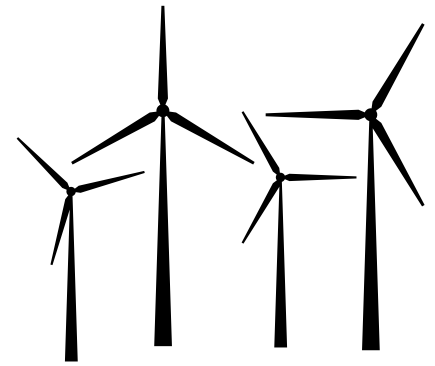


- Opt for a Green Electricity Tariff
- Source electricity from a community owned renewable energy supplier such as Community Power
- Investigate installing Photovoltaic solar panels on your building





Use electricity from renewable sources



- Opt for a Green Electricity Tariff
- Source electricity from a community owned renewable energy supplier such as Community Power
- Investigate installing PV panels on your building

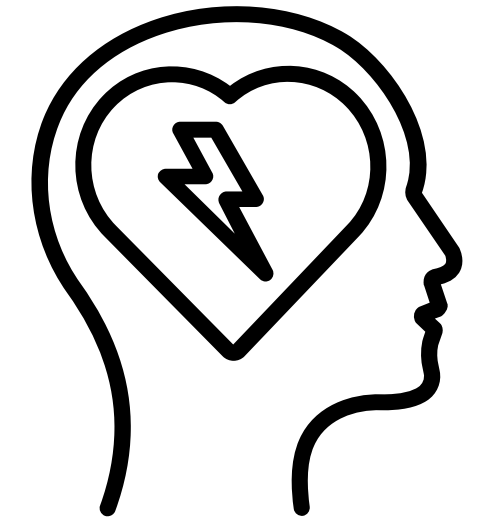
A Green Electricity Tariff does not mean that 100% electricity is magically directed to your building - all electricity on the grid has the same amount of renewables. But it does mean that your supplier has committed to supplying or sourcing that renewable energy for inclusion on the grid.



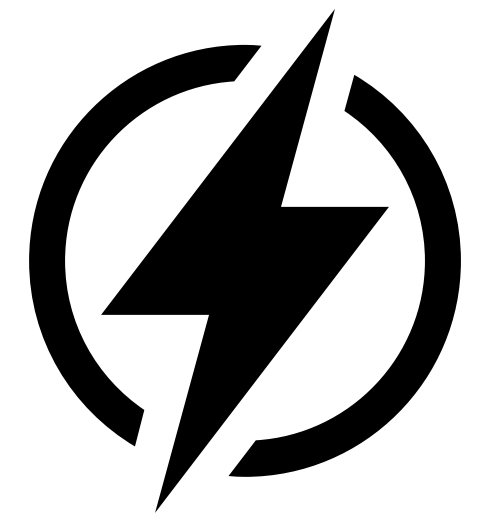
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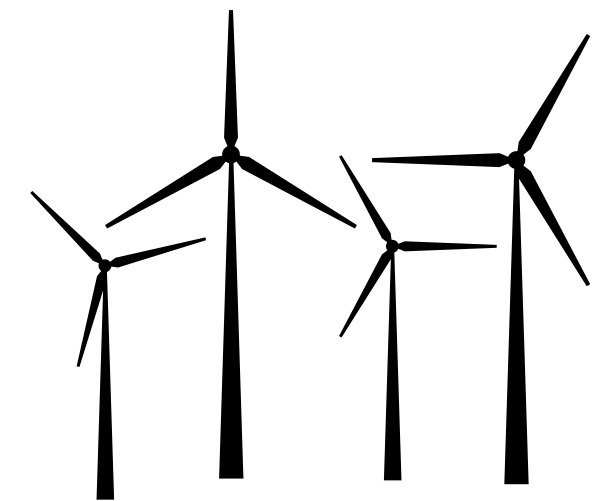
Be Energy Efficient: Stop wasting energy



Increasingly, energy usage should come from electricity



Use electricity from renewable sources



We are going to look at three examples ...



Your organisation is based in a large building with control over your suppliers for both electricity and heating (where heating is not delivered by electricity - ie. gas/oil), receiving monthly bills itemising your expenditure and usage.



Based in a large building owned by your local authority with/without your own electricity meter. You have no control over selecting your suppliers for either electricity or heating (gas). Bills for usage are not sent to you but rather are sent directly to your local authority for payment.



Based in a space or office which is part of a larger complex. The cost of your heating and electricity usage is included in your rental agreement with your landlord. You therefore have no idea what your energy usage might be, and your landlord isn't much wiser.



Your organisation is based in a **large building** with control over your suppliers for both electricity and heating (where heating is not delivered by electricity - ie. gas/oil), receiving monthly bills itemising your expenditure and usage.



- **No cost (behavioural)**

Apply for an energy audit voucher from the SEAI

Analyse bills to understand consumption patterns

Optimise usage of energy efficient appliances and equipment

Promote energy awareness with your team, audience and visitors using energy reduction signage

Sign up for a green electricity tariff

- **Low to medium cost**

Conduct an energy audit

Install energy monitoring devices and systems

Replace incandescent and fluorescent lights with LED lighting

Install light motion sensors

Review possibilities of installing renewable energy systems such as Solar Photovoltaic panels

- **High cost**

Improving the fabric of your building

New BMS (Building Management System)

Installing Heat Pumps

District Heating may be an option



Based in a large building owned by your local authority with/without your own electricity meter.
You have no control over selecting your suppliers for either electricity or heating (gas)
Bills for usage are not sent to you but rather are sent directly to your local authority for payment.

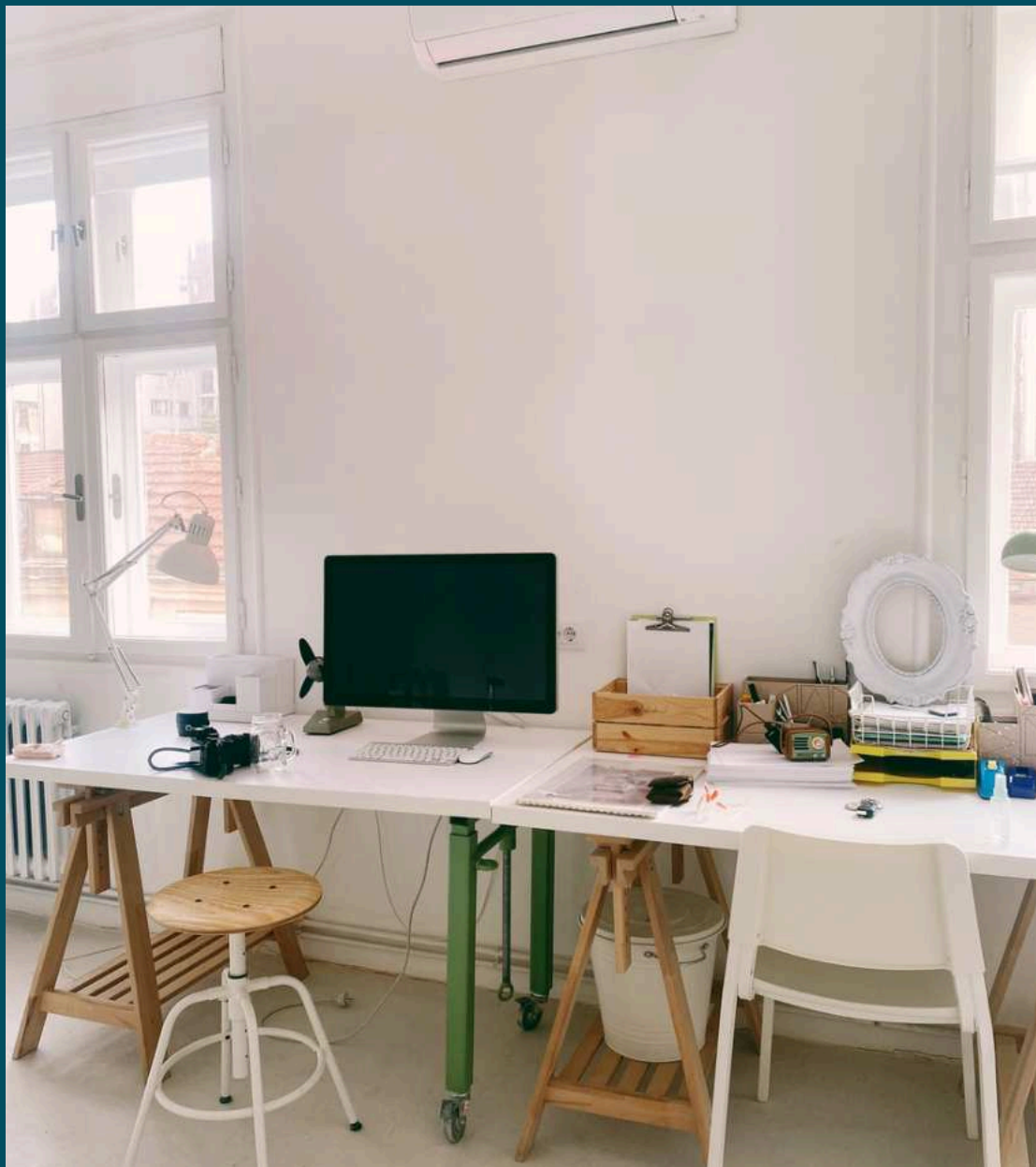


- If you have access to your electricity meter, take regular meter readings to better understand your energy usage.
- Explore funding opportunities with your local authority to install energy efficient stage and building lighting, or motion sensors
- Explore funding opportunities with your local authority to install renewable energy sources such as Solar Photovoltaic Panels
- Implement an energy saving campaign with your team - involve them
- Update Procurement Policy/ Include in Green Procurement Policy: When purchasing new equipment ensure that new equipment is A rated.
- Optimise usage of A-rated appliances and equipment



Based in a space or office which is part of a larger complex.

The cost of your heating and electricity usage is included in your rental agreement with your landlord. You therefore have no idea what your energy usage might be, and your landlord isn't much wiser.



- Create awareness of energy usage within your space or office
- Turn off equipment when not in use (desktop monitors, switch off timers)
- Turn down heating to 19 degrees (cooler in corridors etc)
- Turn off lighting in rooms when not in use, or is daylight sufficient?
- Don't leave machinery and equipment on standby
- Implement an energy saving campaign with your team - involve them
- Put signage beside light switches etc to remind people to turn off lights when exiting a room
- Is there a possibility of wider engagement and understanding the larger complex' energy usage?
- Is there a possibility of wider engagement with other occupants of this shared space on energy usage and awareness?



Supports and resources

Sustainable Energy Authority of Ireland (SEAI)

Green Arts Initiative Ireland (GAI)

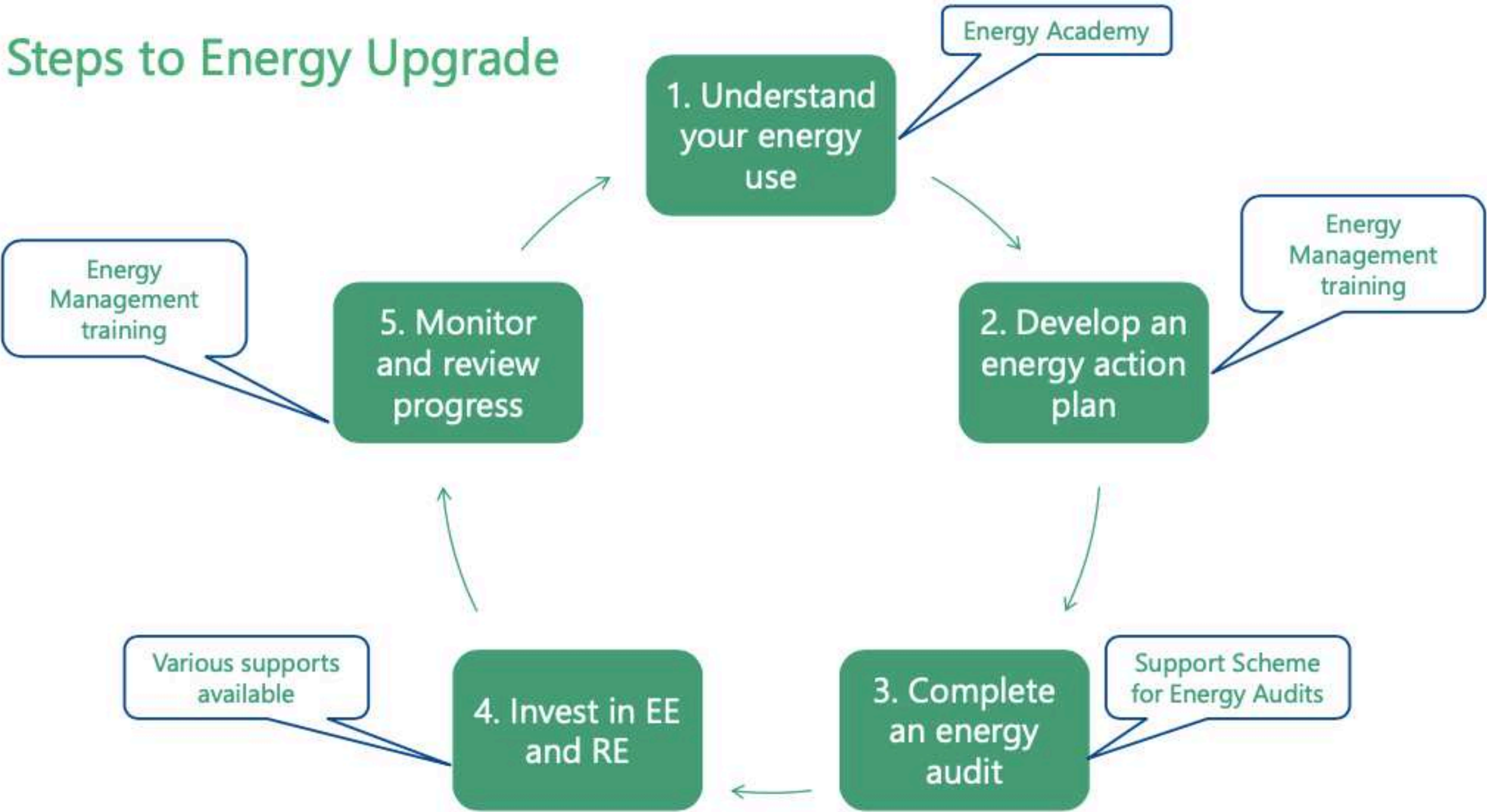
Julie's Bicycle

Energy Saving Trust

Creative Carbon Scotland



Steps to Energy Upgrade





Understanding your energy use

- Free e-learning platform.
- Created for businesses to understand their energy use.
- Increases motivation and confidence to reduce energy use in the workplace.

- Energy and Climate Change
- Business Energy Efficiency
- Office Energy Efficiency
- Eco-Driving
- Lighting Efficiency
- Renewable Heat
- Introduction to Electric Vehicles
- Introduction to Solar PV





Create an energy action plan

- Introduction to Energy Management Training: Create an Energy Action Plan.
- Energy Management Guide and Workbook.
- Takes you through the six steps to creating an energy action plan

- Create the business case for energy management
- Assign an energy coordinator
- Write your energy statement
- Track your energy consumption through bills and meter readings
- Identify potential areas to save energy
- Create your energy action plan





Complete an energy audit

- Offers SMEs a voucher of €2,000 to get a high quality energy audit with an SEAI Registered Energy Auditor.
- Open year round for applications.

To be eligible, your organisation must:

Be a Small or Medium Enterprise

< 250 employees

Turnover < €50M or balance sheet < €43M

Spend at least €10,000 on energy per year (electricity/heat)

Be tax compliant





Energy Audit Process

A deep dive into your business energy use



Energy Audit Report

Analysis of your business energy use.

Identifies the equipment and processes that use the most energy.

Recommends actions you should take to save energy, and their estimated cost and impact, as well as first step.

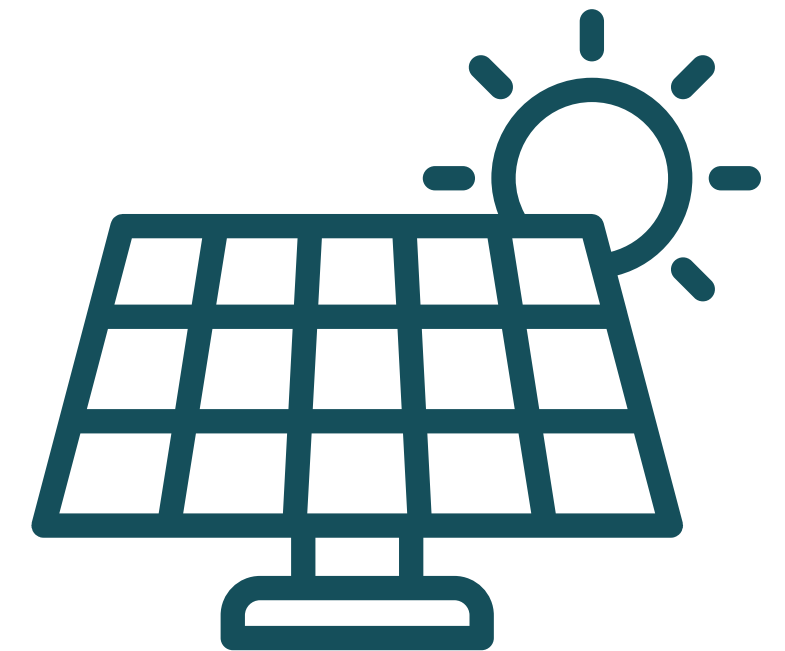




Invest in energy efficiency and renewables

Non-Domestic Microgen Scheme (Solar Photovoltaic Panels)

- Installation of Solar PV.
- Grant up to €162,000.
- Size under scheme set at a maximum 1000kWp (Approx 2,500 Panels).
- No BER (Building Energy Rating) required and available to all pre-2021 buildings.
- Clean Export Guarantee (CEG) tariff, for any exported electricity (subject to supplier rates).





Non-Domestic Retrofit Scheme 2024 – Launch Q2

- Part of SME focussed “Fast Track” Support
- Expansion of Non-Domestic Solar Model
- Anticipate launch in Q2 2024
- Finalising IT and programme documentation

Technical Assistance
Up to 50% Grant aided

BMS Optimisation

Design Assistance

Commoditised Grants
Up to 30% Grant aided

Pumps

Ventilation/ Heat Recovery

Solar Thermal

Automatic Controls

Heat Pumps (incl. system)

Fabric



Local Enterprise Office

Green for Business

All enterprises with 1-50 employees

Turnover > €30,000 annually.

Business is trading > 6 months

2 step process:

Step 1: Watch the webinar

Step 2: Apply for Green for Business: Two days of mentoring with a specialist Green Consultant – this will include recommendations on specific changes which your business can implement



Local Enterprise Office

Energy Efficiency Grant

The Energy Efficiency Grant supports the investment in technologies and equipment identified in a Green for Micro Report, GreenStart Report or an SEAI Energy Audit with 50% of eligible costs up to a maximum grant of €5,000.

Other Supports:

- Green Starts
- Climate Toolkit for Business
- Support Scheme for Renewable Heat
- Climate Ready Academy



Department of Tourism, Arts, Culture, Gaeltacht, Sports and Media Cultural Capital Scheme - Stream E

The primary focus of the scheme is the refurbishment and enhancement of the existing stock of arts and culture facilities

The scheme will provide funding for projects that reduce an organisation's carbon footprint and will, for the first time, include funding for organisational energy audits

Applicants should be not for profit organisations with a defined arts and culture remit

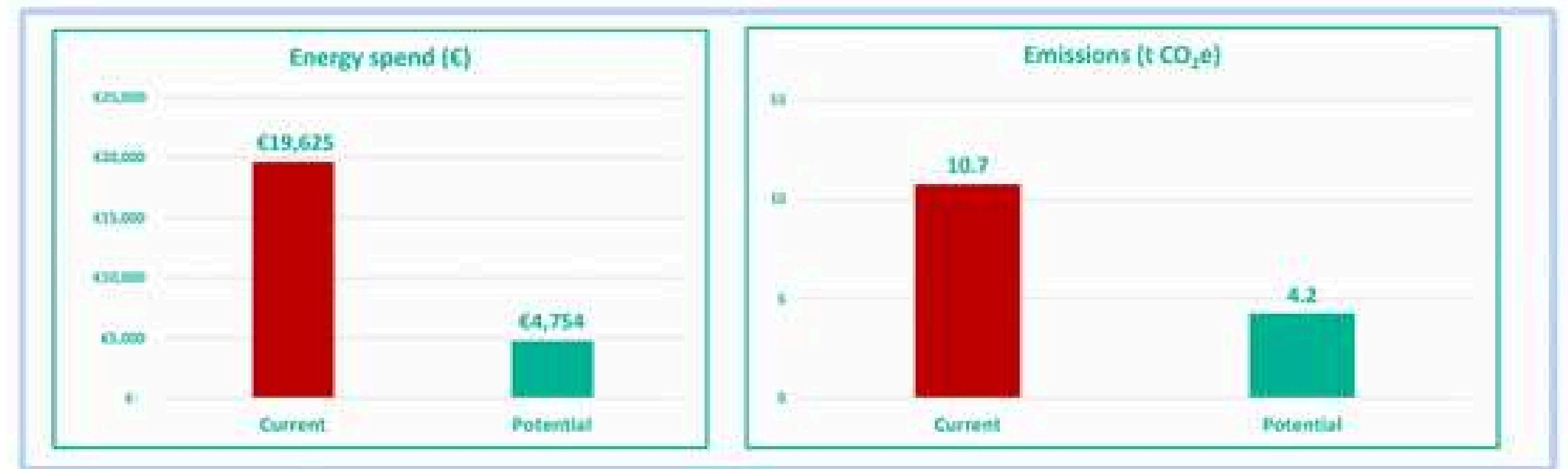
Grants of up to €20K will be available at 85% grant funding rate except for Local Authority owned facilities where the max grant is 60%.

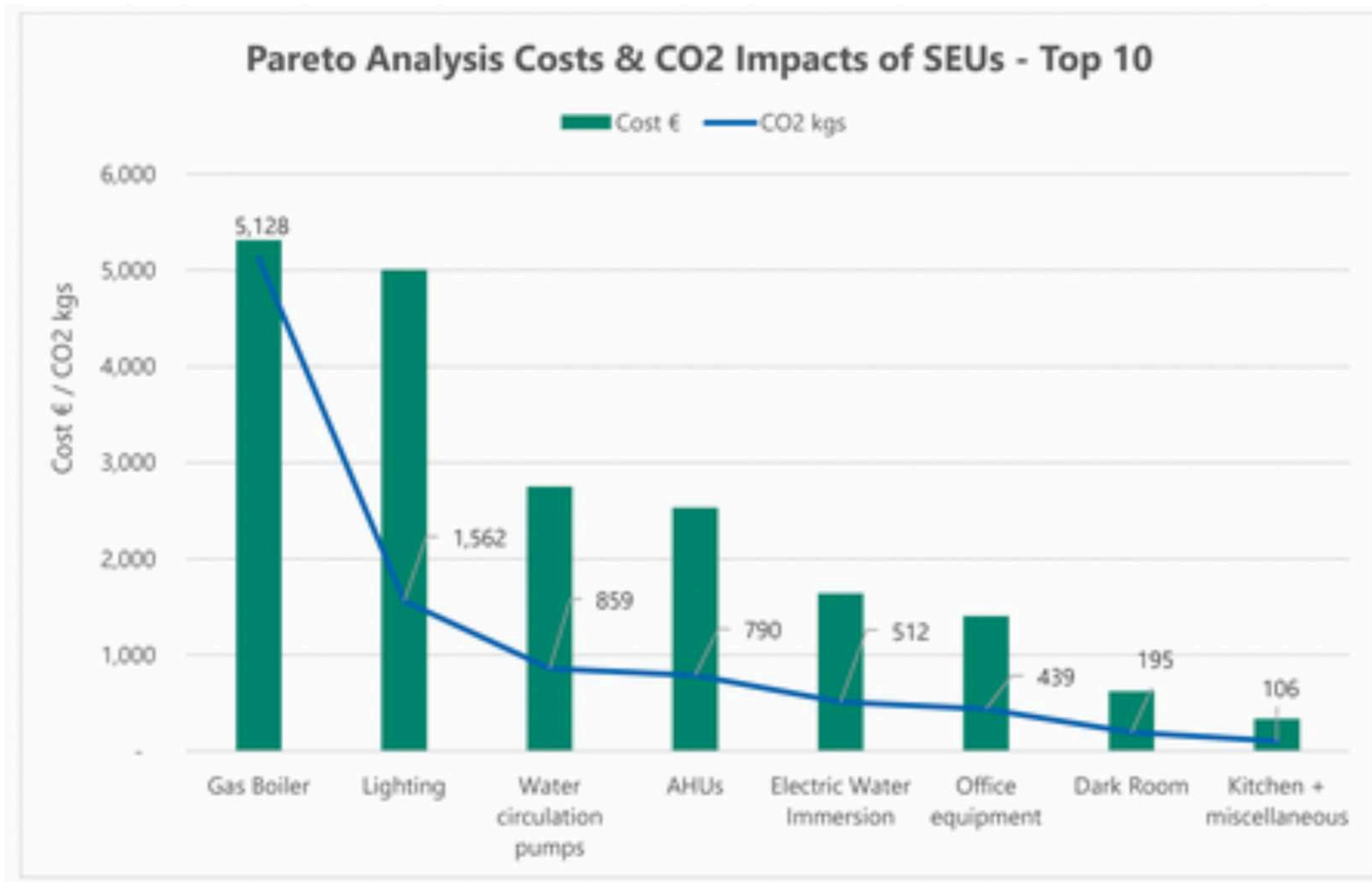
Grants of up to €50k will be provided at a maximum grant funding rate of 70% (60% for Local Authority owned facilities)



Case Study Photo Museum Ireland

- Applied for SEAI Support Scheme for Energy Audits
- Site visit and gathering of 12 months of energy bills for 2022 and 2023
- Recommended actions could help reduce emissions by 61% and annual energy spend by €14.9k approx





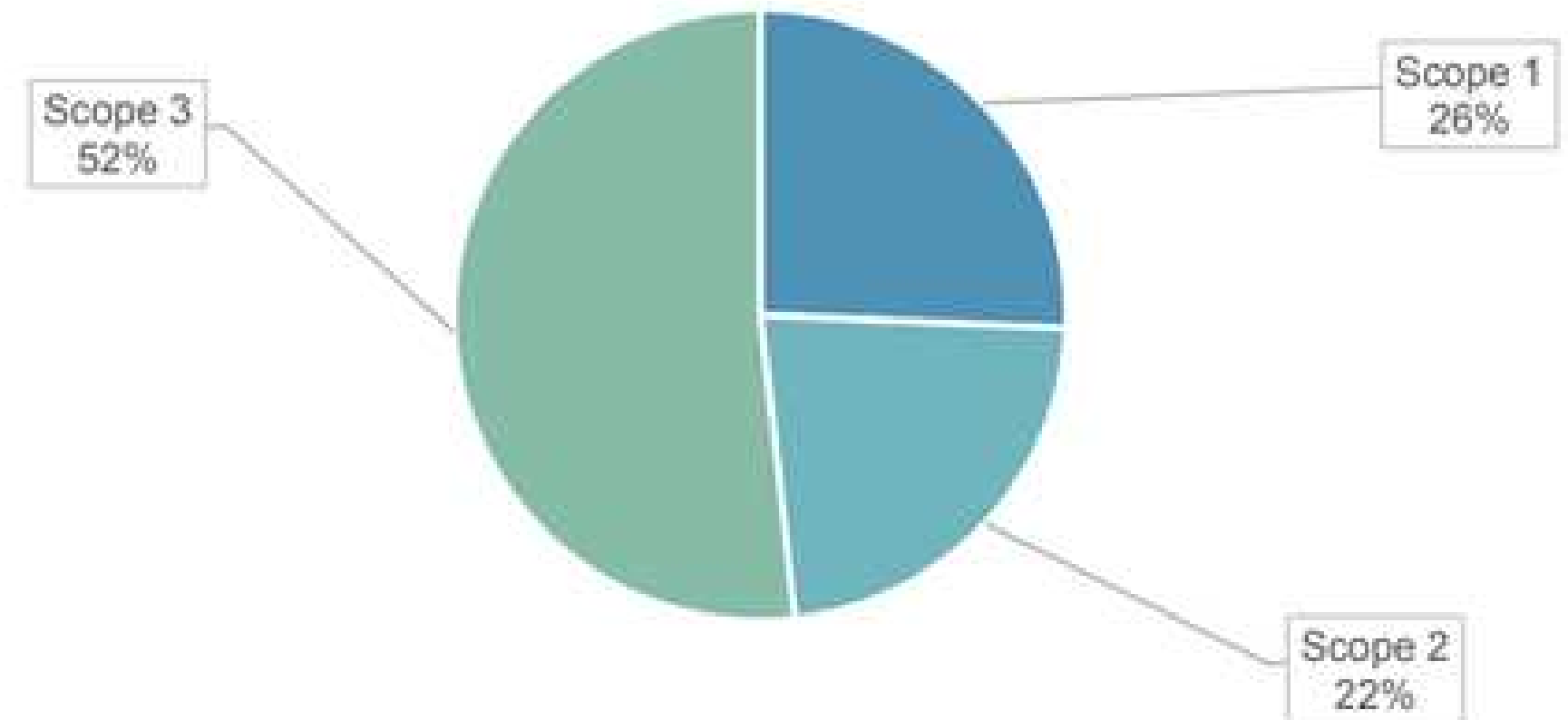
**Applied for Green for Micro grant -
€2,000 voucher**

Site visit and gathering of 12 months
of data for 2022 and 2023

- energy bills
- water usage
- business travel
- employee commuting
- waste
- purchases of goods and services
e.g. office supplies, darkroom
chemicals, wine for openings ☒

2023 Carbon footprint - 19.8 tonnes CO2

GHG Inventory Summary



**Top emissions:
business travel , natural gas, electricity**



Identified opportunities with the biggest impact, including energy saving actions:

- Solar Panels on roof
- Finish exhibition lights LED upgrade
- PIR sensors in stairwells, offices and basement
- Air temperature sensors to control space heating

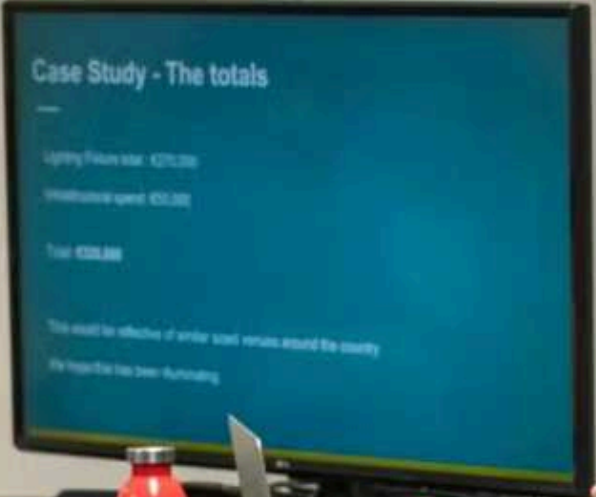
Progress made:

- All staff complete a certified sustainability awareness course online during their induction week
- Reduced our electricity consumption in 2023 by 10% and gas consumption by 35% on previous year.
- Upgraded 20% of our exhibition lighting to LED
- Air Temperature sensors installed
- Preparing applications & sourcing funding for energy upgrades - exhibition lighting and solar panel



**PERFORMING
ARTS FORUM**

A I S T



**Tungsten to LED Transition -
Online Forum Discussion**

21 JUNE



What would you like to speak to other organisations about?

- Energy Suppliers
- Energy Certification - e.g DEC (Display Energy Certification)
- Understanding and upgrading Building Management Systems (BMS)
- Upgrading heating and cooling systems
- Installing and operating a heat pump in a large building
- Upgrading heating and cooling in heritage buildings
- Building Insulation
- Applying for energy audit grants and the audit process
- Understanding electricity usage
- Electricity Usage Analysis, Day time v Night time usage etc.
- Lighting - Bulbs, LED, Sensor Switching etc
- Stage lighting, LEDs, standard tungsten etc
- Energy Efficiency project - successes and challenges
- Creating energy efficiency and energy saving awareness
- Installing renewable energy sources such as Photovoltaic Solar Panels
- Getting involved in Sustainable Energy Communities



What skills and learning do you have to share?

- Obtaining an Energy Certification - e.g DEC (Display Energy Certification)
- Utilising your Building Management Systems (BMS) to its maximum potential
- Managing heating and cooling systems in heritage buildings
- Successful insulation projects
- Applying for an Energy Audit Voucher and the audit experience
- Experience with building lighting - Installing LED bulbs, sensor lighting etc.
- Experience with Stage lighting - challenges, costs, electrical upgrades
- Energy efficient equipment in the building, bar equipment, office equipment etc
- How to build team awareness and engagement on energy efficiency
- Installing Photovoltaic Solar Panels
- Being part of a Sustainable Energy Community
- Engagement with team, artists and audience on energy efficiencies - use of signage in the building on energy saving etc.



Training webinars

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Webinars



**Thank you for
joining us today
Over to you for
Q&A....**

