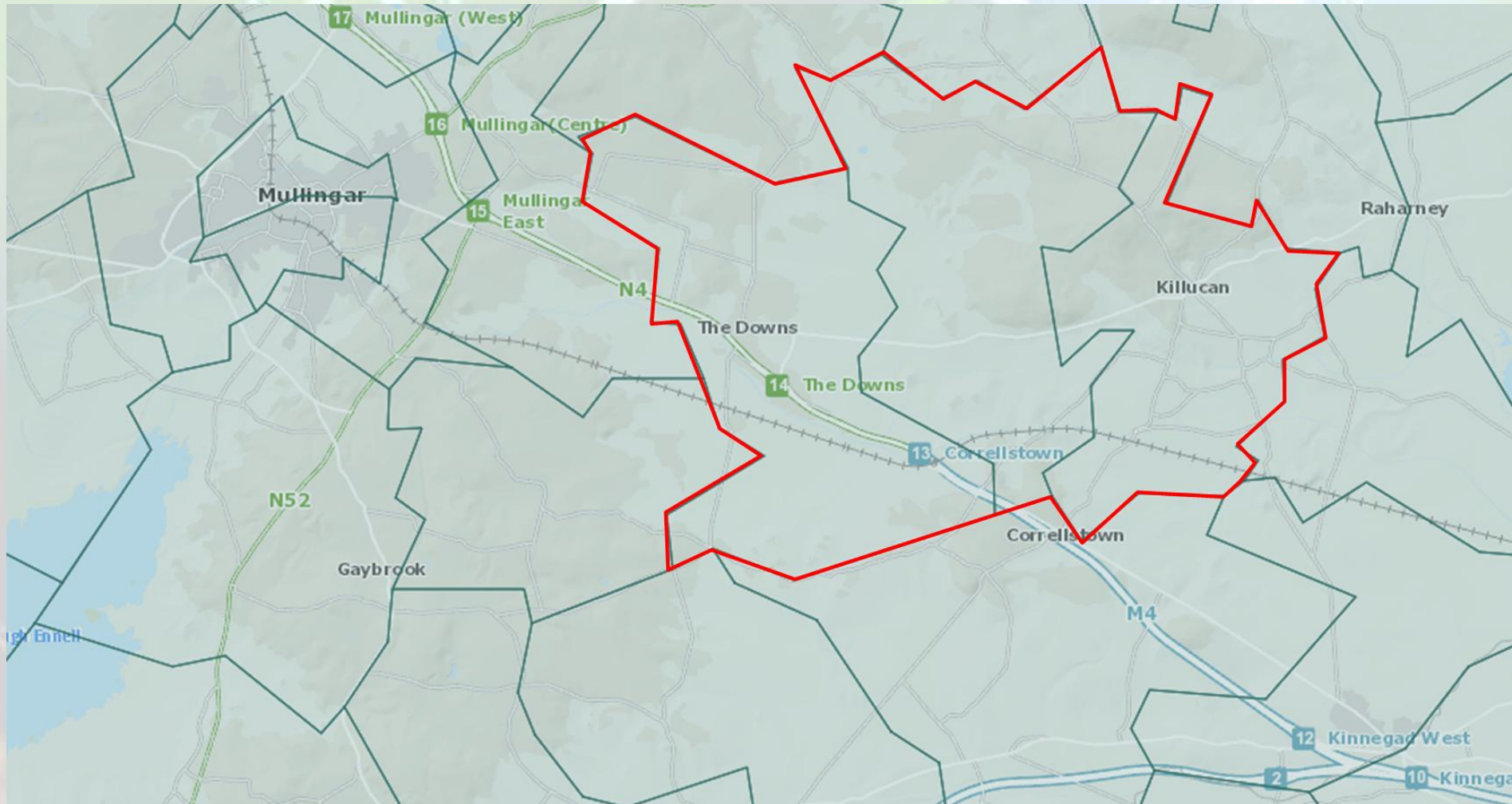




Energy Master Plan for The Downs Sustainable Energy Community (SEC)

LAUNCH OF EMP 30 April 2024

The Downs SEC



The Downs SEC

Supported by

**Committee members & Siobhán
Kinahan: SEC mentor**

**300+ SECs all
around Ireland**

**The Downs –
Killucan -
Coralstown**

**Request for
Quotations to
conduct EMP**

**Energy Co-
ops Ireland**

Overall Aims

To produce a strategic plan that will help bring The Downs SEC from a position of energy inefficiency and over-reliance on imported fossil fuels to a community that is more energy efficient, with lower carbon emissions and having affordable and reliable local sources of energy.

Show the opportunities for energy conservation within the community.

Develop examples of both business and private case studies with a view to get homes, businesses and farms to switch to green energy.

Summary: 2025-2031



**Producing
In
Emissions
costing about**

Needing



To Offset

**NEARLY ALL of
it lost to the
area**



€14m

Summary: 2025-2031

7.5kt
CO₂

LESS
In
Emissions
costing about

Like planting

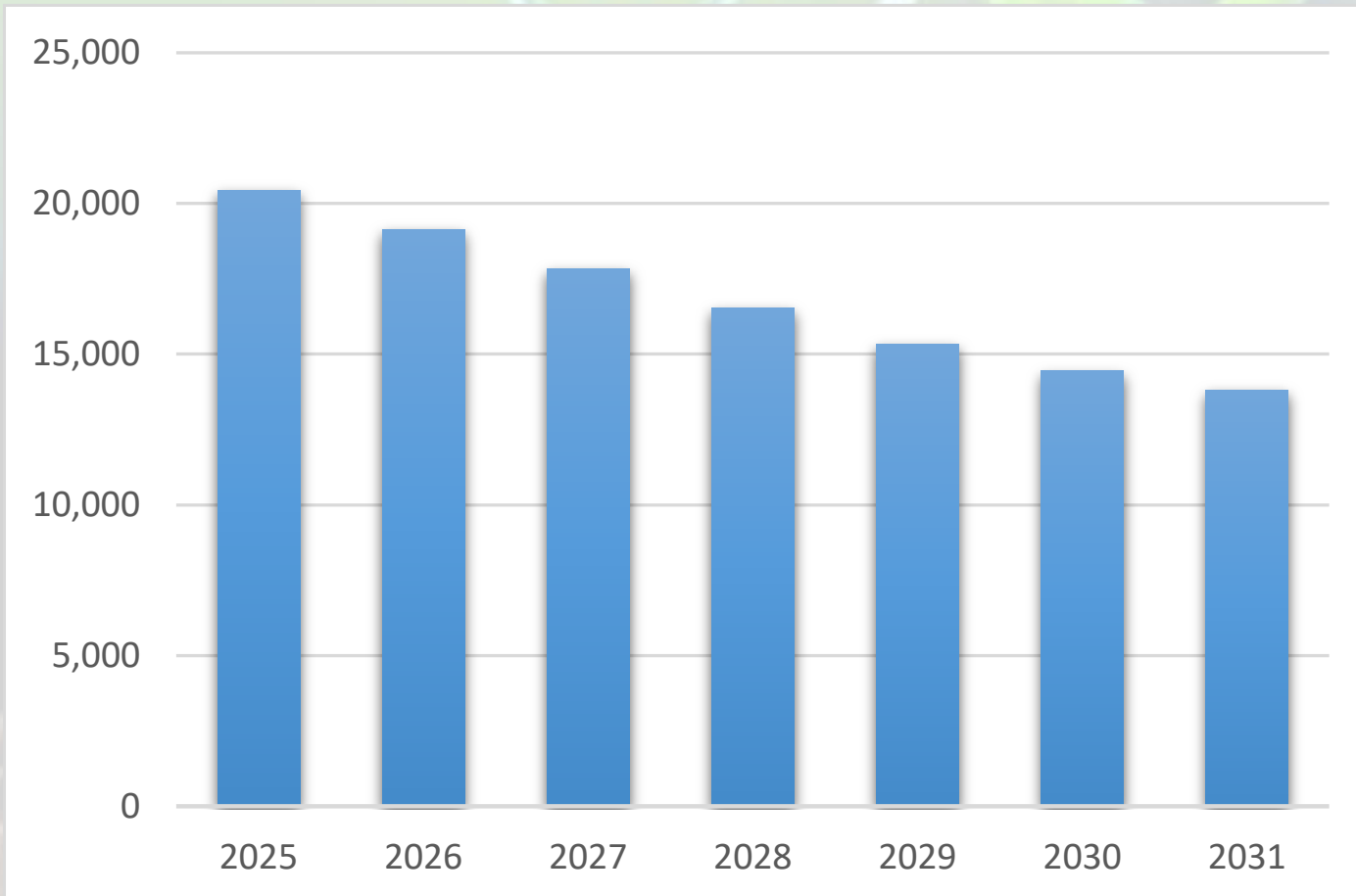


€3.7m

Saving
Approximately



Summary: Possible position 2031



Under this Sustainable Energy Strategy, emissions from The Downs SEC's energy use would be reduced to just 67% of 2024 levels, but with considerable amounts produced renewably and locally

Survey of Energy Use

Data from a wide range of sources: for example, BER database, CSO

Information on the EMP is published at [Energyco-ops.ie/the-downs](https://energyco-ops.ie/the-downs)

There is also an 8-page summary guide in a PDF

As well as this presentation



Basics

Population of 3,237 people, in 1,082 homes

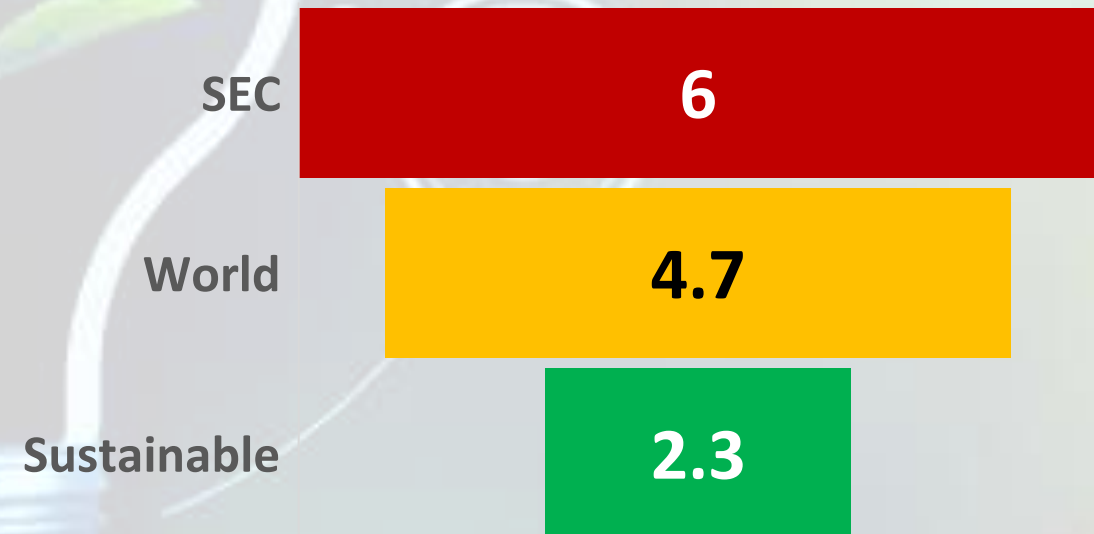
46 Registered businesses and community buildings

98 Farms

Annual tCO₂ per person in SEC: is 6 tonnes CO₂ pp/yr (tCO₂)

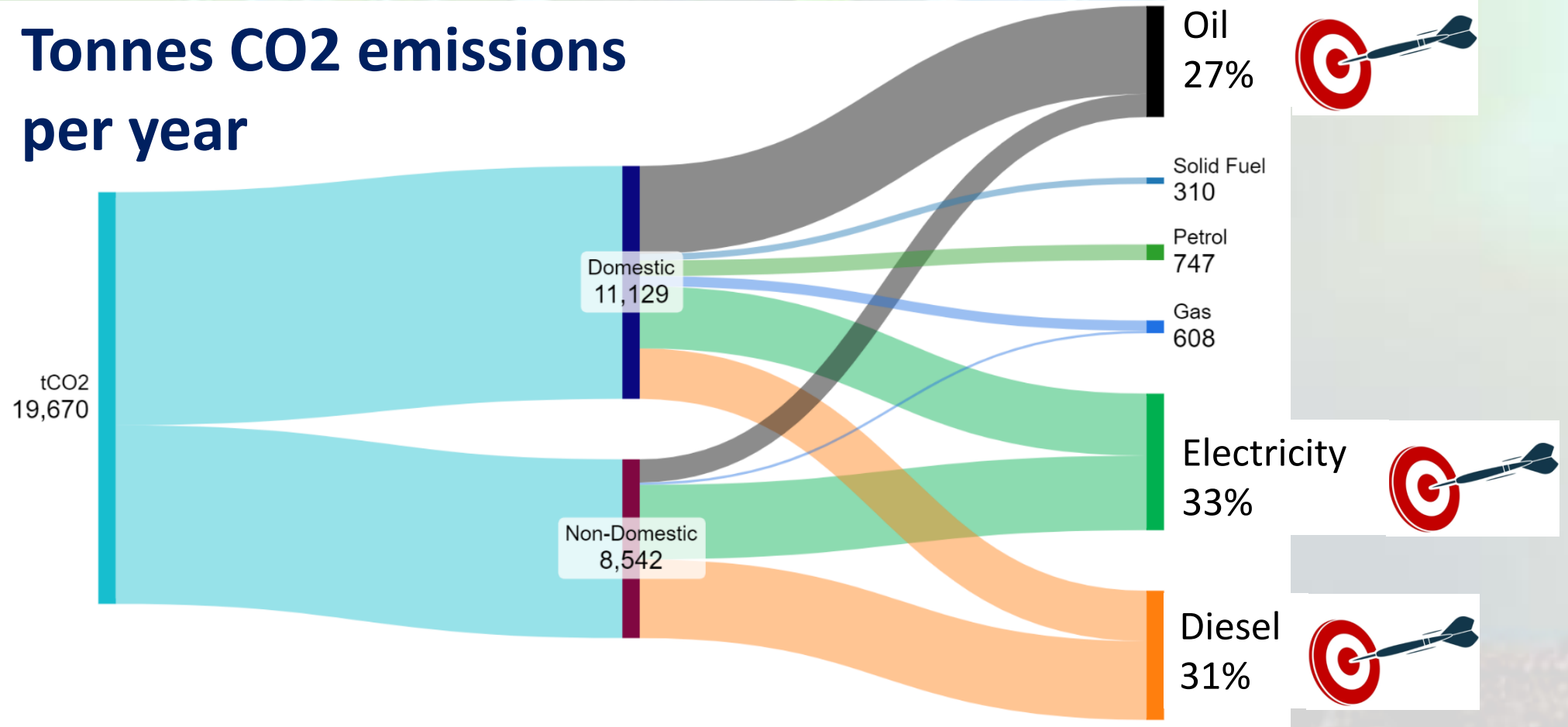
The World Average is 4.7 tCO₂ pp/yr

To keep us below 1.5C global warming, this has to be 2.3 tCO₂ pp/yr

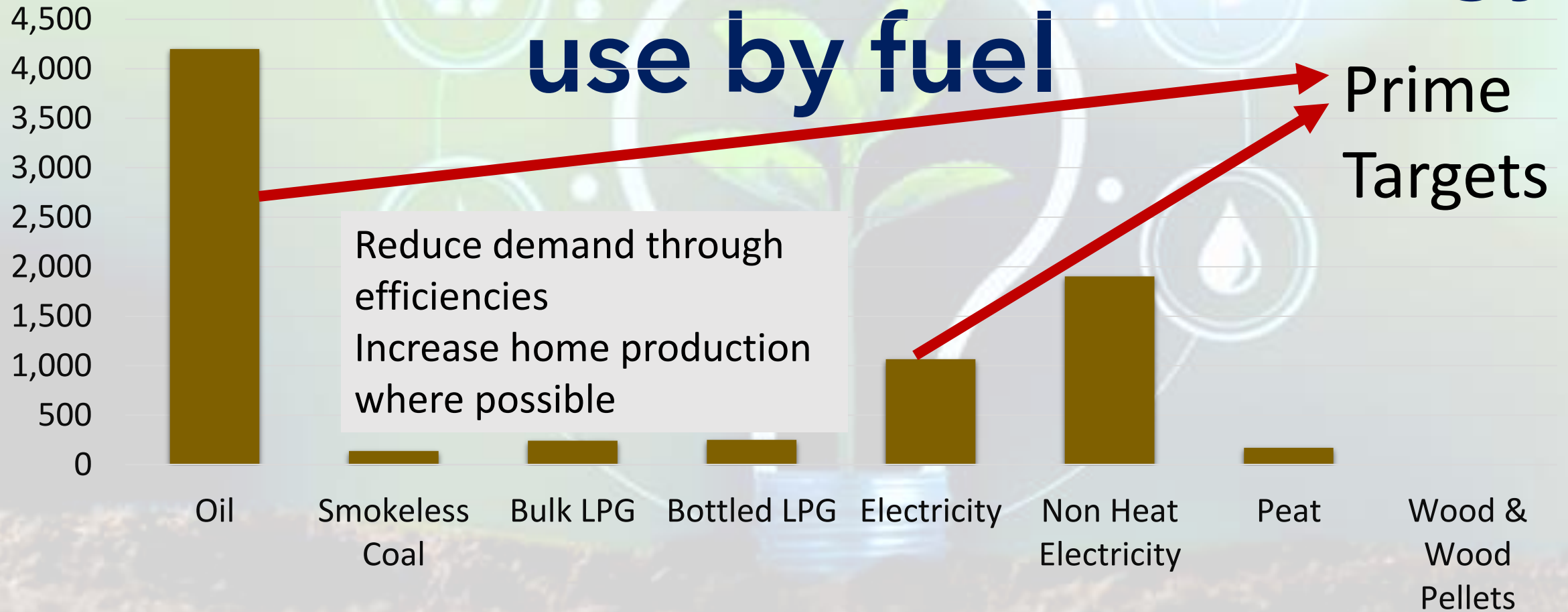


Findings

Tonnes CO2 emissions per year



Annual CO₂ from home energy use by fuel



Quick Tips

Step 1: Do Your Own Audit:

- Check windows, external doors, vents, floor spaces, fireplaces, and stoves with a stick of incense: and track down and eliminate draughts.
- Check insulation levels in attic, basement, walls (including the meter box), and floors
- Check your boiler and stove; what age are they? When were they last serviced?
- Collect energy bills and scrutinise them over a year or 2.
- To save money in the short term see if you need to change your electricity supplier.

Quick Tips

Step 2: Actions to save 12% of your energy costs and fossil fuel use:

- Turn everything off – don't leave on standby (2%)
- Use a clothesline when possible – no tumble dryer (7%)
- Wash clothes @ 30 degrees (1%)
- Turn off lights when not in a room, replace bulbs with CFLs at least, or with LEDs if possible (2%).

Quick Tips

Step 3: Control how you use heat

Keep room temperature 19C (this can save up to €350 every year for each degree lower you heat the house)

Close the curtains at dusk to keep heat in the room that would otherwise be lost through the cold windows, and you could save up to 10% of your heating costs.

Consider fitting shelves above radiators as they redirect the warm air that rises from them back into the room.

Air your house 3 to 5 minutes a couple of times a day, instead of opening windows a little bit all day. Shut off your heating, during airing. This can reduce heat loss by 16%.

Bleed your radiators regularly. If there is air in your radiator your boiler burns longer. Start with the lowest and end with the highest radiator.

Retrofits

Make your home cozier, save money and reduce carbon emissions



E2  B1

External doors, Roof insulation,
Wall insulation, Windows double
glazing (average U-Value)
Air-to-Water heat pump and
integrated heating controls

6 measures which, when completed in order, will bring the home's energy costs for the home from €5,590 per to €4,234 per year.

Potential 90% reduction saving of €1,356. CO2 emissions of the home would be reduced by 14 tonnes the equivalent of carbon sequestered by 997 mature trees annually.

Needing a spend of €27,500 (net grant).



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Retrofit Supports

Individual Energy Upgrade Grants

Up to 80% of the cost of the upgrade for a typical family home with SEAI grants

Homeowners manage their own upgrades including:

- contractor selection
- grant application
- contractor works
- pay for full cost of works and claim grants afterwards
- follow up BER

For homes built and occupied before:

2011 for insulation and heating controls
2021 for heat pumps and renewable system



Retrofit Supports

One Stop Shop Service

Based on set grants per measure, this can be grant funded by SEAI 45 - 50% of the cost for a typical family home

A One Stop Shop contractor manages upgrade including:

- home energy assessment
- grant application & project management
- upgrade to a minimum B2 BER
- contractor works
- homeowner pays for the works net of grant
- follow up BER

For homes built and occupied before:

2011 for insulation and heating controls
2011 for renewable systems



Retrofit Supports

Fully Funded Upgrade

Qualifying* homeowners receiving certain welfare benefits: All home upgrade costs covered by SEAI

Service is managed by SEAI and includes:

- home survey
- contractor selection
- contractor works
- follow up BER

Homes built and occupied before 2006

*Person receiving one of:

Fuel Allowance **or** Job Seekers Allowance **or**
Working Family Payment **or** One-Parent Family Payment **or**
Domiciliary Care Allowance **or** Carers Allowance **or**
Disability Allowance



**HELP A FRIEND, NEIGHBOUR,
OR FAMILY MEMBER REGISTER
RIGHT AWAY**



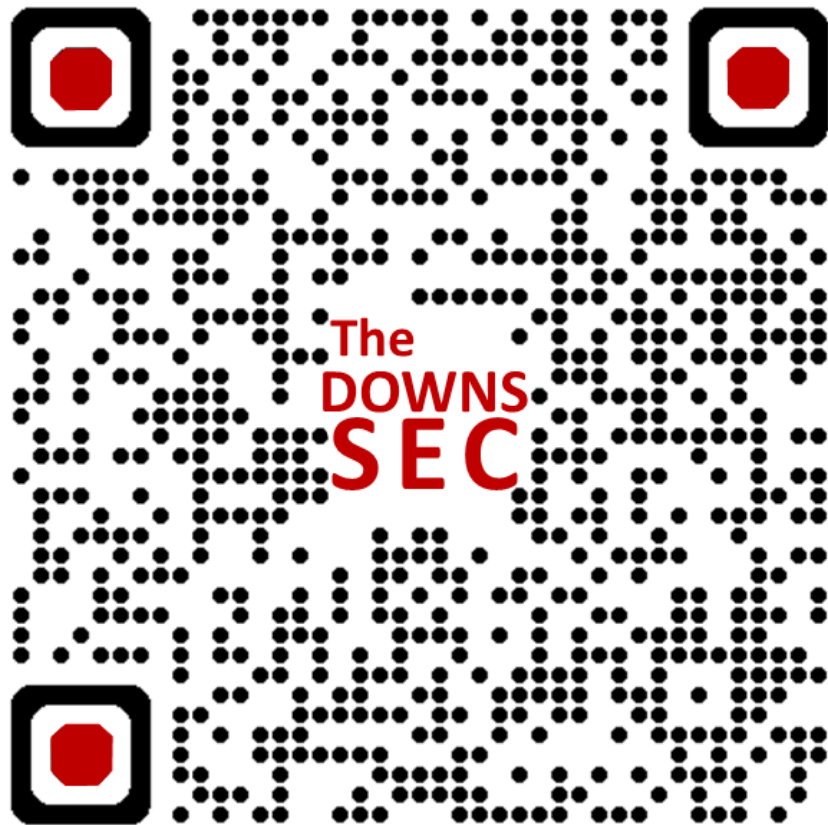
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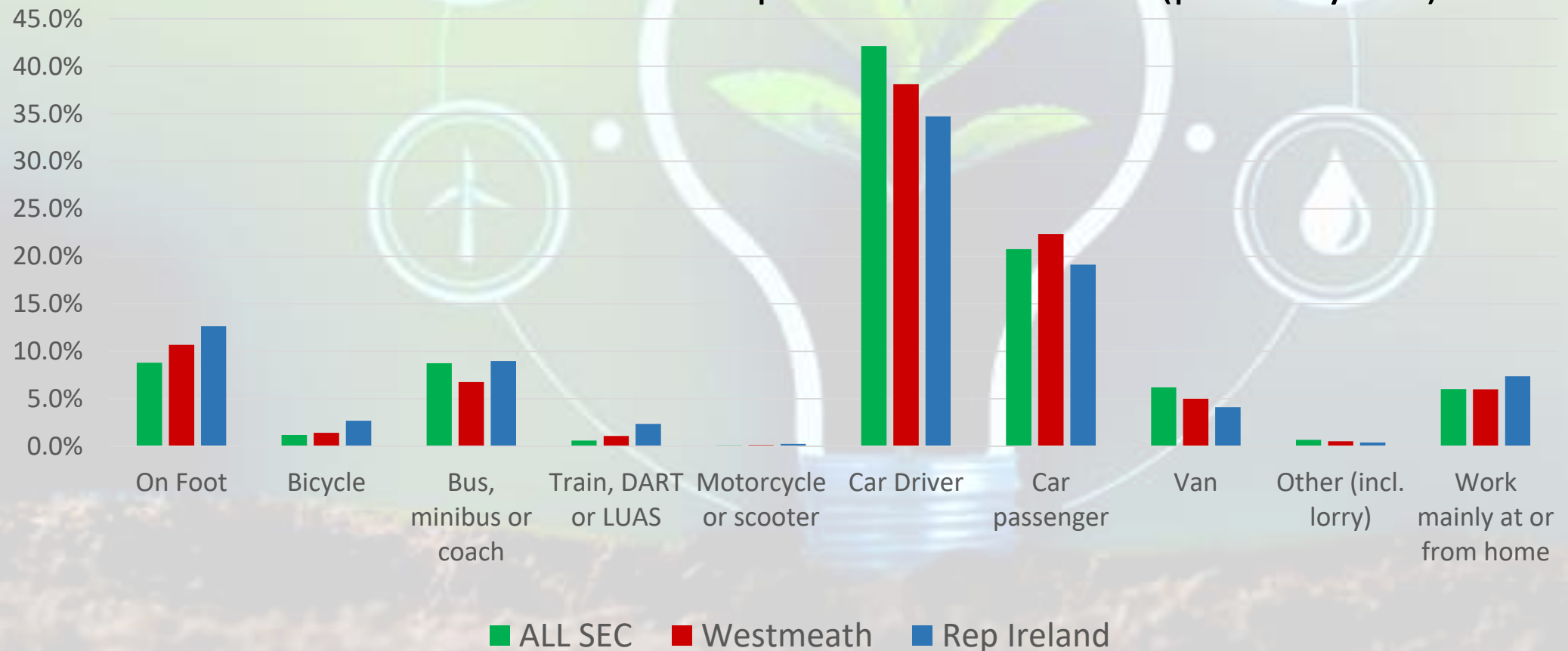


Go to the link to
find out more

Transport

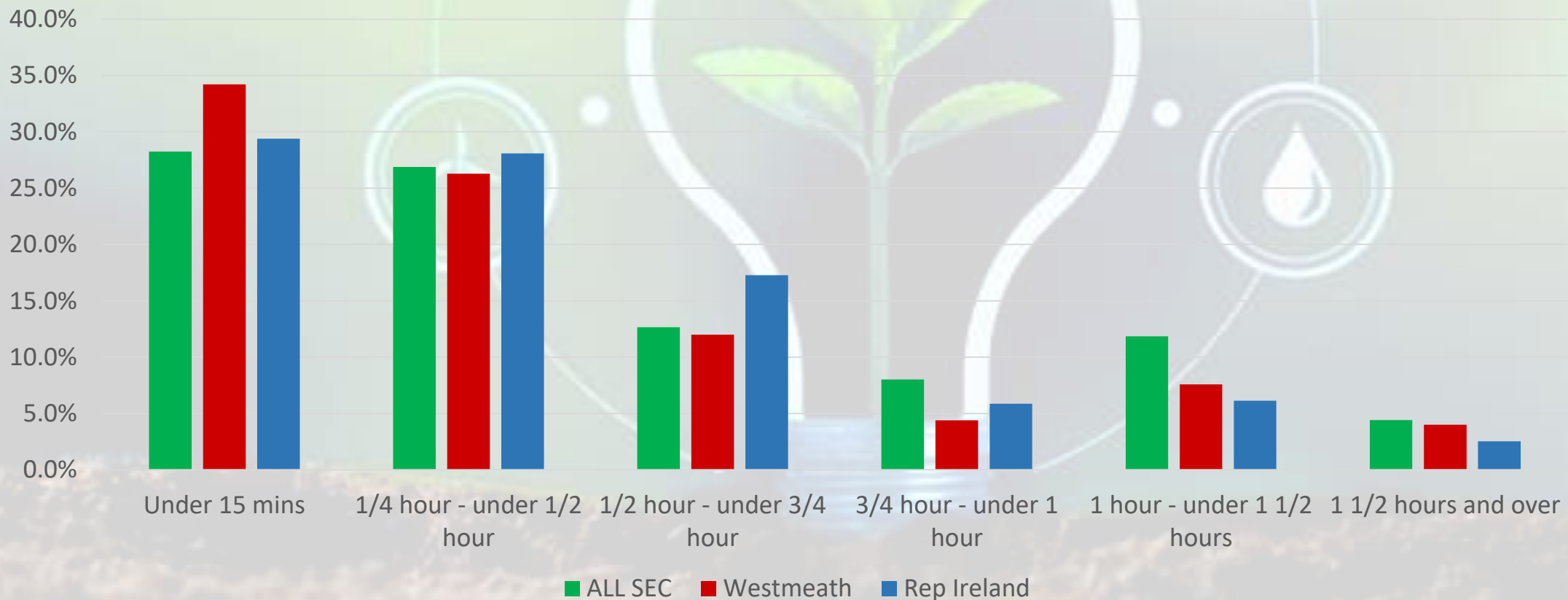
There are about 1,800 private cars in the SEC .

An estimated 69% are diesel with 27% petrol and 4% other (probably EVs).



Transport

Vast majority of journeys are within the range of EV batteries, park and ride in Mullingar can meet the demands of nearly all the remainder of trips.



Transport

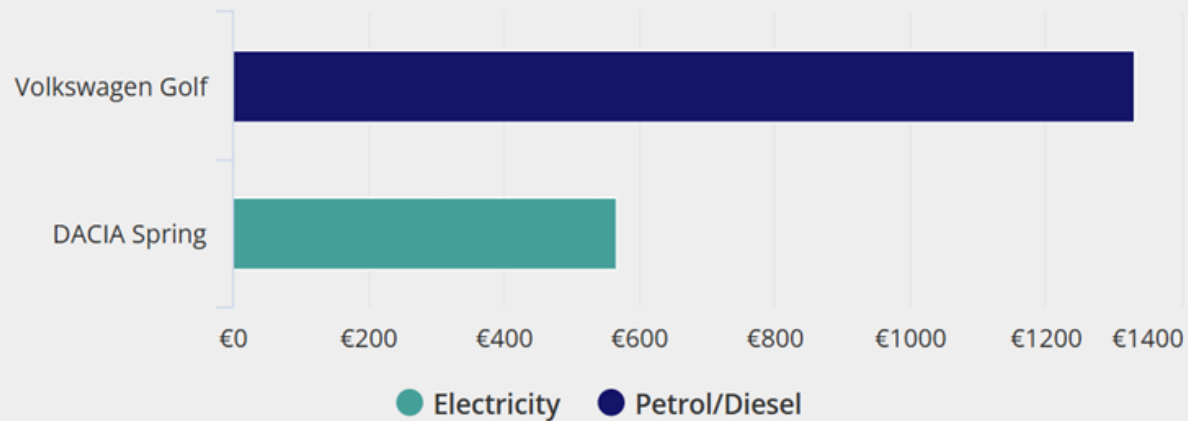


Volkswagen Golf
2.0 TDI 115HP Life

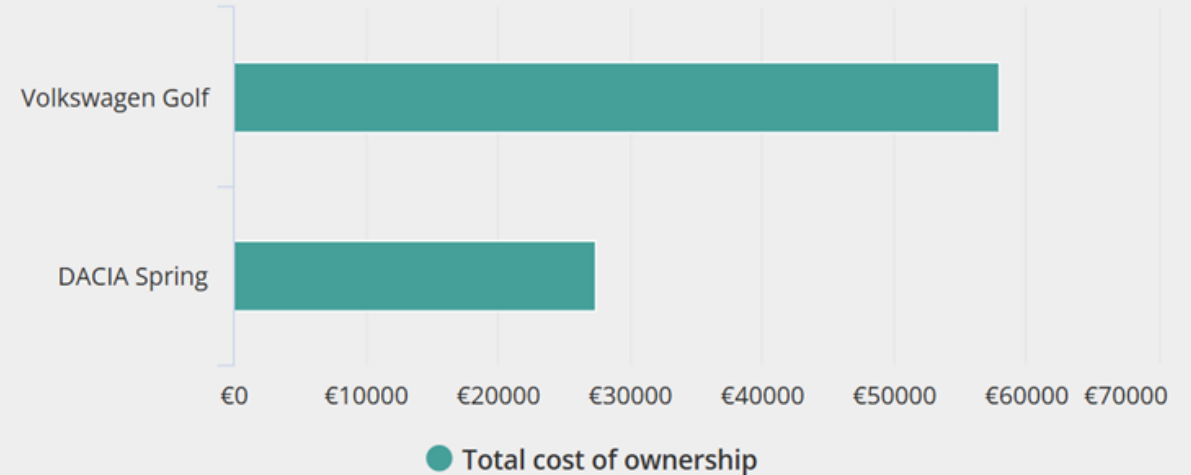


DACIA Spring
BEV 26.8kWh 45HP Expression

Annual energy costs



10 year total cost of ownership



Businesses and Community

Most SMEs and Community Buildings can save approximately 30% of energy costs and emissions relatively easily

Grants available for audits and recommended actions. A €2,000 energy audit voucher. Community grants available for schools, clubs, etc

For: Downs GAA Club

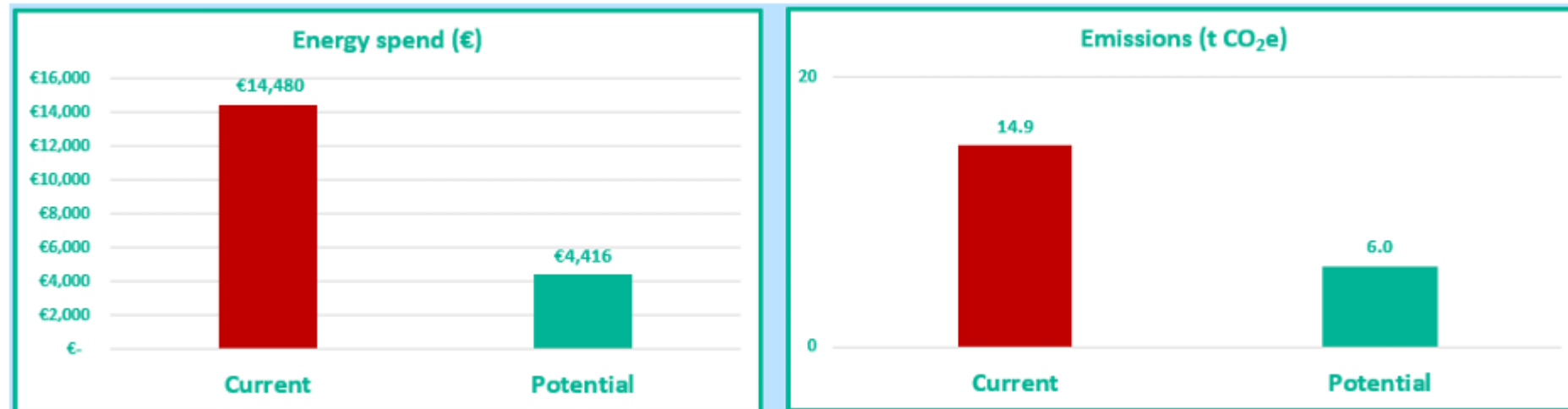


Energy performance of your

	Current	Potential
Energy management	★★	★★★★★
Building fabric	★★★	★★★★★
Building services	★★	★★★★★
Manufacturing & processing equipment	N/A	N/A
Manufacturing & processing controls	N/A	N/A
Use of renewables	★★	★★★★★

Businesses and Community

Compare current and potential energy costs, before and after recommended actions



70% reduction in energy bills

Businesses and Community

Action	Energy saving per yr (€)	Emissions reduction per yr (t CO ₂ e)	Cost of action (€)	Payback period (years)	First step
Lighting upgrades	€ 4,070	3.00	€ 80,000	19.66	Contact suppliers, no grant
Lighting Controls	€ 1,628	1.20	€ 5,000	3.07	Contact suppliers, no grant
Install solar photovoltaics	€ 2,388	1.76	€ 8,000	3.35	Contact an obligated party to make a CEG grant application
Club users awareness programme	€ 724	0.86	€ 500	0.69	Organise a poster campaign and notices around the clubhouse and grounds
Smart Heating Controls	€ 213	0.55	€ 500	2.34	Contact an obligated party to make a CEG grant application
Building fabric upgrades	€ 1,045	1.59	€ 28,000	26.79	Contact an obligated party to make a CEG grant application
Radint Tube Heating in Multipurpose Hall	€ 800	1.21	€ 6,000	7.50	Contact Suppliers, possibly no grant

Farms

98 farms in the SEC area

	Farms	Av Area (ha)	Tot Area (ha)	Grassland (ha)	Cattle N	Cattle (ha)	Sheep N	Sheep (ha)
Killucan	28	37	1,040	981	1,354	981	0	
Huntington	32	35	1,116	957	2,060	957	0	
Heathstown	38	28	1,049	1,030	1,584	830	2,200	200
TOTAL	98				4,998			

Total Energy Use (excluding tractors and machinery) approx.
1500 MWh per year

PV and Cattle?

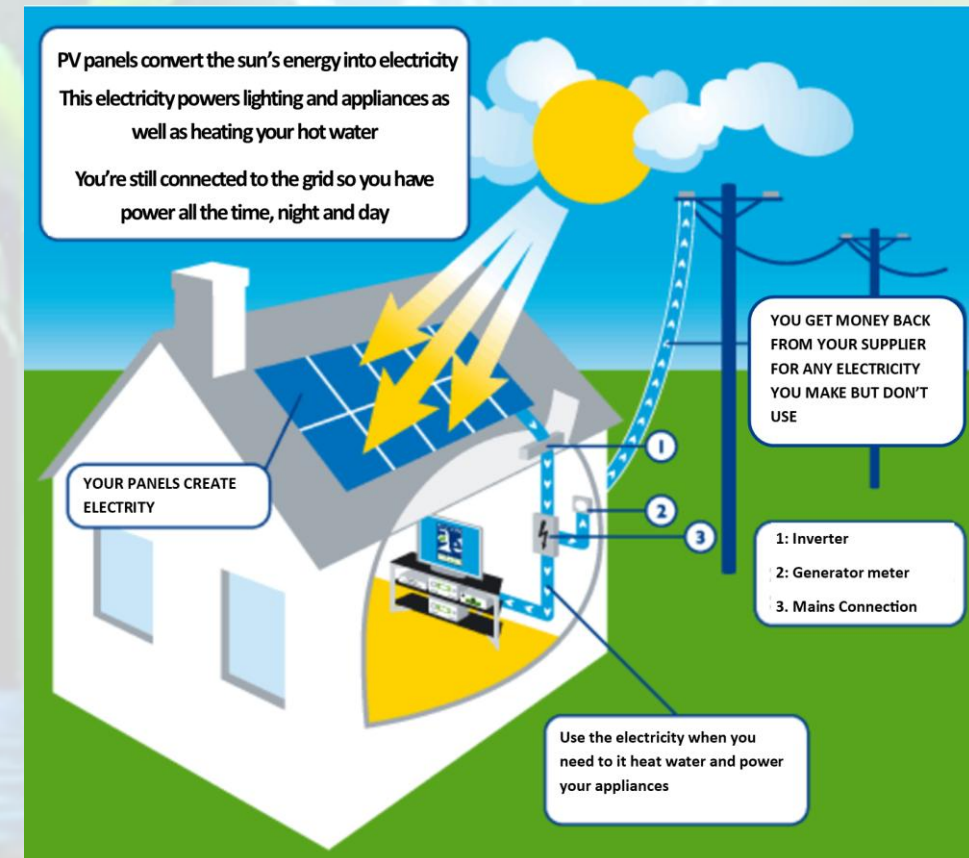
- Lower costs and carbon footprint with medium scale onsite PV: now includes dairy as well as sheep farmers.
- Grid payments for excess generation, but you will need to consume at least 20% of the power you generate.
- Dave Foran's dairy farm in Co Waterford uses a bifacial 27kW PV system.
- 74% of the energy generated consumed on the farm: payback in just four years
- Avoiding nearly 9,000 tCO₂, equivalent to planting 636 trees



PV in the home

A number of solar panels mounted to your roof (or in your garden or adjacent field)
Connected into the electrical loads within your building.

PV systems are rated in kilowatts (kWp).
A 3kWp solar PV system would require about 12 solar panels on your roof needing about 8m² of space
In this area it will generate about 2,900 units of electricity (kWh) a year.



PV for the community?

- Severe grid restrictions
- RESS scale PV difficult locally at present

Distributed PV potential in homes

- 1,082 homes, 910 are houses with 5 rooms or more
- These would be very suitable for 3kW+ home PV systems
- This would generate approximately 2,447MWh of electricity annually.
- Equivalent to a grid scale PV farm
- And is very profitable

Economics of a 3kW System in The Downs

System Cost (with grant)	Annual Savings & Rebate	Payback Period	Lifetime** Profit
€4,800	€777/year*	6.1Years	€11,604

*Based on a cost of €0.31/kWh unit electricity and a price for supply to grid of €0.25 per unit electricity with half used in the home and half exported.

**A typical PV System has a 25-year lifespan. This does not include any increase in cost of electricity over the period which would increase the lifetime profitability.

Solar Meitheal

A community-led concept.

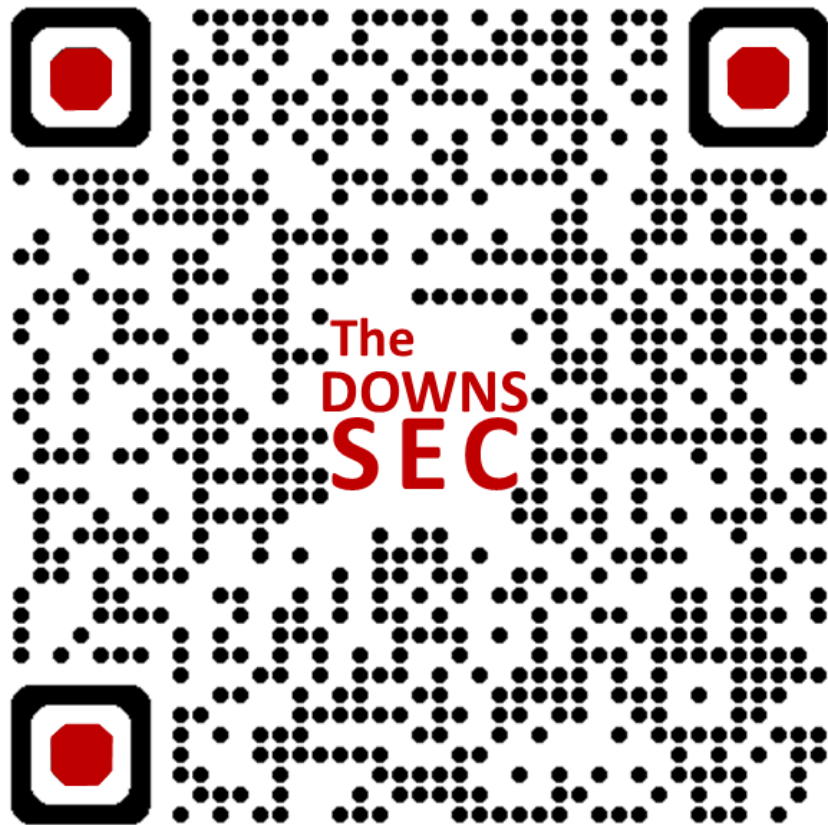
Bringing homeowners together in a local area who want to install Photovoltaic (PV) panels on their homes.

- Source quotes from Solar PV suppliers and installers, through bulk purchases
- Simplify planning multiple installations in one community
- Help each other learn and succeed in carrying out a potentially challenging project
- Perfect first project for The Downs SEC



Greystones and Delgany SEC Solar Meitheal, Co. Wicklow,
greystonesgreenenergy.ie

Solar Meitheal



Go to the link to
sign up for The
Downs Solar
Meitheal

Greystones and Derrigally SEC solar
Meitheal, Co. Wicklow,
greystonesgreenenergy.ie



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Total Sustainability Actions

Retrofit 15% of G-C3 homes each year to B3

15% ND Buildings upgraded each year achieving 30% energy reduction

Information campaign to encourage GV owners to switch to E Vans

Information campaign to encourage PSV owners to switch to EVs

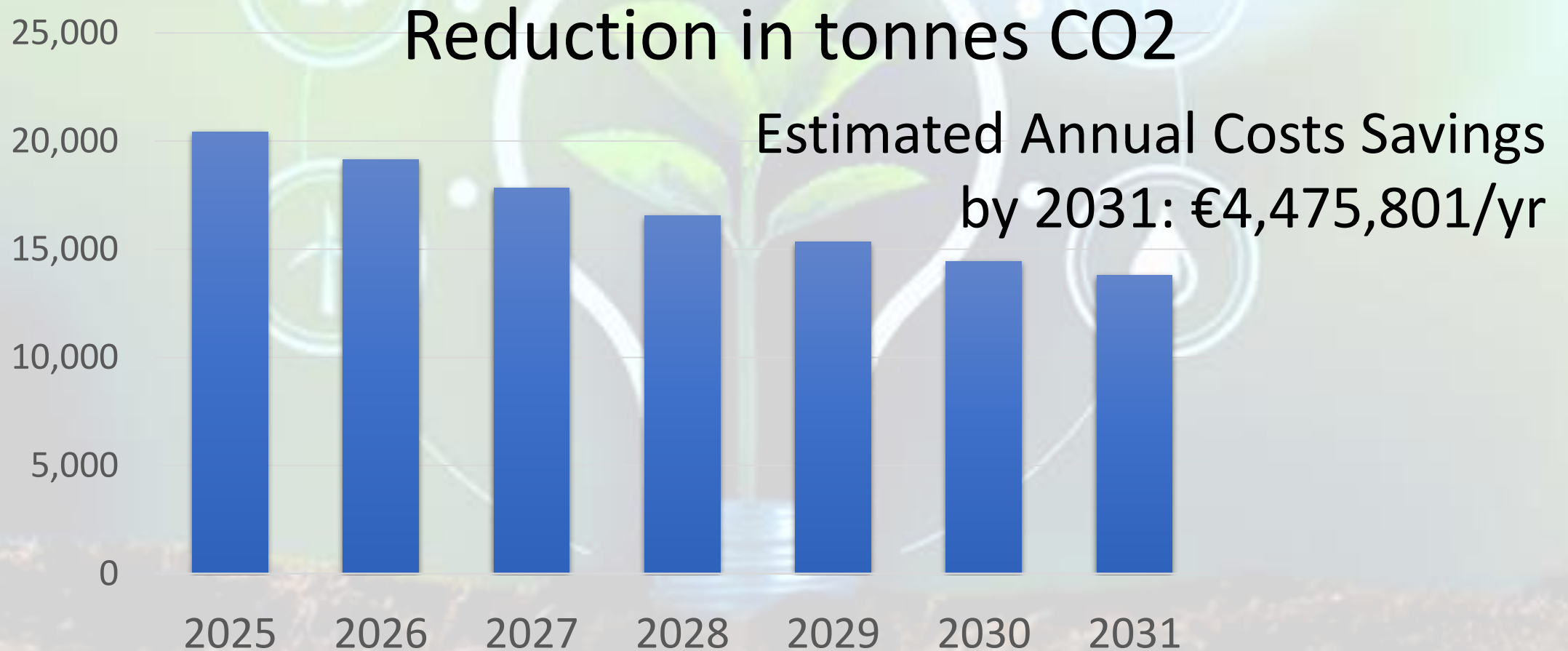
5% replacement of FF domestic cars with EVs annually

Campaign for Tractors, Machinery and HGVs in SEC to switch to HVO

50 homes with 3kWp installations with 116 additional homes recruited each year until a target of 745

Farms, Businesses and Community organisations to install micro-auto consumption PV according to onsite demand

Total Sustainability Effects





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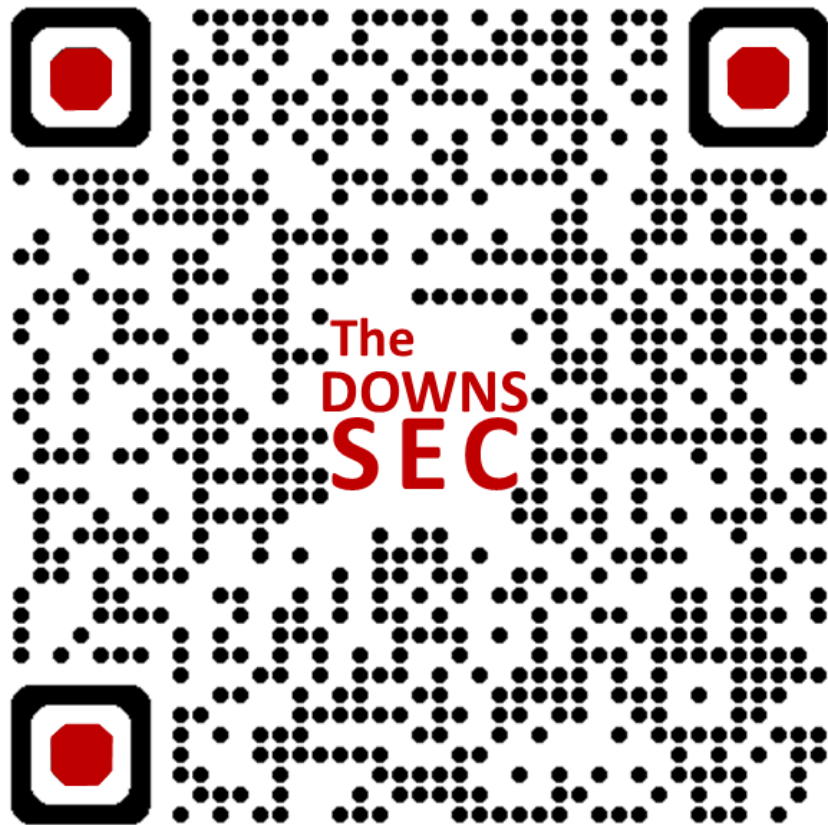


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