









The NWPP

In 2004, Ireland became the first country in Europe to develop a National Waste Prevention Programme (NWPP). The National Waste Prevention Programme, which is funded by the Department of the Environment, Community and Local Government, is managed by the Environmental Protection Agency, and encompasses a range of sub-programmes and initiatives.

The latest NWPP is entitled "Towards a Resource Efficient Ireland", to highlight the key role for the programme in delivering on national priorities on competitiveness and green growth.

Resource Efficiency is about reducing environmental impact and cutting costs. In order to achieve this, the EPA has developed a range of initiatives to assist all sections of society. The EPA has developed an Umbrella brand to embrace its Resource Efficiency. This is called BeGreen. www.epa.ie/begreen

Greenbusiness.ie is the flagship project of the NWPP Green Business Initiative, providing free and confidential resource efficiency support for SMEs in Ireland.

Other NWPP initiatives include: Greenbusiness.ie, Stop Food Waste, Local Authority Prevention Network (LAPN), Green Healthcare Programme, Smarter Farming Programme, Green Enterprise Programme, Community Reuse Network, Packaging Waste Prevention Programme, SMILE Resource Exchange, and Green Hospitality Programme.







How much can you save by greening your business?

Greening your business is an easier way of saying "use your resources more efficiently; you'll save money and help the environment". Energy, water and waste costs are rising so it makes sense you find ways to bring these costs down.

You can save money by changing your light bulbs, reducing water flow or getting staff to segregate waste correctly. The real question is are you ready to do it? Saving money is the easy part. Changing your perception and spotting opportunities on how to use resources more efficiently is the bigger task at hand. But like anything, it's easy once you know how.

So really, there are no limits to how much you can save. We hope after reading through this booklet you will see just how affordable and beneficial it was for other companies to green their business.









Who we are

Green Business is a free and confidential resource efficiency service for all types of SMEs in Ireland. The service is funded by the Department of the Environment, Community and Local Governmentwith the objective of delivering substantive resource efficiency improvements and cost savings, through waste prevention and reductions in water and energy consumption.

Businesses can request a free site visit carried out by our experienced Green Business advisors. These consultants provide a report, which identifies opportunities to reduce waste, water and energy consumption.

Many opportunities tend to be 'no-cost' and 'low-cost' opportunities, with short payback periods, which are attractive to business.

All information is treated as confidential and is not passed to any other party.

The Clean Technology Centre, at CIT, manages Green Business. The CTC team has 120 years experience working with business, industry, and the public sector, in the area of improved environmental performance and resource efficiency.



Dermot Cunningham

Managing Director CTC / Green Business Assessor
Chemical engineer with more than 30 years experience working
with industry and business in the field of cleaner production



Eileen O'Leary

<u>Green Healthcare & LAPN Programme Manager / Green Business Assessor</u> Chemical engineer with 20 years experience working with industry and business



James Hogan

<u>Green Business Programme Manager / Green Business Assessor</u> Environmental scientist with more than 25 years experience working with industry and business



Colman McCarthy

Green Business Programme Co-ordinator / Green Business Assessor
Industrial Engineer with 20 years experience working with industry & business



Dr. Mary Purcell

<u>Green Business Programme Co-ordinator</u>
Agriculture and environmental scientist with 7 years experience dealing with businesses



Dr. Colum Gibson

<u>Green Healthcare & Stop Food Waste Programme Manager / Green Business Assessor</u> Chemist with more than 15 years experience working with industry and business





Our Services

On site assessments

Green Business provides **free** onsite Resource Efficiency Assessments (REAs) carried out by our experts, to help reduce your water, waste and energy bills.

Guidance

Think of us as an advice service on how to green your business. Go to our website for a wide range of free guidance documents and advice - greenbusiness.ie/resources. Email us with any queries or ring our Freephone number 1850 473361 and speak to one of the team.

Seminars / Conferences

Green Business regularly holds regional seminars and conferences to introduce the concept of waste prevention and discuss resource efficiency issues with businesses. To find out what's coming up, go to greenbusiness.ie/eventsworkshops/

AVERAGE COST SAVINGS IDENTIFIED PER COMPANY TO DATE ARE APPROXIMATELY €40,000 PER ANNUM



GREEN BUSINESS HAS HELPED OVER 300 COMPANIES ACROSS A RANGE OF SECTORS TO MAKE SAVINGS. MANY OF THESE SAVINGS CAN BE ACHIEVED AT LOW OR NO COST







Frequently asked questions

What is a Resource Efficiency Assessment (REA)?

An REA is an on-site assessment of your business operations, where our experts focus on identifying opportunities for reducing consumption of energy, water and other process materials, which in turn can improve the efficiency of the business and reduce costs.

Typically, what sort of things does Green Business look for during an REA?

Typically Green Business looks at waste production and management, waste prevention opportunities, energy bills and charges, opportunities for heat recovery and optimisation of equipment use, lighting efficiency, water efficiency, and staff awareness.

What do I need to do to qualify for an REA?

Any business with a utility spend in excess of \in 25,000 can apply for an REA. (This includes costs of energy, waste management and water). If your utility spend is less than \in 25,000, there are still opportunities to improve efficiency, and Green Business can facilitate this through telephone support.

What does it cost?

REAs are free of charge to businesses that qualify for an REA. An REA can be worth as much as €5,000 in terms of consultancy time.

How do I apply for an REA?

Fill in an REA application form available online greenbusiness.ie/contact-us/ or email contactus@greenbusiness.ie with your request.

Is all data shared by my company with Green Business secure?

All data shared with Green Business is kept 100% confidential. Green business reports are not shared with any third parties.

Once I have applied for an REA, what happens next?

- On receipt of a satisfactory application, Green Business will nominate a Green Business assessor and provide a site visit date for your company.
- Green Business may request that your company provides data on utility use, and other pertinent information, prior to the site visit.
- Green Business will ask you to commit time and resources to allow for an effective REA site visit and REA report. This may include access to data, certain production areas and relevant personnel.
- The site visit will be completed in one day.
- Following the site visit, Green Business will request additional information to close out any questions which may have been raised during the REA.

What will I get from the REA?

- Your business will receive a report, which identifies opportunities for improved efficiency. This is usually within a couple of months of the visit, but this is dependent on your co-operation.
- You will, of course, also get to discuss your areas of concern with the assessor during the site visit.

Once an REA report is issued, what does my company do?

A Green Business REA report will identify cost saving opportunities, many of which will be "no cost" or "low cost" (payback within one year). It is up to company management to act on these recommendations. However Green Business is always available to consult on opportunities, which have been identified.

Green Business is keen to see companies follow through on resource efficiency opportunities and to highlight successes in the form of case studies.

Can I publish a Case Study?

Yes indeed. Green Business encourages all companies who have implemented successful improvements, to produce a case study. We can help you with this. Case studies may be included on our website, presented at conferences and events, and from time to time in special publications. To see all Green Business case studies refer to greenbusiness.ie/case-studies/



GREEN BUSINESS HELPS KERRY FOODS EARN A CRUST

Kerry Foods, Co.Dublin

Freshways, part of the Kerry Group, makes a range of chilled sandwiches and wraps. The site employs 200 people and works six days a week.

Following a Green Business site visit a number of potential benefits/improvements were identified. This resulted in a range of recommendations to increase resource efficiency and save money.

The company reduced product waste by selling on loaf end slices as raw material for bread-crumbs! This reduced waste costs by \in 7,500/annum and generated an income of \in 8,000 from the sale of the product.

A reduction of 750m³ of water used on site per annum was achieved by the introduction of spray heads and reduced flow on taps for hand washing.

Additional savings were also made through improved waste segregation, LDPE recycling and the use of larger containers for purchased mayonnaise.



€30,000 COST SAVINGS p.a. 2 MONTHS PAYBACK

GENERAL WASTE SHOULD NOT EXCEED 20% OF THE TOTAL WASTE PRODUCED.

IF IT DOES, THEN YOU ARE LIKELY TO BE THROWING AWAY MATERIALS THAT CAN

BE RECYCLED OR REUSED. REMEMBER: LESS WASTE = MORE PROFIT



STAFF SOLUTIONS TO YOUR WASTE PROBLEMS

Supermarket, Co.Galway*

As part of Galway County Council's Prevention Programme they worked in conjunction with a large, family run supermarket. After an initial food waste assessment had been conducted, a number of improvements were made to the way the shop was run. These included:

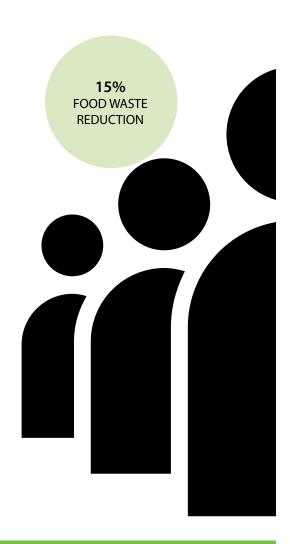
- · Waste reporting and tracking system
- Delivery dates arranged to maximise sale of perishable goods
- Improved stock management and rotation
- Monitoring customer trends
- Bakery implemented batch baking 3 times per day rather than all day baking

While each of these measures contributed to lowering food waste volumes, the key aspect of their improvement programme was staff involvement. Staff were included in all decisions involved and in many cases drove the changes themselves.

All in all, the ongoing improvement has seen food waste volumes drop by over 15% to date.

^{*} Company name withheld for confidentiality reasons







A SIMPLE CHANGE CAN MAKE VERY BIG SAVINGS

Sodexo, Co.Cork

Sodexo provides catering facilities for a large IT company based in Cork. This company has 2,000 employees and operates 24 hours per day.

The company was using 1.2 million paper cups per year in its canteen. These coffee cups were non-recyclable and were therefore sent to landfill. The cost of purchasing these cups was €120,000 per annum. In addition to this cost, there were additional charges associated with the disposal of large volumes of waste cups.

Sodexo and management at the IT facility decided to prevent this waste stream by ceasing the use of disposable paper cups. All members of staff were provided with their own thermal mugs, free of charge. Staff were made responsible for the washing and care of these mugs. Lost mugs were replaced at a cost of €4.50 to the staff member.

The new thermal mugs were well received by staff, who found that coffee stayed hot longer. A new trend emerged, whereby staff began to purchase their own designer thermal flasks, and these are now accepted in the culture of the company.



€124,000 COST SAVINGS p.a. 1 MONTH PAYBACK

RECYCLING AND RECOVERY OPTIONS ARE LESS EXPENSIVE THAN LANDFILLING AND INCINERATION. INCREASED RECYCLING, RECOVERY AND MINIMISATION REDUCE WASTE MANAGEMENT COSTS.



AIM FOR ZERO, IT'S THE MAGIC NUMBER

ABP Food Group

ABP Food Group processes more than one million cattle annually at 20 sites throughout Ireland, the UK and Poland, with an aim to be Europe's leading supplier of premium grass–fed beef. ABP has six sites in Ireland. Through its forward thinking approach to waste management, water conservation, energy reduction and continuous improvement the company strives to decouple increased resource consumption from increased production.

In 2011 ABP set a waste reduction target of zero waste to landfill which was achieved in 2014.

Key actions of the initiative:

- A waste hierarchy was implemented at each site which was critical to the zero waste to landfill plan
- ABP used LEAN techniques to identify key waste outputs. The company also developed a strategic approach to ordering materials, increased recycling and forged partnerships with key energy recovery partners
- Prevention measures, coupled with internal communication, were used to help all employees to see waste in the business as an important resource
- Cardboard was significantly reduced at all sites with the introduction of the re-usable plastic tray system.
 ABP also replaced cardboard boxes for customers with reusable plastic trays; reducing the amount of waste that the company placed on the market.

€60,000COST SAVINGS p.a.
FOR IRISH SITES















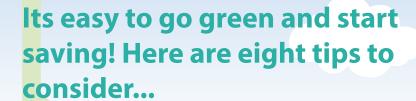
Know your energy users

Identify the main energy consuming equipment in your business (e.g. boilers, pumps, lighting, refrigeration, etc.). Estimate or calculate their annual energy usage. Once you know the big energy users you can take measures to control them better, turn them off or turn them down when not required.



Stop wasting food

Food waste is a major concern worldwide. If you are in the business of providing meals, consider the true cost of food waste. This has been estimated at between €3,000 and €5,000. Minimising food waste can significantly reduce costs.





Measure and monitor

Until you know how much you waste, you won't know how much you can save.

Measuring and monitoring waste are the most challenging parts of any waste reduction programme, but once you see the results you'll want to make a change



Segregate waste

Good waste segregation is key to minimising costs and identifying waste solutions. As a minimum waste should be segregated into: recyclables, food waste and general waste. Recycling and recovery options are less expensive than landfilling and incineration. Increased recycling, recovery and minimisation reduce waste management costs.







Wasted water is wasted money

Carrying out a simple night time test will inform you if you have a leak.

- 1. Find your water meter
- 2. Record meter reading at the close of business
- 3. Ensure all water consumers are turned off, including urinals
- 4. Record meter reading first thing in the morning (before business opens)
- 5. The difference in readings will tell you the night-time usage, when the business is closed
- 6. If water consumption is unexpected, and can't be accounted for, you probably have a leak! Leaks can be very costly



Where possible, switch to LED

LED lighting is currently the most efficient lighting available. These lights use less electricity than other bulbs, such as fluorescent and halogen. They also don't generate as much heat as other bulbs, making them particularly efficient for lighting in fridges, freezers, chill rooms, etc.



Raise staff awareness

Your employees have a large role to play to improving efficiency in your business. One rule of thumb suggests that raising awareness can reduce utility costs by 10%. Identify how your staff can reduce waste by turning off equipment when not required, turning off taps, putting waste in the correct bin etc., and set aside time to raise awareness.

Incentivise where possible.



Know your water users

Know your water users ... In some businesses toilets, urinals, and taps are the biggest water users. In others, cleaning is the biggest user, while in yet others, it is processing. Measuring flush volumes, appliance flowrates, cleaning hose flows, or other appropriate parameters, is the first step toward reducing water use.





TAKE THE PRESSURE OFF YOUR WATER BILLS

Pig Processor, Midlands*

The meat processing industry in Ireland uses large quantities of hot water to ensure plant and equipment is cleaned on a daily basis after each shift. Typically, triggered hoses are used to wash down contaminated surfaces with hot water at temperatures ranging from 55°C to 65°C. This incurs the cost of water and the cost of heating this water!

A large meat processing plant in the Midlands, identified that 31% of water consumed was associated with the cleaning process. The plant also estimated that they were consuming 590 m³ of hot water per week for the cleaning operation. With fuel costing the company 5 cent per kWh and water costing €2.50 per m³, this corresponds to a cost of €3,500/week for water and energy.

The triggered hoses used in the cleaning operation were measured at 26 litres/min. By reducing average flows to 20 litres/min, it was estimated that substantial savings could be made, without compromising cleaning efficiency.

* Company name withheld for confidentiality reasons

POTENTIAL **FUEL SAVINGS:**

€42,000 POTENTIAL ANNUAL **COST SAVINGS**







POTENTIAL WATER SAVINGS: 7,000 m³ p.a. **SAVING €17,500**

425,000 kWh p.a. **SAVING €19,500**

BY MEASURING AND MONITORING YOU CAN IDENTIFY POSSIBLE OVER CONSUMPTION IN YOUR BUSINESS. THE FIRST STEP IN IMPLEMENTING A WATER USE EFFICIENCY INITIATIVE IS TO MEASURE CURRENT CONSUMPTION AND BENCHMARK YOUR CONSUMPTION.



KEEPING YOUR WATER USE UNDER CONTROL

Dun Laoghaire Shopping Centre, Co. Dublin

Dun Laoghaire Shopping Centre Management decided to address their increasing water bills. This led the centre management on a journey to discover the source of the problem, which involved trying to locate any readily identifiable leaks.

Those identified were repaired and, while this reduced water use, it did not completely eliminate the problem. A more detailed night-time survey identified that, while all landlord areas within the Centre were now leak-free, the problem of wasted water was related to rented units in the Centre.

Centre Management then visited all units during normal trading hours and the sources of background water use were identified. Leaking urinals and water heaters were the main cause of background water use.

Dun Laoghaire Shopping Centre has succeeded in:

- Eliminating leaks throughout the centre and reducing to almost zero the background "use" of water. This reduced water consumption by 62%.
- The installation of an on-line continuous water monitoring system which allows instant leak identification
- Reduction in the service charge for tenants due to the reduced water costs for the centre
- Promotion of Dun Laoghaire shopping centre's green image

€50,000 COST SAVINGS p.a.

62%REDUCTION IN WATER USE















WASTED WATER IS WASTED MONEY!

Sofrimar Kilmore Quay, Co. Wexford

Sofrimar at Kilmore Quay works with the local fishing community to bring Ireland's premium seafood to markets throughout the world.

As part of BIM's Green Seafood programme, Sofrimar installed an online water monitoring system. This identified that large quantities of water were being used each evening for site cleaning.

After the initial site assessment was made, the flow rates and times for cleaning were measured for all areas in Sofrimar.

A new system was installed, which had the following main benefits:

- Water flow rates were reduced from, on average 100L/min, to between 30 and 40L/min.
- Centralised chemical dosing for the foaming step which resulted in reduced chemical use.
- The improved water sprays from the nozzles reduced misting throughout the site, which improved the efficiency of the final rinse cleaning step.





€20,000 COST SAVINGS p.a. 30% REDUCTION IN WATER USE

THERE HAVE BEEN SIGNIFICANT IMPROVEMENTS IN CLEANING IN THE FOOD SECTOR THAT HAVE RESULTED IN REDUCED COSTS WHILE MAINTAINING THE HIGHEST STANDARDS.

THESE IMPROVEMENTS HAVE SEEN REDUCTIONS IN THE WATER, CHEMICAL AND ENERGY USED FOR SITE WIDE CLEANING AT MANY IRISH FOOD BUSINESSES.



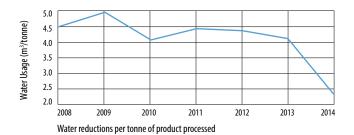
MONITOR, TARGET, REDUCE, REPEAT

ABP Food Group

ABP Food Group is one of Europe's leading beef exporters specialising in beef processing, de-boning and retail packing. Like all meat processing facilities they use water in almost all of their operations.

In 2008 ABP launched its "doing more with less" campaign aimed at different sustainability aspects throughout the company with water as a key focus area for possible reductions. A water monitoring system was installed onsite monitoring 40 meters, and giving real time water flows. This allowed ABP to produce accurate data on water consumption throughout the site. By reducing hot water consumption the company was also able to reduce its natural gas consumption. This in turn reduced the carbon footprint onsite.

In 2013 alone, ABP reduced water consumption by 45% and saved €150,000 on the cost of energy and water











€6,000 SAVINGS A YEAR AND A COOLER KITCHEN!

La Trattoria, Co.Cork

This busy family run restaurant in the centre of Midleton, Co. Cork employs 23 staff and is open 7 days a week with staff on site from 6_{A.M.} – 10_{P.M.}

As with any restaurant, the kitchen in La Trattoria is a hotbed of activity all day long. With all the cooking it gets very hot and previously there was an extraction fan that was running all day to reduce this heat. At the same time, they were spending over €9,000 annually on oil heating for hot water and space heating in the restaurant.

In 2013, La Trattoria decided to use this heat from the kitchen in a constructive way. They installed a heat recovery unit which takes the hot extracted air from the kitchen and uses it to heat water. This system now supplements their oil boiler, which is now actually only used for space heating.

The total cost of installation, which included the extraction ducting, the heat exchanger and hot water tank was €6,000. Since 2013, thanks to this system their oil bill has been reduced to €3,000 indicating an annual saving of €6,000. A one year payback on investment and a more pleasant working environment in the kitchen has proved to be a win-win result for La Trattoria and their staff.











€6,000COST SAVINGS p.a.
1 YEAR

PAYBACK



MOST BUSINESSES DON'T REALISE THE AMOUNT OF HEAT WASTE THEY GENERATE THROUGH OVENS, FRIDGES, ETC. OFTEN SOME OF THIS WASTE HEAT CAN BE RECOVERED VIA A HEAT EXCHANGER FOR USE ELSEWHERE.



SAVINGS ON HOT WATER -STRAIGHT FROM THE FRIDGE

Ballon Meats, Co.Carlow

Ballon meats, a family run business, has been producing lrish meats of the highest quality from their factory in Co. Carlow. Situated beside the family farm in Ballon the small factory that started 35 years ago has developed into a world-class plant, processing cattle, sheep and pigs.

In recent years Ballon Meats has started looking at improving the efficiencies of water and energy use. Due to the nature of the business, refrigeration comprises the majority of their electricity load and hot water the majority of their thermal load.

Ballon investigated the different options available and decided on installing a compressor desuperheater. This tubular heat exchanger was installed as part of a major refrigeration upgrade and now pre-heats the boiler feed water from approx 13°C to 45°C. In short it takes the waste heat from the freezers and heats the water!

It is estimated that oil costs for hot water heating have been reduced by approx 35% to 40% and in addition electricity costs are lowered as the refrigeration system doesn't have to work as hard. €15,000 COST SAVINGS p.a.

40% REDUCTION IN OIL COST















MONITORING YOUR ENERGY USAGE IS KEY

Slaney Foods International, Co. Wexford

At Slaney Foods energy reduction forms part of the company's GreenTrack sustainable development corporate philosophy.

After engaging with Green Business it was decided that energy monitoring and targeting software would be installed in three key areas – effluent treatment, livestock processing and refrigeration.

Using 3G communications to send the energy data from the monitored areas to a dashboard improved visibility on energy use in the facility. In turn it enabled Slaney Foods to quickly identify energy costs for significant electricity consumers and identify energy conservation measures.

Savings achieved at effluent treatment plant

Electricity Conservation Measure	Annual Savings
Installation of Variable Speed Drives	€4,754
Glycol Pump Discontinuation	€2,852
Submersible Aerator Removal	€10,582
Balance Tank Aeration Timer Change	€3,248
Energy Efficiency Drive	€5,030
Reduction in AHU Use	€1,570
Total Annual Savings	€28,038



TECHNOLOGY CAN HELP YOU VISUALISE YOUR ENERGY USAGE. CONVERTING RAW DATA MEASUREMENTS INTO VISUALS YOU CAN UNDERSTAND WILL ASSIST YOU WITH ENERGY SAVINGS, OPERATIONAL IMPROVEMENTS AND BUSINESS DECISIONS.



HOW MANY LIGHTBULBS DOES IT TAKE TO CHANGE A BUSINESS?

Something as simple as changing a lightbulb can save your company hundreds of euros annually.

Riverview Pharmacy, Co.Cork

Based in the Riverview Shopping Centre the Riverview pharmacy completed a lighting upgrade to include changing from recessed down-lights to LED down-lights and changing all fluorescent-based lighting behind glass shelving display units to LED tubes.

ENERGY REDUCTION: 68% PAYBACK: 2.2 YEARS







Supervalu, Co.Longford

Supervalu Longford has engaged in an energy reduction programme over the past 2 years. Fluorescent lamps have been replaced in all refrigerated units and cove lighting replaced by LEDs. Adjustable LED lamps have replaced metal halide directional lighting and LED Panels have replaced existing lighting in offices & corridors. Traditional high-bay lighting has been replaced with LED highbay in the product storage areas.

ENERGY REDUCTION: 69% PAYBACK: 1.9 YEARS







IF YOUR BULBS ARE GIVING OFF A LOT OF HEAT, THEN YOU COULD PROBABLY GET A MORE EFFICIENT ONE. BULBS SHOULD PROVIDE LIGHT – NOT HEAT! LIGHTS THAT GENERATE HEAT INCREASE THE COOLING LOADS AND WASTE EVEN MORE ENERGY IN REFRIGERATED AREAS.



REDUCING COSTS & EMISSIONS THROUGH HEAT RECOVERY

CG Power Systems Ireland, Co. Cavan

CG Power Systems has been manufacturing electrical distribution transformers at its facility in Cavan since 1977. The plant employs 465 people. The largest gas users on the site are 2 paint ovens. When Green Business first visited CG power it was estimated that the thermal ovens were consuming 7.4 million kWh of LPG per annum costing €500,000. Green Business in conjunction with CG power identified a number of process changes which would dramatically reduce gas consumption by 38%.



- Installed a heat recovery system on the main oven exhausts to capture the flue gas waste heat for preheating combustion air.
- Replaced the mechanical high/low burners with fully modulating controllable units.
- Installed variable speed drives in the extractor fans to allow optimal airflow.
- Installed automatic doors to synchronise opening times to reduce loss of warm air.

The improvements in the curing ovens have had significant financial and environmental benefits for CG Power Systems Ireland. A reduction in energy consumption provided a cost saving of €190,000/annum and reduced the thermal energy required by the ovens by 38%. This corresponds to annual savings of 678 tonnes of CO₂ emissions.





€190,000 COST SAVINGS p.a.





GO GREEN FOR CHARITY

Sign up to **Green 50** and raise funds for a **charity of your choice!**

All you & your team have to do is commit to 'green' sustainable practices in the workplace and donate up to 50% of your savings to a nominated charity



To get involved or for more information visit www.green50.ie or email info@green50.ie







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