

ESOS Assessment Report



ESOS Assessment Report for Lewis and Graves Partnership

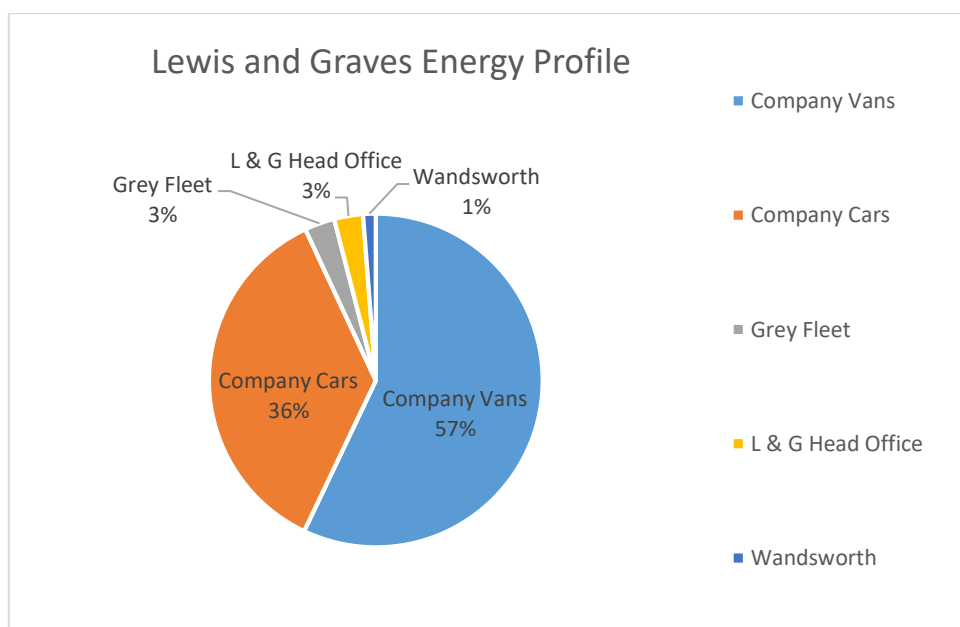
25th November 2019



Executive Summary

Carbon Footprint Ltd has completed an energy assessment on behalf of Lewis and Graves Partners (henceforth referred to as Lewis and Graves) as part of their compliance with the Energy Savings Opportunity Scheme (ESOS) Phase 2. This report should be kept within Lewis and Graves’ ESOS evidence pack.

The Total Energy Calculation showed that during the 12-month period of 1st April 2018 to 31st March 2019, energy use associated with Lewis and Graves’ sites and business mileage totalled 706,397 kWh/£87,279.



ESOS regulations require Lewis and Graves to audit 90% of their total energy consumption, hence the focus of the audit is on the energy consumption associated with the company owned vehicles.

Potential energy savings Identified from the ESOS Assessment are summarised in the table below.

| Transport Opportunities | Annual Savings (£) | Annual Savings (kWh) | Estimated Annual/capital Cost (£) | Payback Period (years) |
|--|--------------------|----------------------|---|------------------------|
| Limit all new company vans to a maximum emissions rating of 130gCO ₂ /km | £7,515 | 60,522 | Nil – Phase out less efficient vehicles | n/a |
| Implement a 'green driving campaign' using the new telematics system with rewards for the best performing drivers, aiming for a 10% reduction in fuel consumption. | £4,719 | 40,494 | 1,600 ¹² | 0.33 |
| Limit all new company cars to a maximum emissions rating of 120gCO ₂ /km | £2,693 | 21,690 | Nil – Phase out less efficient vehicles | n/a |
| Implement a 'green' travel policy, aiming for a 5% reduction in company car fuel consumption | £1,596 | 5,576 | Nil | n/a |
| Total | £16,523 | 128,282 | | - |

¹ Reward to the value of £50/ month for best performing driver

² Four lessons economical driving (£250 each)

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Quality Control

Report issue number: 1.0
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Report produced by: Stuart Fowler
Report reviewed by: Hayley Maynard (EMA ESOS Lead Assessor, LA18001)
Director approval: John Buckley

1 Introduction

1.1 Company Overview



Lewis and Graves provide nationwide cleaning support as well as biosecurity, pest eradication and ground maintenance services.

1.2 ESOS Qualification

| | |
|---|--|
| Registered Company Name | Lewis and Graves Partnership Ltd |
| Company Number | 08953594 |
| Qualification Criteria | Employees: 1,478 |
| Scope of operations included in ESOS phase 2 | -Site electricity consumption -Company owned vehicles fuel consumption -Grey fleet |

1.3 ESOS Lead Assessor

Hayley Maynard has over 5 years' experience as an environmental consultant. She obtained her ESOS Lead Assessor qualification through her membership of the Energy Management Association (EMA) (ESOS Lead Assessor No: LA180001).

1.4 Audit Methodology

The ESOS energy audits have been carried out using guidance from the Environment Agency ESOS Guidelines and auditing standards such as BS EN 16247-1 2012.

1.5 Supporting Information

It is Lewis and Graves' responsibility to maintain a record of compliance (and voluntary disclosure questions) in addition to any records of communication with EA and/or copies of any previous audits/ ESOS supporting documents. This evidence pack and any supporting documents must be maintained for 8 years.

1.6 Report Structure

This is the energy audit report for Lewis and Graves and includes:

- The Total Energy Calculation
- Analysis of Transport
- Summary of the Energy Savings Opportunities

1.7 Abbreviations

| | |
|-----------------|-----------------------------------|
| CO ₂ | Carbon Dioxide |
| EA | Environment Agency |
| EMA | Energy Managers Association |
| ESOS | Energy Savings Opportunity Scheme |
| kWh | Kilo Watt Hours |
| LA | Lead Assessor |
| LCCA | Life Cycle Cost Analysis |
| SPP | Simple Payback |
| TEC | Total Energy Calculation |

2 Total Energy Calculation

2.1 Scope of the calculation

Carbon Footprint has calculated Lewis and Graves' total energy consumption for the period 1st April 2018 to 31st March 2019, including all energy consumption resulting from Lewis and Graves' sites, company vehicles and grey fleet travel.

2.2 Data Supplied for the ESOS Assessment

Table 1 shows the sources of data used to calculate Lewis and Graves' total energy consumption. The data provided is derived from energy bills, expenses claims and data collected by Lewis and Graves.

Table 1: Sources of Energy Data

| Energy Source | Data Source |
|-------------------|---------------------------|
| Electricity | Utility bills |
| Company Vehicles | Company fuel card reports |
| Grey Fleet Travel | Company fuel card reports |

2.3 Calculation Methodology

The Total Energy Calculation was calculated in kilo-watt hours (kWh). The fuel consumed by company owned cars and vans was converted to kWh using BEIS 2018 carbon conversion factors.

2.4 Energy Calculations

Lewis and Graves' energy consumption over the data period 1st April 2018 to 31st March 2019 totalled 706,397 kWh and costed approximately £87,279. Table 2 and Figure 2 below show a summary of the Total Energy Calculation (TEC).

Table 2: Total Energy Calculation Results

| Site / Activity | Annual Energy Consumption (kWh) | % Total |
|-------------------|---------------------------------|-------------|
| Company Vans | 402,303 | 57.0% |
| Company Cars | 253,733 | 35.9% |
| Grey Fleet | 20,610 | 2.9% |
| L & G Head Office | 22,054 | 3.1% |
| Wandsworth | 7,697 | 1.1% |
| Total | 706,397 | 100% |

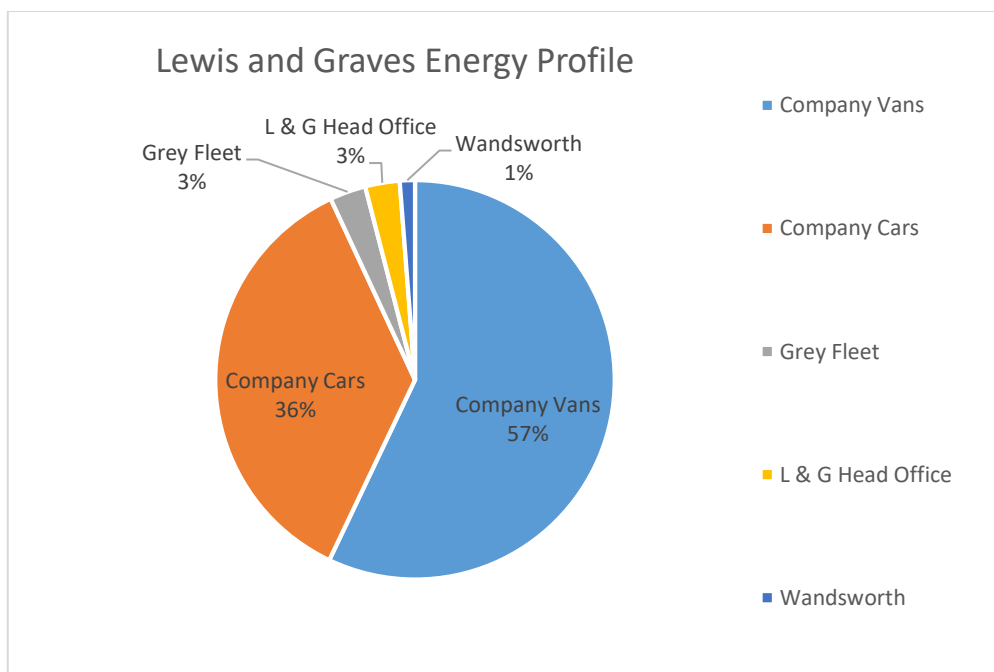


Figure 2: Energy use by site / activity

2.5 Significant Energy consumption

ESOS regulations require Lewis and Graves to audit 90% of their total energy consumption. The focus of the audit is company owned vehicle transport activities. Lewis and Graves’ two sites and grey fleet fuel consumption fall into the 10% *de minimis*.

2.6 Transport

2.6.1 Overview

Lewis and Graves have 47 company owned vehicles (26 vans and 21 cars) which are used for travelling to jobs and client meetings. Employees fill up their vehicles and pay for the fuel using company fuel cards. Lewis and Graves have one employee who uses the company fuel cards to fill up his personal vehicle (grey fleet).

2.6.2 Fuel Consumption

Table 3 and figure 3 below provides a breakdown of the company vehicle use. Company owned vans are responsible for more than half (59.4%) of the total transport energy consumption.

Table 3: Breakdown of transport energy consumption

| Vehicle | Litres of Fuel | kWh | Cost (£) |
|--------------|----------------|----------------|--------------------|
| Company Vans | 37,892 | 402,303 | 47,191 |
| Company Cars | 24,976 | 253,733 | 31,920 |
| Grey Fleet | 2,187 | 20,610 | 2,791 ³ |
| Total | 65,055 | 676,646 | 81,902 |

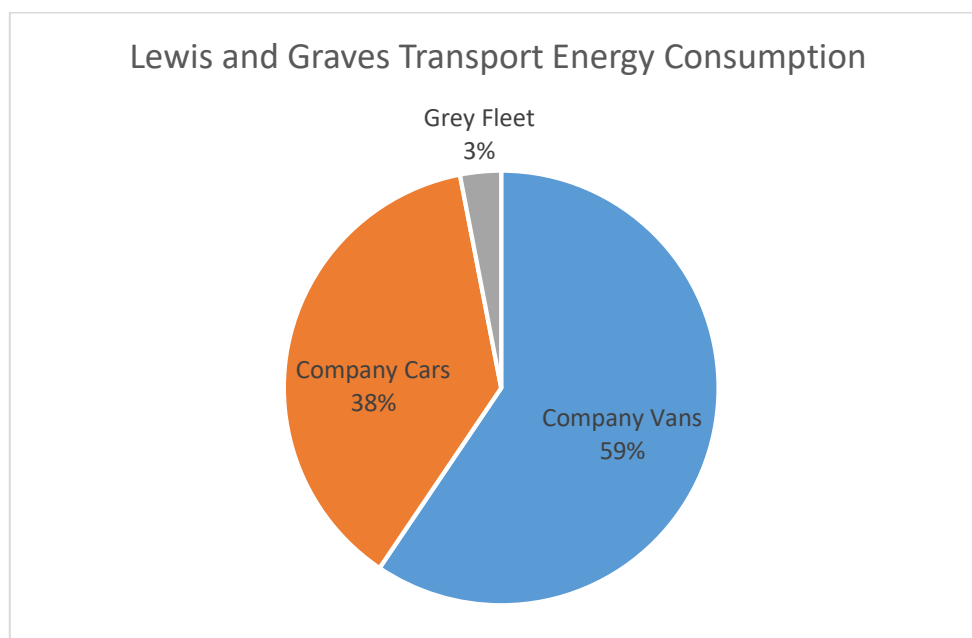


Figure 3: Breakdown of transport energy consumption

Figure 4 below shows the fuel consumption by month for the Lewis and Graves company owned vehicles. For most of the year the fuel consumption fluctuates only slightly with the monthly consumption staying between 4,000 and 6,000 litres, the average monthly fuel consumption was 5,263 litres. The months of September and March required 7,000 litres of fuel. These were particularly busy periods for Lewis and Graves as the area managers were required to complete more client site visits than usual.

³ Calculated using average UK unleaded price (127.6p/Litre)

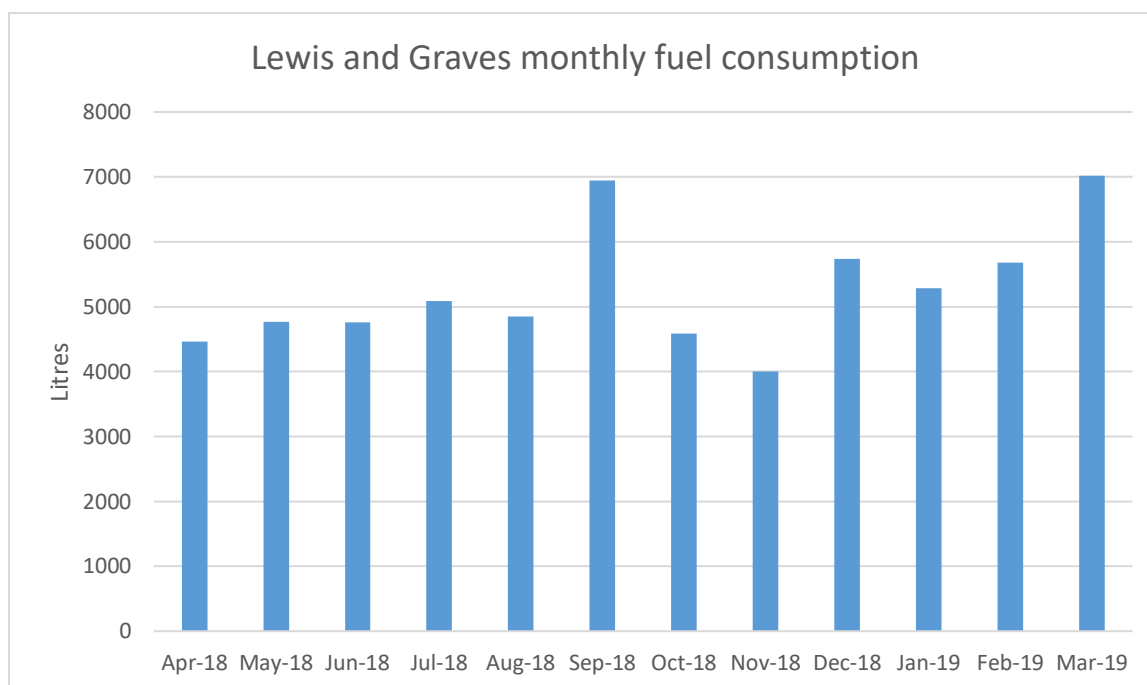


Figure 4: Monthly fuel consumption

2.6.3 Vans

Lewis and Graves have 26 vans that are used by the mobile support teams. The company vans are the greatest contributor to the Lewis and Graves energy profile and so this is where there is the most scope to make energy and cost savings.

Table 4 shows the emissions ratings of the company owned vans, with half of the fleet having very high emissions ratings (>160gCO₂/km). These vehicles are the most fuel intensive vehicles (Table 5) and are therefore the most expensive to run. I recommend Lewis and Graves consider phasing out these less efficient vehicles in favour of hybrid or electric vehicles with lower emission ratings, as these vehicles will be cheaper to run and tax (see costed opportunity). There are number of low emissions vans on the market with emissions ratings of less than 130gCO₂/km with similar load capacities to a Ford Transit van (e.g. Volkswagen Transporter 2.0TDI BMT TDI 15).

Table 4: Company Vans Emissions Ratings

| Emissions Rating | Number of Vans |
|------------------|----------------|
| <100 | 0 |
| 100-120 | 5 |
| 121-140 | 7 |
| 141-160 | 0 |
| 161-180 | 3 |
| 181+ | 9 |

Provided below (Table 5) are the ten vans that travelled the greatest distance over the 12-month data period.

Table 5: Company vans with highest annual mileage

| Registration | Make | Model | Emissions rating (CO ₂ g/km) | Annual Business Travel (Miles) | Annual Fuel Consumption (Litres) | MPG | MPG (Actual) |
|--------------|---------|------------|---|--------------------------------|----------------------------------|------|--------------|
| VA17GPZ | Citroen | Berlingo | 108 | 22,825 | 1,817 | 66.0 | 57.1 |
| BW16SXE | Citroen | Berlingo | 136 | 20,850 | 1,965 | 66.0 | 48.2 |
| BN68UCZ | Citroen | Berlingo | 112 | 20,572 | 2,015 | 66.0 | 46.4 |
| VA17GPY | Citroen | Berlingo | 108 | 19,888 | 1,714 | 66.0 | 52.7 |
| VU18DYT | Citroen | Berlingo | 112 | 19,177 | 1,885 | 66.0 | 46.2 |
| BK67UPX | Ford | Transit | 171 | 18,901 | 2,211 | 39.0 | 38.9 |
| CY16HNR | Ford | Transit DC | 200 | 15,873 | 3,107 | 37.0 | 23.2 |
| YR68ECF | Ford | Transit | 182 | 12,478 | 1,001 | 39.0 | 56.7 |
| GD67FGK | Peugeot | Expert | 137 | 11,140 | 1,563 | 54.0 | 32.4 |
| BW16NFZ | Citroen | Berlingo | 136 | 11,116 | 876 | 66.0 | 57.7 |

| Opportunity | Annual Savings (£) | Annual Savings (kWh) | Estimated Annual/capital Cost (£) | Payback Period (years) |
|---|--------------------|----------------------|---|------------------------|
| Limit all new company vans to a maximum emissions rating of 130gCO ₂ /km | £4,906 | 35,354 | Nil – Phase out less efficient vehicles | n/a |

Lewis and Graves are in the process of installing a telematic system on their vehicle fleet. This will enable Lewis and Graves to monitor individual driver performance and pick up on uneconomical driving styles (excessive breaking, engine idling etc). I recommend the best performing drivers are rewarded each month to encourage employees to concentrate on their technique. The poor performing drivers can be provided with extra economical driver training. This will be an effective programme for Lewis and Graves to implement as many of the vehicles are not achieving anywhere near their expected MPG (Table 5).

| Opportunity | Annual Savings (£) | Annual Savings (kWh) | Estimated Annual/capital Cost (£) | Payback Period (years) |
|--|--------------------|----------------------|-----------------------------------|------------------------|
| Implement a 'green driving campaign' using the new telematics system with rewards for the best performing drivers, aiming for a 10% reduction in fuel consumption. | 4,719 | 40,494 | 1,600 ⁴⁵ | 0.33 |

⁴ Reward to the value of £50/ month for best performing driver

⁵ Four lessons economical driving (£250 each)

2.6.4 Cars

Lewis and Graves have 21 company cars that claim fuel using the company fuel cards. These are used by directors, senior managers and area managers to visit clients. Provided below in Table 6 are the vehicles that completed more than 10,000 miles over the year. These vehicles are responsible for 60% of the total company car fuel consumption.

Table 6: Company cars with highest annual mileage

| Registration | Make | Model | Emissions rating (CO ₂ g/km) | Annual Business Travel | Annual Fuel Consumption | MPG | MPG (Actual) |
|--------------|----------|--------------------------|---|------------------------|----------------------------|-------|--------------|
| DV66FTD | Nissan | Qashqai | 99 | 25,414 | 2,151.0 | 49-74 | 53.7 |
| LB66BFP | Jaguar | XE Sport | 111 | 23,748 | 2,178.0 | 50.0 | 49.6 |
| DK66VWG | Ford | Focus | 99 | 18,028 | 1,698.0 | 36-81 | 48.3 |
| DP16HDX | Nissan | Qashqai | 129 | 17,849 | 2,234.0 | 49-74 | 36.3 |
| GN18ZVA | Jaguar | F Pace | 134 | 15,014 | 1,801.0 | 46.0 | 37.9 |
| YR66AMU | Ford | Focus | 98 | 14,433 | 1,262.0 | 36-81 | 52.0 |
| LJ16VFE | R. Rover | Sport | 185 | 12,744 | 775 fuel card not used Jan | 22.4 | 74.8 |
| WA68VMZ | Mercedes | GLC250 Oct 18 | 175 | 11,410 | 2,011.0 | 40-47 | 25.8 |
| LP66HVJ | Mercedes | CLS 220 Apr 18 - Sept 18 | 129 | 10,400 | 892.0 | 40.0 | 53.0 |
| DV66FTD | Nissan | Qashqai | 99 | 25,414 | 2,151.0 | 49-74 | 53.7 |

As with the company vans, there are a number of vehicles that are considered to have high emissions ratings (>160gCO₂/km). Lewis and Graves should consider limiting all new company cars to a maximum emissions rating of 120gCO₂/km to save on fuel and road tax costs. The estimated savings from implementing this policy are provided below.

| Opportunity | Annual Savings (£) | Annual Savings (kWh) | Estimated Annual/capital Cost (£) | Payback Period (years) |
|---|--------------------|----------------------|---|------------------------|
| Limit all new company cars to a maximum emissions rating of 120gCO ₂ /km | £2,693.36 | 21,690 | Nil – Phase out less efficient vehicles | n/a |

While Lewis and Graves transition to more fuel-efficient vehicles, I recommend a ‘green’ travel policy is implemented which encourages employees to seek alternatives to their company cars. The travel policy should be centred around a ‘sustainable travel hierarchy’, where video conferencing is always considered before travelling to meet with clients. Then if face to face interaction is required, employees are encouraged to travel by train instead of by car. Some further opportunities to support the ‘green’ travel policy are provided below.

| Opportunity | Annual Savings (£) | Annual Savings (kWh) | Estimated Annual/capital Cost (£) | Payback Period (years) |
|--|--------------------|----------------------|-----------------------------------|------------------------|
| Implement a 'green' travel policy, aiming for a 5% reduction in company car fuel consumption | £1,596 | 5,576 | Nil | n/a |

Other Opportunities to Reduce Car Travel

Reducing car journeys can lead to significant savings:

- Reducing the average mileage of a vehicle doing 12,000 miles a year by 10% will save around £150 in fuel costs alone
- An employee will spend around 300 hours driving 12,000 miles a year (assuming an average speed of 40mph) – this is almost 20% of their working time
- Cutting the travel by 10% would save 30 hours, which equates to £750 saving in payroll costs (assuming £25/hour)
- Reduced time on the road can also lead to decrease in lease costs, maintenance costs, and likely accidents.

In addition, reducing mileage has other benefits:

- Reduced carbon emissions
- Improved risk management
- Reduced driver fatigue

Strategies and tips to help reduce mileage:

- **Telephone and Video Conferencing:** This can be the most effective way of reducing road travel and becoming increasingly popular and acceptable (replacing many face to face meetings). Check staff have access to facilities (e.g. Skype on their PCs, video conference rooms etc.) and know how to use them.
- **Alternative modes of travel:** Alternatives can include public transport or car sharing. There will be times when these are more cost effective. To get more cost effective train journeys consider using a web site for booking that splits the ticket to make the journey cheaper e.g. <https://www.trainsplit.com/>
- **Route Planning:** Software such as routing and scheduling and sales planning are widely available and can help plan more efficient routes for delivery vehicles and sale staff

Having a **clear travel policy is essential** to support mileage reductions. Review existing policies and ensure that:

- Staff routinely question the need to travel
- Information is provided about communication technologies that are available to avoid travel
- Highlight alternatives such as public transport and car sharing

- Business miles and claims are authorised (for longer journeys this should be before the trip is taken) – allowing managers to assess the need for the longer journey and determine the best method of travel

Targeting and Monitoring

- Set clear targets for reducing overall travel. This can be cascaded down to departments / cost centres and even individuals (those that have the highest mileage).
- Report progress as part of the company's overall KPIs. This is often done as part of the environmental KPIs alongside energy and carbon reduction.

Overcoming potential barriers.

It is important to involve staff at the start of the process, and get them involved. Make sure they understand the reasons for wanting to reduce mileage and get them involved in creating the solutions.

Common barriers include:

- Staff see mileage expenses as a bonus on top of their income.
- Staff like to get out of the office as it provides job variety. It is important to note that the aim is to reduce the mileage (e.g. by 10%) rather than ban car travel, and the focus is really on those that spend an unhealthy amount of time on the road.
- Public Transport is costly and unreliable: It may not be the best solution for all journeys. However, it can allow staff productive time and allow them to arrive at their destination fresher. Booking in advance using sites like <https://www.trainsplit.com/> will reduce the cost of train trips.
- We need to travel to “press the flesh”: There will be some trips where a face to face meeting will be valuable. You don't need to set a target to cut all travel, just to reduce it. The key is to encourage staff to consider if the face to face meeting really is required and if alternative options are available to save them time, save the company money, and reduce the environmental impact.

3 The Opportunities & Director Sign Off

| Energy Savings Opportunity Scheme Assessment Report Summary | |
|---|----------------------------------|
| Registered Company Name | Lewis and Graves Partnership Ltd |
| Organisations Total Energy Consumption | 706,397 |
| Total Energy Consumption Audited (minimum 90%) | 96% |
| Total Cost-effective Energy Saving Potential Identified | 122,706 |
| Total Cost-effective Financial Saving Identified | £14,927 |

A summary of the opportunities arising from the ESOS assessment are provided below.

NOTE: The savings illustrated in the table show the savings if an individual measure is taken. All values are purely indicative at this stage and further work will be required to develop this information in greater depth before any financial or commercial commitment is made. Some of the recommendations summarised will also impact the achievable savings of others, so summing the expected savings together may give a higher value than is achievable if several of the measure are implemented together.

| Opportunity | Savings (£) | Savings (kWh) | Estimated Capital Cost (£) | Payback Period (years) |
|--|-------------|---------------|---|------------------------|
| Limit all new company vans to a maximum emissions rating of 120gCO ₂ /km | £7,515 | 60,522 | Nil – Phase out less efficient vehicles | n/a |
| Implement a ‘green driving campaign’ using the new telematics system with rewards for the best performing drivers, aiming for a 10% reduction in fuel consumption. | £4,719 | 40,494 | 1,600 ⁶⁷ | 0.33 |
| Limit all new company cars to a maximum emissions rating of 120gCO ₂ /km | £2,693 | 21,690 | Nil – Phase out less efficient vehicles | n/a |
| Implement a ‘green’ travel policy, aiming for a 5% reduction in company car fuel consumption | £1,596 | 5,576 | Nil | n/a |



| Director & Lead Assessor Sign Off | |
|-----------------------------------|------------------------------|
| Director | |
| Lead Assessor | Hayley Maynard (EMA LA18001) |

⁶ Reward to the value of £50/ month for best performing driver

⁷ Four lessons economical driving (£250 each)