Pro Enviro
ENGINEERING A GREENER WORLD

Programme Outcomes

Strategic Decarbonisation & Efficiency Report for the major regional programme Reviews

Conducted by
Pro Enviro Ltd - March 2025 to January 2026

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1. Executive Summary

As a delivery partner to a major regional programme, we have completed a comprehensive audit of **588 businesses** across the region. The programme was segmented into two distinct streams based on energy consumption: **Standard Audits** (Low-Mid Energy Use: 25k–749k kWh per annum) and **Energy Intensive (EI) Audits** (High Energy Use: >750k kWh per annum).

Key Findings:

- **Disproportionate Impact of EI Sector:** While Energy Intensive (EI) audits represented only **18%** of the total cohort (117 companies), they accounted for **57%** of the total identified Carbon Savings (17,349 tCO2e per year) and **52%** of the total financial savings (£8.1M per year).
- **The "Low-Hanging Fruit" is in Building Services:** For the Standard cohort, **56.7%** of recommendations focused on Building Services (Lighting and HVAC). This represents high-volume, lower-CapEx interventions essential for baseline efficiency.
- **The "Deep Decarbonisation" is in Production:** For the EI cohort, the focus shifts dramatically. **37.5%** of recommendations targeted replacement or upgrading of production equipment. This is where the significant carbon reduction lies, requiring higher CapEx but delivering greater operational and GVA improvement and significant energy and carbon savings.
- **Renewables are the Financial Driver:** Across both streams, Renewable Energy recommendations (specifically Solar PV) offered the highest average financial savings per intervention, crucial for insulating businesses against grid price volatility.
- **Regional Mini-Cluster Study to Encourage Collaborative Decarbonisation:** The Programme facilitated part funding of a place-based regional pilot mini-cluster study in Worcester City, where innovative solutions to remove barriers to Fuel Change, and adoption of collaborative energy efficiency and decarbonisation measures were reviewed. The participating Energy Intensive companies learned in some details the opportunities that the Electricity Market Reforms currently offers the Energy Intensive industries to reduce electricity costs. These included collaborative options for adoption of shared renewable generation and use, Peer-to-Peer (P2P) technologies and Behind the Meter (BtM) Private Wire options, and Power Purchase Agreements (PPA) and Virtual Power Purchase Agreements (VPPA).

Strategic Recommendation:

Future investment phases must adopt a three-fold approach. **Standard Stream** requires grant support for high-volume, low-tech retrofits options i.e. Replacing Building Services, to build market momentum. However, to achieve Net Zero targets, funding **must prioritise the Energy Intensive Manufacturing sector**, specifically de-risking CapEx for production equipment upgrades and on-site generation, where the carbon return on investment (ROI) is **6.7x higher per facility** than in the Standard

Stream. The third leg must support funding for innovative decarbonisation solutions for a number of regional pilot mini clusters to accelerate the collaborative adoption of collective decarbonisation opportunities such as Behind the Meter opportunities, P2P, PPA and VPPA.

2. Programme Methodology & Scope

The data presented in this report is derived from verified audits conducted under a major regional programme framework from March 2025 to the end of January 2026.

- **Standard Stream:** 471 Companies audited.
  - *Threshold:* 25,000 kWh – 749,000 kWh annual energy usage.
  - *Target:* Smaller SMEs, Service Sector, Light Industry.
- **Energy Intensive (EI) Stream:** 117 Companies audited.
  - *Threshold:* 750,000 kWh+ annual energy usage.
  - *Target:* Heavy Manufacturing, Large Processors.

3. Analysis: Standard Audits (Low-Mid Intensity)

The Standard Stream represents the volume market. These businesses act as the economic backbone of the region but often lack dedicated energy management personnel and resources.

3.1 Sector Demographics

As indicated by the SIC Code distribution, this cohort is diverse. While **Manufacturing** is the largest single wedge, there is significant representation from **Wholesale/Retail**, **Hospitality, Hotels, Pubs and Restaurants**, **Construction** and **Education sectors**.

3.2 Opportunity Breakdown

- **Total Identified Savings:** £13.7M | 27,776 tCO2e.

- **Building Services Dominance:** A staggering **56.69%** of all recommendations fell under "Building Services." This indicates that the UK SME stock is still plagued by basic inefficiencies: poor insulation, outdated lighting, and inefficient boilers.
- **Renewable Energy:** Represented **21.31%** of recommendations but delivered the highest total energy savings (~3.93 GWh).

3.3 Economics of Standard Interventions

- **Implementation Cost:** £38.5M total estimated CapEx.
- **Average Savings per Company:** ~£11,800/year.
- **Carbon ROI:** The "Best Value" metric (avg kgCO2e/£) is highest in **Replacing or Upgrading Production Equipment (2.72 kgCO2e/£)**, suggesting that even in smaller companies, process efficiency beats building fabric upgrades for pure carbon reduction.

Observation: The "Electrification" category is alarmingly low (1.9% of recommendations). This suggests that without targeted intervention, SMEs are not naturally choosing to switch fuel sources (e.g. Gas to Heat Pump) due to the high disparity in electricity vs. gas unit costs.

4. Analysis: Energy Intensive Audits (High Intensity)

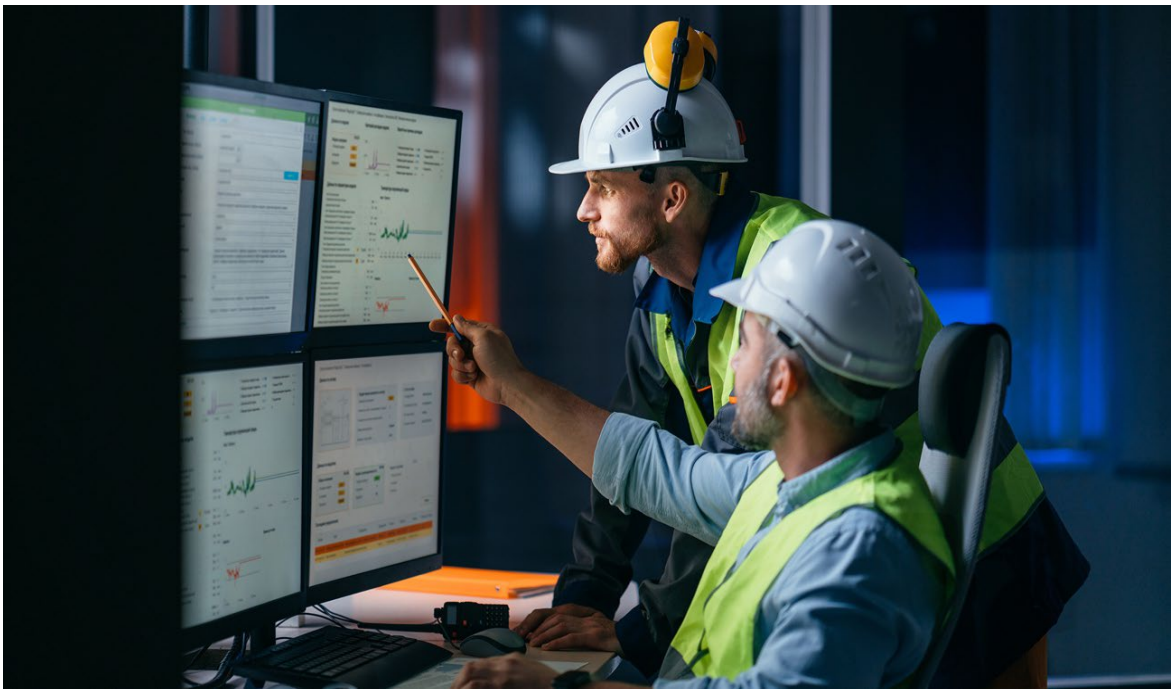
The EI stream represents the "Heavy Hitters." These companies have complex energy profiles and significant baseloads.

4.1 Sector Demographics

The sector breakdown is decisive. **Manufacturing** is the overwhelmingly dominant sector (approx. 70%+ of the total businesses reviewed). The remaining sectors include significant energy users, such as **Mining/Quarrying, Metal Recycling** and **Transportation**.

4.2 Opportunity Breakdown

- **Total Identified Savings:** £8.1M | 17,349 tCO2e.
- **The Shift to Process:** Unlike the Standard Stream, "Building Services" drops to



  roughly 33%. The dominant category is improving the performance of **Production Equipment (37.5%)**.
- **High Impact per Audit:** With only 117 companies, this stream identified **66.6% more carbon savings** than the 471 Standard companies combined.

4.3 Economics of EI Interventions

- **Implementation Cost:** £39.6M total estimated CapEx.
- **Average Savings per Company:** ~£70,000/year.
- **Efficiency:**
  - **Renewable Energy** in this sector provides massive financial returns (£3.8M savings identified) but requires high CapEx (£18.1M).
  - **Upgrading Production Equipment** offers the best balance of Carbon saving (7,882.98 tCO2e) vs Cost (£12.4M).

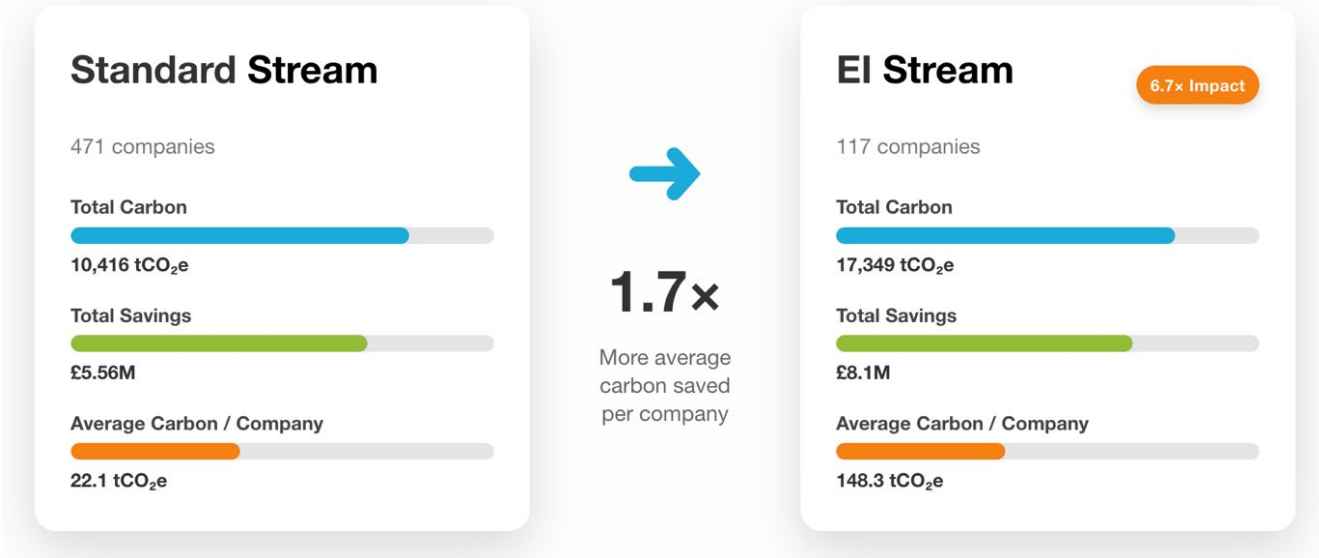
5. Comparative Performance: Where is the Value?

The following table compares the efficiency of the programme across the two streams.

Metric	Standard Stream	Energy Intensive Stream	Analysis
Number of Companies	471	117	Standard has volume; EI has intensity.
Total Carbon Savings (tCO2e)	10,416	17,349	**EI provides 1.67x more carbon savings.**
Avg Carbon Save per Company	~22.1 tCO2e	~148.3 tCO2e	**EI is 6.7x more impactful per participant.**
Total Financial Savings	£5.56M	£8.1M	EI offers higher financial incentives.
Cost to Implement (Total)	£38.5M	£39.6M	**EI is cheaper to decarbonise per tonne.**

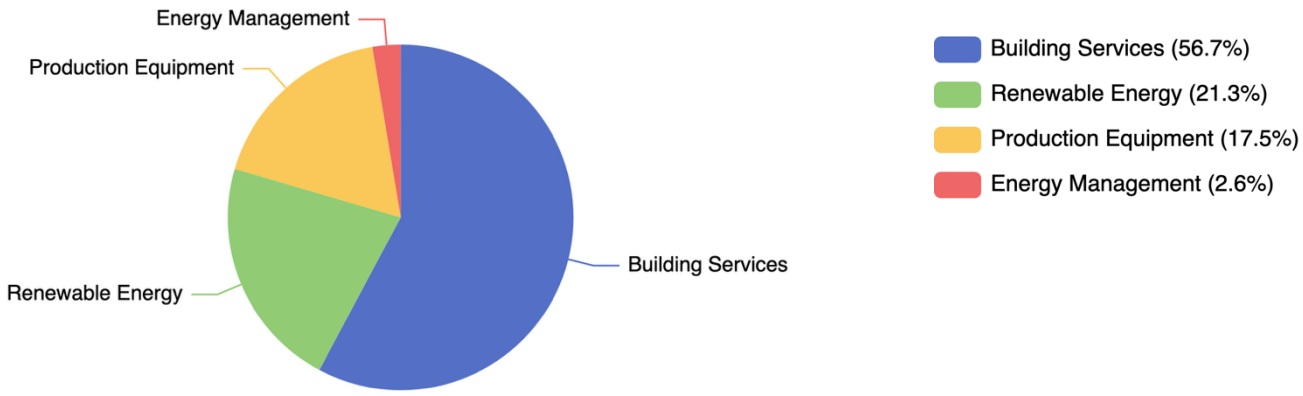
5.1 Programme Overview & Key Contrasts

Standard focuses on **Baseline Efficiency**. EI focuses on **Deep Decarbonisation**.

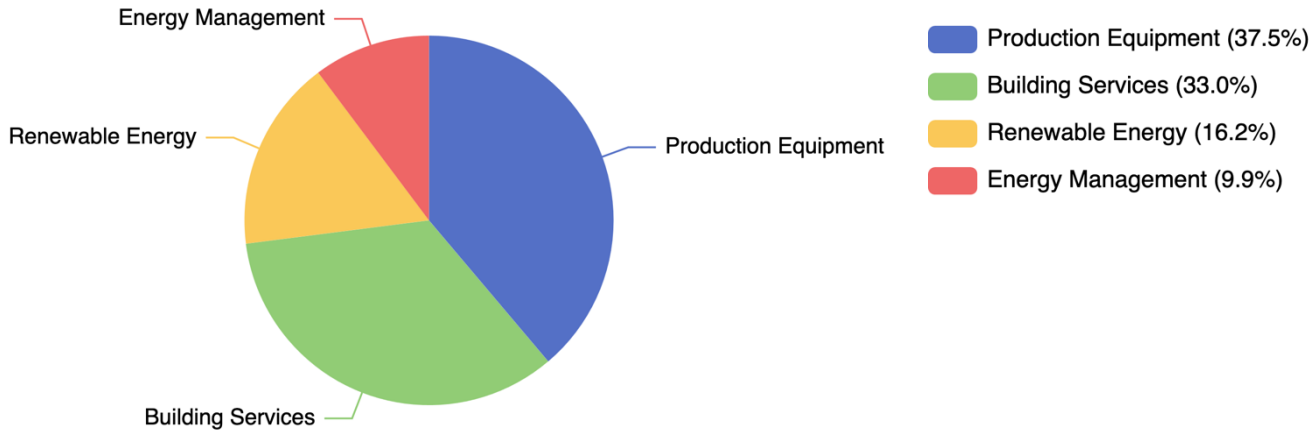


Recommendations by Category for Standard Companies

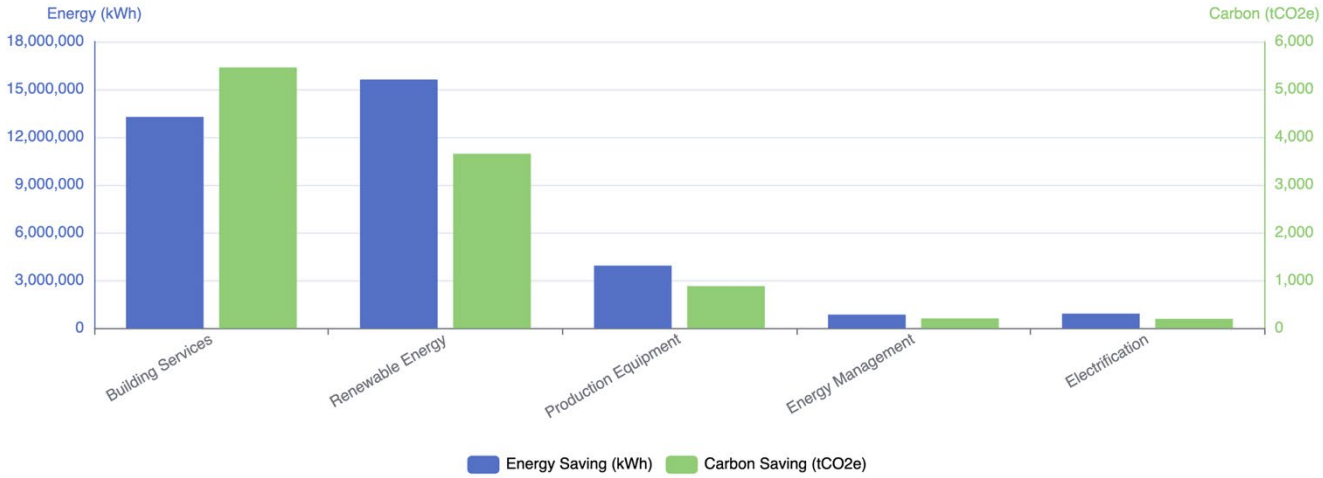
5.2 Deep Dive: Recommendation Focus & Opportunity Flow



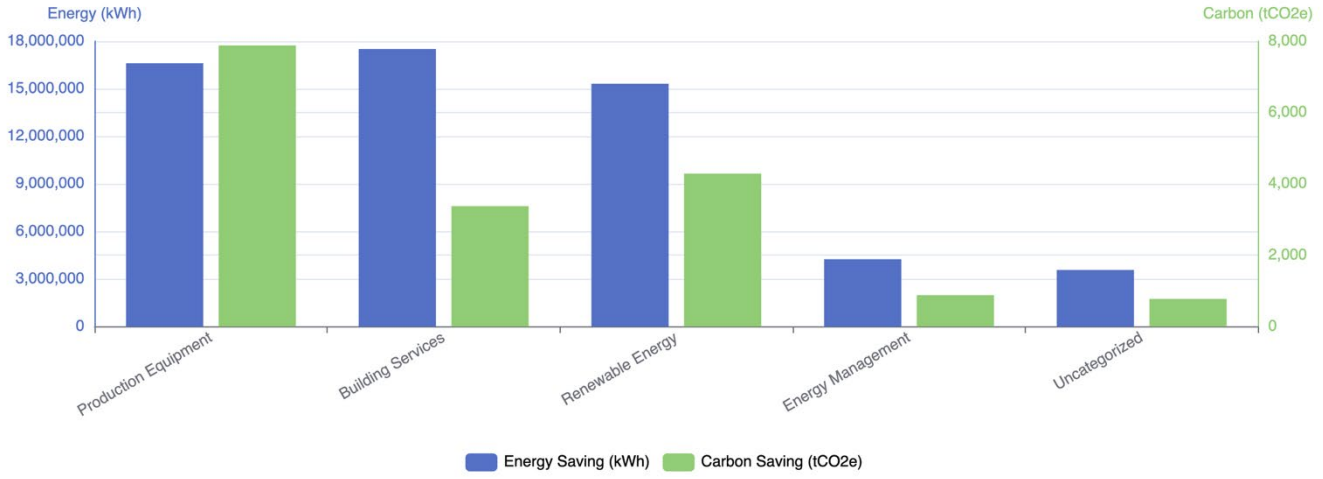
Recommendations by Category for Energy Intensive Companies



5.3 Total Financial Savings and Carbon Savings



Energy & Carbon Savings for Standard Companies



Energy & Carbon Savings for Energy Intensive Companies

5.4 Strategic Investment Recommendations

1. Targeted ‘Upgrading of Production Process’ Grants (EI Stream)
2. The ‘Renewable and Solar Uplift’ (Both Stream)
3. Building Service ‘Standard Stream’ (SME Sector)
4. Special Funding for Regional Pilot Mini Clusters

Critical Insight:

It effectively costs the economy **£38.5M in CapEx** to save 10,000 tonnes of CO2 in the Standard sector, whereas it costs **£39.6M in CapEx** to save 17,300 tonnes in the EI Stream.

Investment in Energy Intensive industries is significantly more capital efficient for decarbonisation.

6. Strategic Investment Recommendations

Based on the major regional programme data, we propose the following four-pillar approach for future funding and policy direction:

Recommendation 1: Targeted "Replacement or Upgrading Production Process" Grants for Manufacturers

The data explicitly shows that **37.5%** of the opportunity in the Energy Intensive sector is in **Replacing or Upgrading Production Equipment** (VSD compressors, compressed air optimisation, process heat recovery and improved control, and inverter drives on motors).

- **Action:** Moving away from generic "green grants." And creating a specific **Industrial Process Optimisation Fund**.
- **Why:** This targets the highest energy and carbon savings per £ spent, and also significantly improves the GVA of the manufacturing operations. Technical support must be provided by professional auditors to identify and recommend appropriate process optimisation measures for each industrial sector.

Recommendation 2: The "Renewables and Solar Uplift" for High Energy Users

Renewable Energy recommendations across the board show high financial returns but high barriers to entry (Implementation costs of £14M+ in the EI sector).

- **Action:** Provide low-interest financing or tax super-deductions specifically for on-site generation > 50kWp.
- **Why:** This stabilises the operating costs of our critical manufacturing base, making UK industry more competitive while decarbonising the grid.

Recommendation 3: Building Services "Standard Stream" for SMEs

For the Standard (Low-Mid) sector, complex custom grants are inefficient. 56.7% of their needs are Building Services.

- **Action:** simplify support for the Standard sector into a streamlined "voucher" scheme for LED lighting, insulation, boiler replacement and basic HVAC controls.
- **Why:** Reduce administrative burden and eliminate the need for energy reviews by professional auditors. These technologies are mature; the barrier is simply cash flow.

Recommendation 4: Special Funding for Innovative Decarbonisation Solutions for a Number of Regional Pilot Mini Clusters

We recommend a special grant for creation of a number of pilot mini clusters of energy intensive industries to remove the barriers for Fuel Change, and Electrification identified through this regional programme.

This fund will provide technical and financial support to facilitate a number of innovative, collaborative, place-based cluster of Energy Intensive companies to examine collaborative options and technologies for reducing energy consumption and costs to accelerate the decarbonisation at industrial estate level.

- **Action:** The fund will part finance innovative techniques such as creation of Heat Networks, Peer-to-Peer (P2P) solar generation and distribution, Private-Wire or Behind the Meter (BtM) power sharing agreements, Power Purchase Agreements (PPA) and Virtual PPAs.
- **Why:** These mini clusters will accelerate the adoption of Fuel Change, and Electrification of Process Heating in the region and encourage scope 2 and 3 decarbonisation through electrification and will facilitate access to Electricity Market Reforms opportunities introduced by NGED in 2026.

7. Conclusion

The major regional programme, delivered by Pro Enviro to 588 companies in the West Midlands, has successfully identified over **£13.7M in annual savings** and **27,765 tonnes of Carbon reduction** at the time of writing this report.

The data proves that while engaging the wider business community (Standard Stream) is necessary for education and base-load reduction, the path to rapid, high-impact Net

Zero contribution lies within the **Energy Intensive Manufacturing** sector. Future government spending should reflect this asymmetry: broad, light-touch support for the many, and providing informative, expert support with capital intervention for the energy-intensive industrial sectors.

Regional place-based pilot mini clusters can accelerate decarbonisation of the Energy Intensive sectors by encouraging collaboration to identify and implement innovative energy efficiency measures at industrial estate level.

These mini clusters will also remove barriers identified by the programme for Heat Networks and Electrification and adoption of opportunities created by the NGED electricity Marked Reform.