



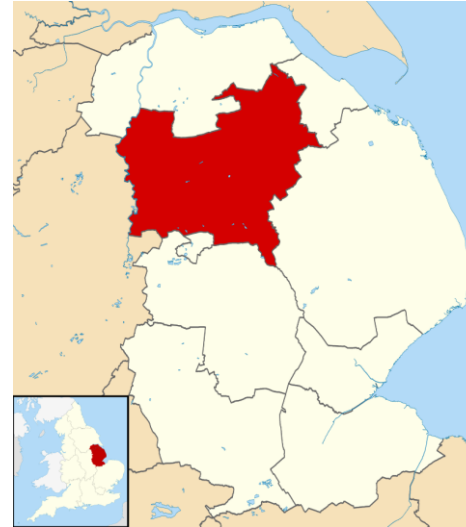
Steve Leary – Policy &
Strategy Officer



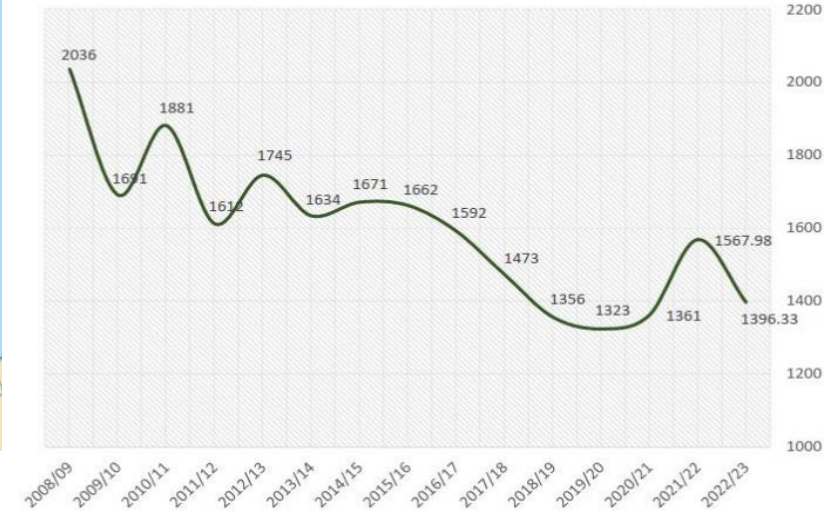
Solar Panels on Refuse Collection Vehicles

The Case for Change

- Net zero by 2050
- Carbon reductions of 30% since 2008/09...But how to continue?
- Review: “comprehensive analysis of the current fleet, assess technological options and barriers, market opportunities, lifecycle costs and provide a clear, staged roadmap towards decarbonisation by 2030.” **NO COMPROMISE ON SERVICE DELIVERY**



West Lindsey District Council CO2 Emissions 2008/9 - 2022/23



Scoping Of Options

•Option One: Do Nothing

- Fails to support WLDC's net-zero 2050 target
- Could worsen financial position
- Demonstrates a lack of commitment to environmental sustainability

•Option Two: Invest in Earlier Vehicle Replacement

- Financially inappropriate at this stage
- Increased efficiency savings offset by replacement costs
- Additional climate emissions from manufacturing
- Barriers remain to adoption of electric vehicles in WLDC

•Option Three: Installation of Solar Mats (Recommended)

- Aligns with WLDC's Net Zero ambitions
- Demonstrates commitment to reducing CO2 emissions
- Low-risk, commercially proven solution
- Reduces carbon emissions by 6 tons annually
- Saves on HGV running costs
- Preferred for its timely benefits and realistic payback period

In 12 months,
the WLDC fleet:



Drove around
454,000 miles



Consumed over
**3,307 megawatt
hours** of fossil fuel
energy



Produced **989t** of
GHG emissions



Project Overview



Aligns with environmental objectives and financial prudence.



Immediate impact with conservative emission reduction estimates.



Demonstrates ongoing commitment to sustainability...and shows that it doesn't have to cost more



Fleet Impact

16 refuse HGVs contribute over 40% to council's total emissions.



Solar Mat Technology Trial

Trialing on 6 vehicles.

Well-established in the commercial sector.



Environmental Benefits

Reduces diesel reliance.

Cuts CO2 emissions by at least 6 tonnes annually.



Financial Benefits

Positive ROI by year 4 (2027).

Annual savings of £6,000 from lower fuel consumption and improved vehicle longevity.

Reduce diesel consumption and emissions in 3 simple steps.



Step 1

We take your commercial vehicle and apply ultra thin solar matting to the roof...



Step 2

Connect the matting to the Smart Charge Controller which monitors the electrical requirement and regulates and changes the energy transfer behaviour depending on the vehicle state...

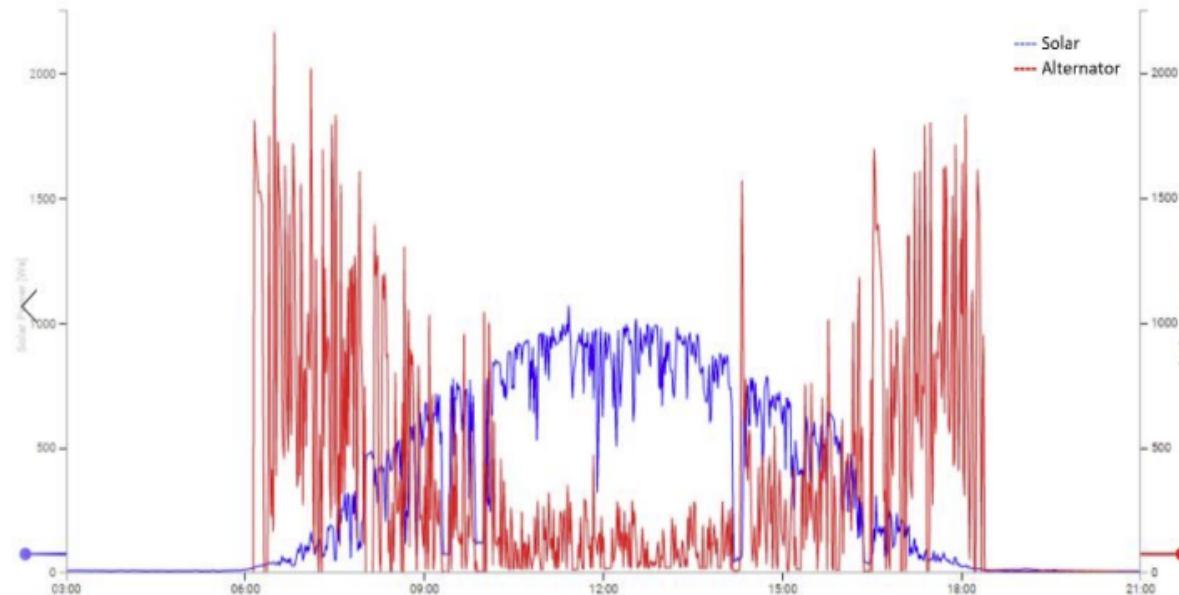
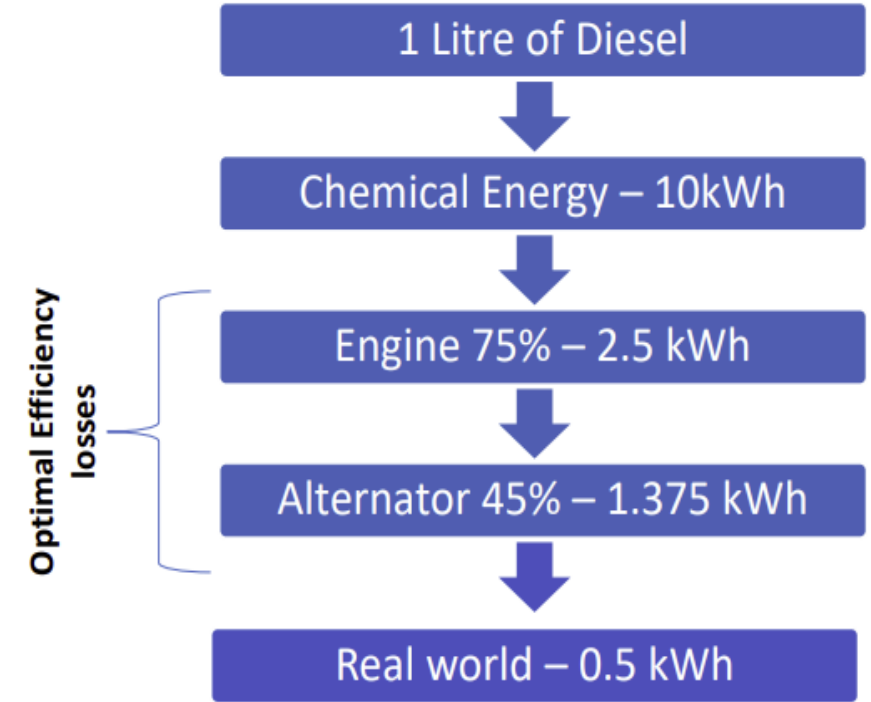


Step 3

Non-evasive sensors monitor the vehicles electrical characteristics, calculating the energy saving from the vehicle and therefore reducing your vehicles fuel & maintenance spend, as well as reducing your carbon footprint

WHY IT WORKS & THE FUEL BENEFIT

- Vehicles have an inherent active load greater than 0.4kw in standard operation, running equipment such as the stereo; heating; sat nav; etc.
- Additional consumers such as tail-lifts; deck-lifts; and fridges add to this initial load, drawing more energy from the vehicle.
- The TRAILAR solar solution utilises the energy from the sun to aid the running of these electrical consumables, reducing the alternator output, saving fuel and CO₂.



Monitoring and Reporting

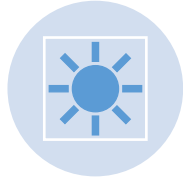
- Web based telematics
- Solar Yield & Fuel Saving
- Vehicle Tracking

The screenshot displays a web-based telematics interface for Vision Techniques. The dashboard is organized into several sections:

- Navigation:** A top menu bar includes 'Mapping', 'Reports', 'Administration', 'System Admin', 'FnoI Report', and 'FnoI Report'.
- Vehicle Filter:** A search bar and filter tabs for 'VEH', 'ZONES', and 'JOBS' are located below the navigation.
- Vehicle Data Table:** A list of vehicles with their status, location, and performance metrics. The data is as follows:

Vehicle ID	Status	Time	Solar Yield (kWh)	Fuel (L)	Weight (KG)	Video
VT123	5.55 (mph)	13:14	2.4	4.8L	12.9KG	Active
VT456	4.35 (mph)	13:15	2.4	4.8L	12.9KG	Active
VT789	3.73 (mph)	13:10	2.4	4.8L	12.9KG	Active
VT101112	Stopped	12:48	2.4	4.8L	12.9KG	Active
VT131415	Stopped	13:06	2.4	4.8L	12.9KG	Active
VT161718	4.57 (mph)	13:14	2.4	4.8L	12.9KG	Active
VT192021	Stopped	12:30	2.4	4.8L	12.9KG	Inactive
- Live Video Feeds:** On the right, there are four live camera feeds showing different views from the vehicles, including a rearview mirror and a street view.
- Map:** A map at the bottom right shows the location of the vehicles, with 'Robertson' and 'Win Pl.' labeled.
- Status:** A status bar at the bottom indicates 'Online: 9' and 'Offline: 11'.
- Copyright:** The bottom right corner contains the text 'Copyright(C) Vision Techniques'.

Project Evaluation



Install solar mats and telematics system on 6 HGVs by end of June 2023



Achieve ROI with expected payback in year 4 post-installation



Realise CO2 reductions of 6 tonnes per full year of operation (June 2023 onwards)



Conduct 6 monthly telematics monitoring reports from October 2023 onwards



Inform future planning for vehicle replacement through enhanced vehicle data



Return on Investment?

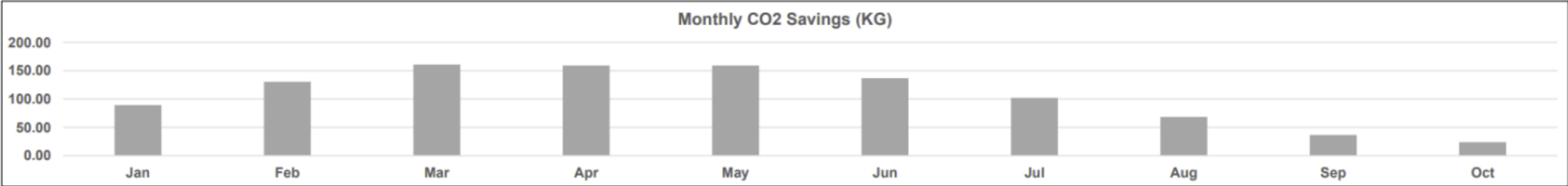
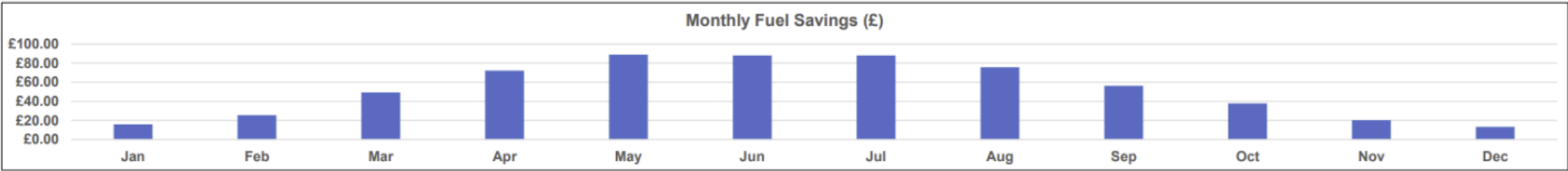
Annual Figures Per Asset	
Annual Fuel Saving (L)	425.90
Annual Fuel Saving (£)	£630.33
Annual Ad Blue Saving (L)	25.55
Annual Ad Blue Saving (£)	£12.78
Total Savings (Inc. Additional Benefits)	£1,030.33
Total Annual CO2 Saving	1.1 Tonnes

Per Asset	
ROI Years	2.6
% Fuel Saving	8.65%
% CO2 Saving	8.65%

Annual Fleet Savings	
Annual Fuel Saving (L)	7666.2
Annual Fuel Saving (£)	£11,345.92
Ad Blue Saving (L)	460.0
Ad Blue Saving (£)	£229.98
Total Savings (Inc. Additional Benefits)	£18,545.92
Total Annual CO2 Saving	19.8 Tonnes

Total Fleet Life Savings	
Fuel Saving (L)	30664.7
Fuel Saving (£)	£45,383.69
Ad Blue Saving (L)	1839.9
Ad Blue Saving (£)	£919.94
Total Savings (Inc. Additional Benefits)	£74,183.69
Total CO2 Saving	79.2 Tonnes

Annual Figures	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly Fuel Savings (£)	£15.82	£25.49	£49.23	£72.09	£88.79	£87.91	£87.91	£75.60	£56.26	£37.80	£20.22	£13.19
Monthly CO2 Savings (KG)	28.65	46.17	89.15	130.54	160.78	159.19	159.19	136.91	101.88	68.45	36.61	23.88



Conclusion



Emissions and Cost Reduction

Equips 6 refuse HGVs with solar mat technology.
Reduces WLDC's carbon emissions and operational costs.



Strategic Alignment

Supports council's strategic objectives towards net zero.
Expected positive ROI by year 4.



Commitment to Sustainability

Demonstrates WLDC's dedication to fighting climate change.
Enhances publicity and leadership in sustainability efforts.



Cost-Effectiveness and Implementation

Favorable 'cost per carbon' compared to other measures.
Easy to implement with significant environmental impact.



Contact Details

**For further information contact Steve Leary
Policy and Strategy Officer – Environment
and Sustainability
West Lindsey District Council**

**Email Steve.leary@west-lindsey.gov.uk
Phone 07810 658298 or 01427 675176**

www.west-lindsey.gov.uk/climate