ESOS PHASE 3 REPORT

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PREPARED FOR

KINGDOM SERVICES GROUP LTD



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KEY INFORMATION

CLIENT INFORMATION				
Organisation	Kingdom Services Group Ltd			
Registered Office	1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF			
Director Name	Rob Barton			
Site Address	1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF			
Contact Person	Olly Flaherty			
Company Number	02795197			

SENIOR LEAD AUDITOR DETAILS			
Name	Dr Michael Walker		
Title	Senior Lead Auditor		
Company	Net Zero Audits Ltd		
Email	admin@netzeroaudits.co.uk		
Mobile	07793 025030		
Relationship	Dr Michael Walker is not employed by the company or any subsidiaries		

EXECUTIVE SUMMARY

The energy audit was conducted for Kingdom Services Group Ltd, and the site selected for survey was:

• 1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF

The audit aim is to assess energy consumption, identify opportunities for efficiency improvements, and reduce environmental impact. This executive summary provides an overview of the audit's key findings and recommendations.

Incorporating various energy sources such as natural gas, electricity, transmission, and distribution, petrol, diesel as well as grey fleet mileage, the organisation's cumulative energy consumption amounted to just under 2,573 megawatt-hours (MWh), contributing to a total greenhouse gas emissions figure of 633 metric tonnes of carbon dioxide equivalent (CO2e). Energy and transportation expenditure, aggregated to almost £496,400. Furthermore, the company's operations encompassed the travel of just under 2,345,000 business miles during the reporting period.

The business is committed to assessing and improving its energy efficiency and environmental impact. Previous Energy Savings Opportunity Scheme (ESOS) reports have been submitted to the Environmental Agency in the past which demonstrates the business's commitment.

This ESOS Phase 3 report serves as a crucial baseline year for future energy reporting and environmental legislation compliance, including but not limited to future ESOS, Streamlined Energy and Carbon Reporting (SECR), and Net Zero Carbon Reduction forecasts. The submission of this, and previous ESOS reports emphasises the importance of this baseline year as a building point for assessing energy performance and setting sustainability goals for the future.

POTENTIAL ENERGY SAVINGS OPPORTUNITY

Following site survey and desk top survey it was established that Kingdom Services Group Ltd would benefit from various energy saving measures including high, medium, low and no cost measures.

Table 1 shows the potential energy and cost savings identified if ALL energy saving measures are implemented.

TABLE 1: SUMMARY OF POTENTIAL ENERGY SAVINGS IF ALL ENERGY SAVING RECOMMENDATIONS IMPLEMENTED

Energy Saved (kWh)	Energy Cost Saving	Emissions Save (Tco2e)	Capital Costs	Simple Payback
176,533	£64,157	170	£69,014	1.1

DIAGRAM 1: POTENTIAL ENERGY COST SAVINGS (£)



DIAGRAM 2: POTENTIAL CARBON SAVINGS (TCO2E)



INTRODUCTION

THE GROUP – KINGDOM SERVICES GROUP LTD (KSG)

Kingdom Services Group, commonly referred to as KSG was established in 1993. Kingdom are a well-established, highly regarded, privately-run, family-owned company with a financially sound trading history within their specialist service areas. Throughout their 25 years of organic growth and strategic acquisition Kingdom has developed into a business turnover today of over £130 million and with an employee count of almost 5,000. Several acquisitions were made in 2022 which allowed the group to expand into the cleaning, security, and recruitment sectors. They are regarded as class leaders in their fields of operations and have become one of the largest, independent and privately-owned companies providing specialist services within the UK.

From 2016 Kingdom has operated from a purpose built, three floor National Support Centre and from a number of regional support offices that oversees their national infrastructure. The National Support Centre shall be referred to during this report as Kingdom HQ.

Their services include the following sectors.

- Security
- Cleaning and Hygiene
- Recruitment
- Training
- Health Care
- Local Authority Support

The group has offices throughout the UK – namely.

- Newton-Le-Willows
- Glasgow
- Edinburgh
- Sidcup
- Downpatrick
- Belfast
- Lurgan
- Oldham
- Dumfries
- Rotherham
- Spalding

Kingdom Services Group (KSG) has achieved recognised accreditations, including:

- ISO 9001 Quality Management
- ISO 14001 Environmental Management
- ISO 27001 Information & Cyber Security
- ISO 45001 Occupational Health & Safety

Registered information associated with Kingdom Services Group Limited

- Registered Company Name: Kingdom Services Group Limited
- Company Number: 02795197
- Registered Address: 1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF
- SIC Reference: 70100 activities of head offices.
- Registered Company Name: Kingdom Cleaning Limited
- Company Number: 02102149
- Registered Address: 1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF
- SIC Reference: 81210 General cleaning of buildings.

• Registered Company Name: Kingdom Health Care Limited

- Company Number: NI058523
- Registered Address: 32 English Street, Downpatrick, Northern Ireland, BT30 6AB
- SIC Reference: 74909 Other professional, scientific, and technical activities n.e.c

• Registered Company Name: Kingdom Recruitment Limited

- Company Number: 04225673
- Registered Address: 1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF
- SIC Reference: 78109 Other activities of employment placement agencies.

• Registered Company Name: Kingdom LA Support Limited

- Company Number: 11850540
- Registered Address: 1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF
- SIC Reference: 82990 Other business support service activities n.e.c

- Registered Company Name: Kingdom Academy Limited
- Company Number: 06789099
- Registered Address: 1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF
- SIC Reference: 85320 Technical and Vocational Secondary Education

Registered Company Name: Kingdom Care Solutions Limited

- Company Number: 14307919
- Registered Address: 1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF
- SIC Reference: 99999 Dormant Company.

• Registered Company Name: Kingdom Hygiene Limited

- Company Number: 12146751
- Registered Address: 1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF
- SIC Reference: 82990 Other business support service activities n.e.c

Registered Company Name: Kingdom Medical Limited

- Company Number: 11323363
- Registered Address: 1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF
- SIC Reference: 86210 General medical practice activities.

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- Registered Company Name: Kingdom Mercury Limited
- Company Number: 04689103
- Registered Address: 1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF
- SIC Reference: 86210 General medical practice activities.

• Registered Company Name: Kingdom Systems Limited

- Company Number: 11204405
- Registered Address: 1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF
- SIC Reference: 80200 Security systems service activities.

ENERGY SAVING OPPORTUNITY SCHEME

The Energy Savings Opportunity Scheme (ESOS) came into force on 17 July 2014 by the Department for Energy and Climate Change (DECC) in response to Article 8 of the Energy Efficiency Directive (EED), introduced by the European Union (EU) to meet the challenge of achieving the EU 2020 energy efficiency target.

ESOS is a mandatory energy assessment scheme, introduced by the government to make sure large enterprises are energy efficient. The scheme is managed by the Environment Agency in England, the Northern Ireland Environment Agency, the Scottish Environment Protection Agency, and Natural Resources Wales. Under the scheme, large organisations are required to assess their energy usage every 4 years and to find new ways to save energy. It has been established that Kingdom Services Group Limited require ESOS Phase 3 Assessments as it applies to at least one of the following conditions listed below:

EMPLOYEES

The undertaking has 250 or more employees in the UK, or

TURNOVER

The undertaking has an annual turnover exceeding £44 million and a balance sheet exceeding £38 million.

• Corporate Group Qualification

Where a corporate group has at least one undertaking in the UK which meets the above qualification criteria, it is necessary for the entire UK operations of the corporate group to participate in the ESOS.

• Financial Threshold

The most recent financial statement ending on or before the qualification date is to be used.

• Employee Threshold

The employee threshold includes employees and other persons engaged in the business of the organisation; this includes owners, managers, and partners.

To determine qualification against employee thresholds, the total number of people employed in each of the months of the relevant accounting period (i.e., the period which the financial statements used to consider the financial thresholds relate to) and divide by the number of months in that period. ESOS does not make any considerations for Full Time Equivalents (FTE) or Part-time employees, only the total number of employees regardless of their contracted hours.

Two-year Rule When undertaking the assessment of qualification, there must be evidence of two consecutive accounting periods with consistent qualification results. Therefore, if there is fluctuation in qualification status, the status of qualification is ultimately determined on the most recent status, which has been sustained over two accounting periods. The ESOS rules specify that you will need a qualified lead assessor to check your report.

There are a few exceptions to this rule:

- If 100% of your energy use is already covered by ISO 50001 Certification
- If the company's total annual energy consumption is below 40,000 kWh
- If you have zero energy supplies (although you will still need to notify the Environment Agency and get a director to confirm this).

For Phase 3, there are four different routes to ESOS compliance:

- Energy audits
- ISO 50001
- Display Energy Certificates
- Green Deal Assessments

From Phase 4 onwards, Display Energy Certificates and Green Deal Assessments will no longer be valid, and both routes are "discouraged" in Phase 3. The ESOS rules for Phase 3 allow you to exclude up to 5% of your organisation's energy consumption by categorising it as "de minimis. The 95% or more that remains is the company's "significant energy consumption". The company is under no obligation to use your de minimis exemption.

The ESOS Assessment must be completed, and notification must be made to the Environment Agency by 5 December 2023 and every four years after that for each subsequent compliance period. The company will require a further ESOS Assessment to be completed and notification made to the Environmental Agency by December 2027, provided the criteria for the company is still applicable.

OBJECTIVES AND METHODOLOGY

METHODOLOGY

A comprehensive review of the energy use, subsequent savings report and action plan has been conducted and developed for the company. The review included an analysis and profiling of energy usage within the building, energy audit and savings report. Various reporting methods were used to obtain energy calculations, comparisons, and potential savings in order to present recommendations including:

- DEFRA (environmental guidelines) UK Government GHG Conversion Factors for Company Reporting
- GHG Protocol
- CIBSE Guidelines

OBJECTIVES

This ESOS audit and action plan for the company is designed to cover the following objectives:

- > Profile & determine total energy consumption of the site.
- > Establish cost effective energy saving opportunities.
- Provide advice and recommendations.

Following a site visit by the ESOS Assessor, the report firstly profiles energy and fuel usage, followed by a detailed action plan establishment of cost-effective energy saving opportunities identified during the site audit process.

In the context of ESOS compliance and reporting, all data and analysis are accessible for the purpose of auditing.

For purposes of clarity, the subsequent abbreviations will be referenced throughout the remainder of the report:

KSG: Pertaining to Kingdom Services Group Limited

HQ: Referring to Kingdom Services Group Limited Head Office

KH: referring to Kingdom Health Care

KHDP: referring to Kingdom Health Downpatrick

FINANCIALS

In order to establish validity that the Group is required, under the current legislation, to provide The Environmental Agency notification that an ESOS Phase 3 Assessment has been carried out, most current official financials have been included. (See diagrams below) In this instance it shows that the turnover does comply with the requirements, it also exceeds 250 employees, therefore, is required to comply with ESOS Phase 3 regulations.



DIAGRAM 3: FINANCIAL ASSETS FOR KSG PERIOD 2019- 2023

DIAGRAM 4: FINANCIAL ASSETS FOR KSG PERIOD 2019- 2023

Accounts Table					
Profit & Loss	31 Mar 2023	31 Mar 2022	31 Mar 2021	31 Mar 2020	31 Mar 2019
Weeks	52	52	52	52	52
Currency	GBP	GBP	GBP	GBP	GBP
Consolidated Accounts	Y	Y	Y	Y	Y
Turnover	£158,577,241	£132,426,624	£87,448,995	£86,550,424	£93,350,916
Number Of Employees	4,988	3,864	1,854	2,262	2,836

THE SITES

The below tables indicate site sizes and employee levels for sites within KSG. Electricity and gas consumption have been provided for the sites in the Abbreviation (Abb) column. All sites with the exception of HQ, Downpatrick and Belfast have no energy data as they are serviced offices and utilities are included in the rent. Further tables illustrate operating hours and occupancy levels.

Site	Abb	Address		Staff	Company
HQ	HQ	1 Woodlands Business Park, Ashton Road, Newton-le-Willows, WA12 0HF	1,185	80	KSG
Belfast	KH Belfast	15 Stranmillis Road, Belfast Co. Antrim BT9 5AF	Unknown	9	Healthcare
Sidcup	F	Five Arches Business Centre, Sargasso Level 2, Maidstone Rd, Sidcup DA14 5A	Unknown	9	Cleaning
Downpatrick	KH DP	32 English Street, Downpatrick, Northern Ireland, BT30 6AB		6	Healthcare
Dumfries		Unit 217 Spitfire Road, Heathhall Industrial Estate, Dumfries, DG1 3PH		4	Systems
Eastbourne		Gildredge Road, Eastbourne, BN21 4SH		2	Cleaning
Glasgow		159 King St, Rutherglen, Glasgow G73 1BZ	Unknown	5	Systems
Craigavon		74 William Street, Lurgan, Craigavon BT66 6JB	Unknown	6	Healthcare
Edinburgh		Unit 4 Satellite Park, Macmerry, Tranent, Edinburgh, EH33 1RY	148	5	Systems
Oldham		Ram Mill, Studio 13, Gordon St, Chadderton, Oldham, OL9 9RH		5	Recruitment
Rotherham		8-12 Doncaster Gate, Rotherham, S65 1DJ		50	Recruitment
Spalding		Pudding Lane, Pinchbeck, Spalding, PE11 3TJ		13	Medical
		Totals	14,813	194	

TABLE 2: SITES, SIZES & EMPLOYEE LEVELS PERTAINING TO THE GROUP

Measurements have been supplied by KSG. A summary of site survey is detailed below.

Recommendations for the site is compiled in the Recommendations Table later in the report. It is important to note that any recommendations provided herein are subject to further investigation, with a view to accurately determine costs and payback periods.

TABLE 3: KSG OPERATIONAL HOUF	٢S
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Operational Hours					
		KSG HQ			
Day	Open	Close	Use	Occupancy Levels	
Monday	12:00	12:00	National Command Centre	80	
Tuesday	12:00	12:00	National Command Centre	80	
Wednesday	12:00	12:00	National Command Centre	80	
Thursday	12:00	12:00	National Command Centre	80	
Friday	12:00	12:00	National Command Centre	80	
Saturday	12:00	12:00	National Command Centre	20	
Sunday	12:00	12:00	National Command Centre	20	

Operational Hours					
		KH Belfast			
Day	Open	Close	Use	Occupancy Levels	
Monday	8.00	18.00	Office Staff	9	
Tuesday	8.00	18.00	Office Staff	9	
Wednesday	8.00	18.00	Office Staff	9	
Thursday	8.00	18.00	Office Staff	9	
Friday	8.00	18.00	Office Staff	9	
Saturday	Closed				
Sunday		Clo	sed		

Operational Hours					
		KM Birmingham			
Day	Open	Close	Use	Occupancy Levels	
Monday	8.00	18.00	Office Staff	19	
Tuesday	8.00	18.00	Office Staff	19	
Wednesday	8.00	18.00	Office Staff	19	
Thursday	8.00	18.00	Office Staff	19	
Friday	8.00	18.00	Office Staff	19	
Saturday	Closed				
Sunday		Closed			

Operational Hours					
		KC Dartford			
Day	Open	Close	Use	Occupancy Levels	
Monday	12.00	12.00	Storage Facility	0	
Tuesday	12.00	12.00	Storage Facility	0	
Wednesday	12.00	12.00	Storage Facility	0	
Thursday	12.00	12.00	Storage Facility	0	
Friday	12.00	12.00	Storage Facility	0	
Saturday	Closed				
Sunday		Clo	sed		

Operational Hours					
		KH Downpatrick			
Day	Open	Close	Use	Occupancy Levels	
Monday	9.00	17.00	Office	9	
Tuesday	9.00	17.00	Office	8	
Wednesday	9.00	17.00	Office	9	
Thursday	9.00	17.00	Office	7	
Friday	9.00	17.00	Office	8	
Saturday	Closed				
Sunday		Clo	sed		

Operational Hours						
	KH Craigavon					
Day	Open	Close	Use	Occupancy Levels		
Monday	8.00	17.00	Office	5		
Tuesday	8.00	17.00	Office	5		
Wednesday	8.00	17.00	Office	5		
Thursday	8.00	17.00	Office	5		
Friday	8.00	17.00	Office	5		
Saturday		Clo	sed			
Sunday		Clo	sed			

Operational Hours					
	KS Edinburgh				
Day	Open	Close	Use	Occupancy Levels	
Monday	8.30	17.00	Office	4	
Tuesday	8.30	17.00	Office	4	
Wednesday	8.30	17.00	Office	4	
Thursday	8.30	17.00	Office	4	
Friday	8.30	17.00	Office	4	
Saturday		Clo	sed		
Sunday	Closed				

Operational Hours							
	KS Dumfries						
Day	Open	Close	Use	Occupancy Levels			
Monday	09.00	17.00	Storage Facility	1			
Tuesday	09.00	17.00	Storage Facility	2			
Wednesday	09.00	17.00	Storage Facility	2			
Thursday	09.00	17.00	Storage Facility	1			
Friday	09.00	09.00 17.00 Storage Facility					
Saturday	Closed						
Sunday		Closed					

Operational Hours						
	KC Sidcup					
Day	Open	Close	Use	Occupancy Levels		
Monday	8.30	17.00	Office	10		
Tuesday	8.30	17.00	Office	10		
Wednesday	8.30	17.00	Office	10		
Thursday	8.30	8.30 17.00		10		
Friday	8.30	17.00	Office	10		
Saturday		Clo	sed			
Sunday	Closed					

Operational Hours						
	KC Eastbourne					
Day	Open	Close	Use	Occupancy Levels		
Monday	9.00	17.00	Office	4		
Tuesday	9.00	17.00	Office	4		
Wednesday	9.00	17.00	Office	4		
Thursday	9.00	17.00	Office	4		
Friday	9.00	17.00	Office	4		
Saturday		Clo	sed			
Sunday		Closed				

Operational Hours						
	KSG Glasgow					
Day	Open	Close	Use	Occupancy Levels		
Monday	06.00	20.00	Office	2		
Tuesday	06.00	20.00	Office	2		
Wednesday	06.00	20.00	Office	2		
Thursday	06.00	20.00	Office	2		
Friday	06.00	20.00	Office	2		
Saturday		Clo	sed			
Sunday		Closed				

Operational Hours						
	KR Oldham					
Day	Open	Close	Use	Occupancy Levels		
Monday	8.30	17.00	Office	4		
Tuesday	8.30	17.00	Office	4		
Wednesday	8.30	17.00	Office	4		
Thursday	8.30	17.00	Office	4		
Friday	8.30	17.00	Office	4		
Saturday		Clo	sed			
Sunday		Clo	sed			

Operational Hours					
	KR Rotherham				
Day	Open	Close	Use	Occupancy Levels	
Monday	9.00	17.00	Office	5	
Tuesday	9.00	17.00	Office	5	
Wednesday	9.00	17.00	Office	5	
Thursday	9.00	9.00 17.00		5	
Friday	9.00	17.00	Office	5	
Saturday		Clo	sed		
Sunday	Closed				

Operational Hours					
KR Spalding					
Day	Open	Close	Use	Occupancy Levels	
Monday	06.00	20.00	Office	13	
Tuesday	06.00	20.00	Office	13	
Wednesday	06.00	20.00	Office	13	
Thursday	06.00	20.00	Office	13	
Friday	06.00	20.00	Office	13	
Saturday		Clo	sed		
Sunday		Clo	sed		

KSG HQ SITE

The assessment conducted at all the sites were non-invasive visual inspections, whereby no disassembly or dismantling of building services, structural components, fabric, or equipment took place. This report aims to outline areas of inefficiency identified during the visit.



DIAGRAM 5: FRONT ELEVATION VIEW OF KSG HQ SITE

DIAGRAM 6: ARIEL VIEW OF KSG HQ SITE



The National Support Centre (HQ) is the registered Head Office for many of the companies within the group.

The building is of steel frame and brick construction and benefits from Air Conditioning. It was built in 2000 and Kingdom have been tenants since 2016.

KSG occupies the whole of the building which benefits from top quality office accommodation situated within a well-managed estate. The location also offers direct access to the M6 motorway network and A580 East Lancs Road.

Additional conveniences include a lift and ample car parking facilities.

The site also offers KSG 24-hour access.

The total size occupied measures 1,185 M2.

Survey identified some areas for improvement:

- Consider installing light motion sensors.
- Consider undertaking a TM44 inspection.
- Ensure temperature is maximum 21 degrees.
- Implement switch off policy for all electrical and office equipment.
- Install energy efficient taps.
- Install solar shading blinds.
- Maintain monthly accurate recordings of all energy data and business travel.
- Install LED lighting.
- Consider installing Solar panels.
- Fitting of Voltage Optimiser.
- Consider changing car fuel to Hydrogen Vegetable Oil (HVO).
- Consider expanding the use of electric vehicles
- •

REDUCE HEATING TO A MAXIMUM OF 21 DEGREES







REPLACE INEFFICIENT LIGHTING TO LED



LAG EXPOSED PIPEWORK



TOTAL ENERGY CONSUPTION FOR KSG

COSTINGS

For the purpose, of the report, analysis, and calculations of all site utility costs for electricity, gas, petrol and diesel are based on net figures. The following charges have been excluded:

- VAT
- Climate Change Levy
- Agreed supply Capacity Charges
- Reactive Charges
- Operational Levy Charges
- Site Charges

In order for consistency any data figures provided that included VAT or charges, have automatically been deducted. This format has been used throughout the entire report.

REFERENCE PERIODS & DATA QUALITY

Reference Period

The reference period selected for most of the energy data and grey fleet usage pertained to 1 January 2022 to 31 December 2022.

SITE	PERIOD	ELECTRICTY	GAS	COMPANY VEHICLE FUEL	GREY FLEET
HQ	JAN – DEC 22	12 MONTHS KWH & COST	NO GAS ON SITE	NO DATA AVAILABLE	12 MONTHS MILEAGE &
KH BELFAST	FEB – OCT 22	INCLUDED IN RENT	9 MONTHS KWH & COSTS	FIGURES ESTIMATED	COSTS FOR ALL SITES

TABLE 4: SUMMARY OF DATA PROVIDED FROM SITES

In scenarios where only partial data was made available, our approach involved incorporating effective estimates. This encompassed utilising comparable averages, as well as leveraging costings and rates from analogous sites and existing energy data. In this instance, missing information has been estimated for Belfast site gas usage and cost. No estimates were used

for Grey Fleet. Estimations for company vehicle fuel were derived from lease company providing estimated mileage for the year for the company fleet.

GROUP Data Quality:

The quality of the data utilized in the compilation of this report is assessed by considering several key factors, each of which contributes to the overall evaluation of its quality. These factors include:

- Timeliness
- Consistency
- Transparency
- Data Quality
- Error Assessment
- Estimation Accuracy
- Communication Clarity

The cumulative evaluation of these factors resulted in a composite quality score of 40 for KSG, indicating a classification of poor quality.

Fuels

The GROUP employs a range of energy sources, including electricity natural gas, petrol and diesel to facilitate the operation of its facilities. Encompassing the consumption of electricity and gas the aggregate energy consumption of the facilities approximated almost 185,876 kWh. Over the same period, the GROUP operational activities necessitated extensive travel, culminating in a cumulative distance traversed of approximately 2,344,840 business miles.

The below table summarises a comprehensive annual breakdown in consumption, costs, and carbon emissions for the Group. Throughout the report the following abbreviations will be referenced.

- B = Building (Energy consumption pertaining to building use)
- P = Production (Energy consumption pertaining to company production)
- T = Transportation (Energy consumption pertaining to vehicle use and business travel

Description	Category	Unit	Consumption	KWh Ratio	Cost	CO2 Emissions	SECR
Decemption	Catagory	Miles	kWh/year	%	£/year	tCO2e	Scope
Electricity	В	0	158,681	6.2	£12,617	31	2
Gas	В	0	27,195	1.1	£1,629	5	1
Company Transport Fuel	Т	2,021,829	2,094,545	81.4	£429,964	524	1
Grey Fleet	Т	220,696	245,679	9.5	£47,007	61	3
Electric Vehicles	Т	102,315	46,811	1.8	£5,116	9	2
T&D Electricity	В	0	0	0	£0	3	3
T&D EV	Т	0	0	0	£0	1	3
Total		2,344,840	2,572,911	100	£496,333	633	

TABLE 5: TOTAL ANNUAL CONSUMPTION & COSTS FOR THE GROUP

•	Average monthly total energy costs	£41,361
•	Average monthly total energy kWh	2,144,409
•	Average monthly tCO2e	52.75
•	Average monthly mileage	195,403

TABLE 6: SUMMARY OF EMISSIONS FOR THE GROUP

	EMISSIONS FOR 2022 FOR KSG					
Description	Total kg CO2e per unit	kg CO2e of CO2 per unit	kg CO2e of CH4 per unit	kg CO2e of N2O per unit	tC02e	
Electricity	30,686	30,341	127	217	31	
Gas	4,964	4,955	7	3	5	
Company Vehicle Fuel	523,697	4,737,084	5,647	51,110	524	
Grey Fleet	60,614	60,166	60	388	61	
Electric Transport	9,048	8,951	36	62	9	
T&D Electric Transport	828	819	3	6	1	
T&D	2,807	2,777	11	19	3	
Total	632,645	4,845,093	5,890	51,805	633	

In the context of our comprehensive energy assessment, it becomes evident that the predominant portion of consumption can be attributed to company transport commanding a significant majority at 81%, whilst grey fleet and electricity contributed 10% and 6% respectively, electric vehicles counted for just 2% whereas gas represents a minor proportion at 1%.



DIAGRAM 7: TOTAL ANNUAL CONSUMPTION FOR THE COMPANY FOR THE REPORTING PERIOD

In relation to costs, company transport realised 87% of the annual cost allocation within the company. Grey fleet is the next notable expenditure, comprising 9% of the total, followed by electricity at 3%, electric vehicles at 1.25% and again gas resulting in a minimal fraction of under 0.5%. This breakdown underscores the paramount importance of reducing transport costs wherever possible by implementing energy saving opportunities.



DIAGRAM 8: TOTAL ANNUAL COSTS FOR THE COMPANY FOR THE REPORTING PERIOD

ELECTRICITY

Electricity is utilised at all 12 sites, although, data was only provided for 1 of the sites as the other sites are all serviced offices whereby energy usage is inclusive in the rent. Calculations for the electrical energy usage were taken from data provided.

Transmission and distribution (T&D) are emissions associated with grid losses (the energy loss that occurs in getting the electricity from the power plant to the organisations that purchase it).

Electricity	Consumption	Cost	CO2 & TD Emissions
Lieotholty	kWh/year	£/year	tCO2e
KSG HQ	156,681	12,617	30.7
TOTAL	156,681	£12,617	30.7

TABLE 7: BREAKDOWN BY SITE OF ANNUAL ELECTRICTY CONSUMPTION & COST FOR 2022

As depicted in the following diagrams, the energy consumption exhibits totally uniform patterns even with estimates being included in missing months. This is due to inconsistent bill recording. Hence, it is of paramount importance to initiate a systematic monthly recording of all energy data to provide a comprehensive and accurate depiction of the company's energy utilisation trends.



DIAGRAM 9: SUMMARY OF MONTHLY COMPANY ELECTRICITY CONSUMPTION (KWH) FOR KSG HQ



DIAGRAM 10: SUMMARY OF MONTHLY COMPANY ELECTRICITY COSTS (£) FOR KSG HQ

NATURAL GAS

Gas is only utilised at 1 site. Calculations in below table represent gas energy usage taken from data provided.

Natural Gas	Consumption	Cost	CO2 Emissions
	kWh/year	£/year	tCO2
KH BELFAST	27,195	£1,629	5
TOTAL	27,195	£1,629	5

TABLE 8: SUMMARY OF ANNUAL COMPANY CONSUMPTION (KWH) & COSTS (£)

DIAGRAM 11: MONTHLY GAS SITE CONSUMPTION (KWH) FOR KH BELFAST





DIAGRAM 12: MONTHLY GAS SITE COSTS (£) FOR KH BELFAST

Whist slightly erratic, the above diagrams exhibit a close tie to reflect true consumption use, whereby there is lower usage in summer months and higher usage in winter months.



DIAGRAM 13: ANNUAL UTILITY CONSUMPTION COMPARISON

DIAGRAM 14: ANNUAL UTILITY COSTS (£) COMPARISON



TRANSPORT

The energy (fuel) consumption of vehicles owned, leased, or rented will be within the scope of ESOS. Specifically, it is the fuel usage which is paid for by the company and consumed in undertaking company business that is in scope.

Grey Fleet: 'grey fleet' refers to vehicles not owned by the company, but instead owned by its employees, owners, directors, or other persons related to the company; and used in undertaking company business. The fuel consumption within a participant's 'grey fleet' will be considered within scope of ESOS where the participant makes payment to the vehicle owner in relation to the use of the vehicle on business (e.g., on a pence per mile basis).

Energy consumption associated with the personal use of company cars is not considered within scope of ESOS, as the fuel is not being used for company business. Fuel used for commuting is not within the scope of ESOS.

Description	Unit Consumption		Cost	CO2 Emissions
Description	Miles	kWh/year	£/year	tCO2
Grey Fleet	220,696	245,679	£47,007	61
Company Cars	2,021,829	2,094,545	£429,964	524
Electricity Transport	102,315	46,811	£5,116	9
Totals	2,344,840	2,387,036	£482,087	595

TABLE 14 - ANNUAL FUEL CONSUMPTION & COST FIGURES

• Collectively, the GROUP amassed a total of 2,344,840 business miles which accumulated an annual cost of £482,087.

ENERGY BENCHMARK

A thorough analysis of energy usage, savings, and corresponding action plan has been undertaken and formulated for the company, which was surveyed, encompassing a comprehensive review of the company energy consumption. This review involved an in-depth examination and characterisation of energy usage patterns, coupled with an energy audit.

By leveraging a multi-year dataset, a comprehensive understanding of the company's energy utilisation patterns and fluctuations over time can be made possible. This in-depth analysis establishes a robust framework for assessing energy consumption trends, pinpointing areas of potential improvement, and devising focused strategies to enhance energy efficiency in the future.

It is of utmost importance to stress the significance of supplying comprehensive data. The absence of such data can distort the accuracy of comparative analysis and hinder the establishment of robust benchmarks for the company's energy performance assessment.

As previous ESOS or SECR compliance reports have been produced it is possible to benchmark any consumption patterns. However, this report can also be utilised as a baseline year and future data comparisons can be made.

In conclusion, ensuring data completeness and regulatory compliance is vital for maintaining the integrity and effectiveness of energy audit assessments, facilitating informed decision-making processes, and fostering sustainable energy management practices.

In this instance a previous ESOS report has been submitted therefore, a comparable could be made. This ESOS will form a base year for future ESOS and carbon reporting.

SCORE	CATEGORY	ESOS PHASE 1		ESOS PHASE 2		ESOS PHASE 3		KWH VARIANCE SINCE PHASE 2
SLUPE	CATEGORY	%	кwн	%	КМН	%	кwн	кwн
	NATURAL GAS	0	0	0	0	1.1	27,195	0%
SCOPE 1	OTHER FUEL	0	0	0	0	0	0	0%
	COMPANY VEHICLE FUEL	0	0	88.8	4,296,318	81.4	2,094,545	51%
	TOTAL SCOPE 1	0	0	88.8	4,296,318	82.5	2,121,740	51%
	ELECTRICITY	0	0	5.5	268,414	6.2	158,681	41%
SCOPE 2	ELECTRICITY VEHICLES	0	0	0	0	1.8	46,811	0%
	TOTAL SCOPE 2	0	0	5.5	268,414	8.0	205,492	23%
55005 D	GREY FLEET	0	0	5.7	274,451	9.5	245,679	10%
SLUPE 3	TOTAL SCOPE 3	0	0	5.7	274,451	10	245,679	10%
TOTAL ENERGY CONSU	JMPTION (TEC)	()	10	00	10	00	N/A
TOTAL KWH		0		4,839,183		2,572,911		47%
TOTAL KWH SAVINGS	FROM ESOS RECOMMENDATIONS	0				2,266,272		0%
TOTAL COSTS £		C)	£674,198		£496,332		26%
TOTAL TCO2E		C)	1,1	.78	633		46%
TURNOVER (£)		C)	103,649,329		132,426,624		28%
FTE	0		0		0		0%	
TOTAL BUSINESS MILE	5	C)	4,570	0,769	2,34	4,840	49%

TABLE 15: SUMMARY OF CURRENT & PREVIOUS BENCHMARK DATA ANALYSIS

COMPLIANCE & SERVICE RECORDS

TM44 AC COMPLIANCE

TM44 refers to an air conditioning inspection report, which is a legal requirement in the United Kingdom.

If a building has more than 12KW output of Air Conditioning, it is mandatory legislation to acquire a TM44 Air Conditioning Inspection and ensure a valid certificate is issued. The inspection will need to be renewed every 5 years following initial installation.

An inspection will identify whether the equipment is working correctly and will advise and recommend action points if required.

It is important to note that the responsibility for obtaining a TM44 inspection rests with the person who has control of the operation of the air conditioning system, typically the building owner or manager. Failure to comply with TM44 inspection requirements can result in penalties and fines.

For precise and up-to-date information regarding TM44 inspection requirements, it is advisable to consult the relevant regulations and guidelines in your specific jurisdiction or seek guidance from qualified professionals in the field.

An inspection will identify whether the equipment is working correctly and will advise and recommend action points if required. The HO site will require a TM44 Inspection Certificate as soon as possible in order to become compliant.

- All boiler equipment is regularly maintained and annually serviced.
- No AC Certificates were found on Government Website.

EMISSION TYPES

The Greenhouse Gas Protocol is a widely recognised accounting tool that helps organisations and companies measure, manage, and report their greenhouse gas emissions. It provides a standardized framework for understanding and quantifying the impact of activities and operations on climate change.

Greenhouse Gas Protocol helps identify and track the amount of greenhouse gases they release into the atmosphere. Greenhouse gases are gases that trap heat in the Earth's atmosphere, contributing to the warming of the planet. Ultimately, the Greenhouse Gas Protocol helps organisations take responsibility for their contribution to climate change and provides a framework for managing and reducing their greenhouse gas emissions to mitigate their impact on the environment.

The division of categories between scopes are shown in Diagram below. The different scopes and categories included in the GHG protocol.



DIAGRAM 15: ILLUSTRATION SHOWING SCOPE 1,2 & 3 ACTIVITIES.

The protocol sets out guidelines and principles for organizations to measure their greenhouse gas emissions in a consistent and transparent manner. It categorises emissions into three scopes:

Scope 1: These are direct emissions that come from sources that are owned or controlled by the organisation. For example, emissions from company-owned vehicles or manufacturing processes.

Scope 2: These are indirect emissions that come from the generation of electricity, heating, or cooling purchased and consumed by the organisation. For example, emissions from the electricity used in office buildings or production facilities.

Scope 3: These are other indirect emissions that occur throughout the organisation's value chain and take into account the full lifecycle of a product or service, from raw material extraction to disposal. They include emissions from activities such as transportation of goods, business travel, employee commuting, and the use and disposal of products sold as well as site water use, waste disposal to landfill, waste recycling, waste disposal.

By understanding and categorising emissions into these scopes, organisations can develop strategies to reduce their greenhouse gas emissions. The Greenhouse Gas Protocol also encourages companies to set emission reduction targets, track progress over time, and report their findings in a consistent and comparable manner.

ENERGY MANAGEMENT MATRIX

The following table shows corporate performance in regard to energy management. The shaded cells represent current achievement levels indicating key areas where improvement can be made. The maximum score is 24. The GROUP achieved a total score of 5.

Level	Energy Policy	Organising	Training	Performance Measurement	Communication	Investment
4	Energy policy, Action Plan and regular review have active commitment of top management	Fully integrated into management structure with clear accountability for energy consumption	Appropriate and comprehensive staff training tailored to identified needs, with evaluation	Comprehensive performance measurement against targets with effective management reporting	Extensive communication of energy issues within and outside of organisation	Resources routinely committed to energy efficiency in support of business objectives
3	Formal policy but no active commitment from top management	Clear line management accountability for consumption and responsibility for improvement.	Energy training targeted at major users following training needs analysis	Weekly performance measurement for each process, unit, or building	Regular staff briefings, performance reporting and energy promotion	Same appraisal criteria used as for other cost reduction projects
2	Un-adopted Policy	Some delegation of responsibility but line management and authority unclear	Ad hoc internal training for selected people as required	Monthly monitoring by fuel type	Some use of company communication mechanisms to promote energy efficiency	Low or medium cost measures considered if short payback period
1	An unwritten set of guidelines	Informal, mostly focused on energy supply	Technical staff occasionally attend specialist courses	Invoice checking only	Ad-Hoc informal contacts used to promote energy efficiency	Only low or no cost measures taken
0	No explicit energy Policy	No delegation of responsibility for managing energy	No energy related staff training provided	No measurement of energy costs or consumptions	No communication or promotion of energy issues	No investment in improving energy efficiency

TABLE 16: ENERGY MANAGEMENT MATRIX EVALUATION

INTENSITY RATIO

Intensity ratios measured in kWh (kilowatt-hours) are typically used to describe the relationship between energy consumption or production in different scenarios, locations, or time periods.

Energy Consumption Intensity Ratio is often used to compare the energy efficiency of different processes, buildings, or equipment. It's typically expressed as kWh per unit of some other metric. For example:

kWh per square meter: This ratio measures the energy consumption of a building per square meter of floor space. It helps assess the energy efficiency of buildings,

kWh per unit of production in manufacturing or industrial processes ratio measures the energy consumed to produce a specific unit of a product. It can be used to optimise production processes and reduce energy costs.

Energy Production Intensity Ratio is used to assess the efficiency or effectiveness of energy generation methods. It typically compares the energy produced (in kWh) to some other metric.

Intensity ratios can help companies to track their emissions intensity over time and compare their performance to industry benchmarks or other companies in their sector. By measuring emissions intensity rather than just absolute emissions, companies consider changes in their activities, such as expansion or contraction, and evaluate the effectiveness of their emissions reduction strategies.

	INTENSITY RATIO	ESOS PHASE 1	ESOS PHASE 2	ESOS PHASE 3	VARIANCE SINCE PHASE 2	
NORMALISER	KWH/ MILES	0	1.00	1.02	2%	
	KWH / M2	0	227	134	41%	

TABLE 17: INTENSITY RATIO FOR THE GROUP

SIGNIFICANT ENERGY USE

The ESOS methodology requires the auditing of at least 95% of energy consumption whether this is buildings, process, transport, or a mixture of each. In addition, it requires the identification of Significant Energy Consumption (SEC).

Typically, in terms of fuel use an estimated generalised primary Significant Energy Consumption (SEC) observed were considered as:

Description	Estimated Usage %	Source	Category
Air Conditioning	3	Electricity	Building
Lighting	2.8	Electricity	Building
Hot Water & Heating	1.1	Gas	Building
Transport	83.2	Petrol/Diesel/Electric	Transport
Grey Fleet	9.5	Petrol/Diesel/Electric	Transport
Kitchen Appliances	0.2	Electricity	Building
Other	0.2	Electricity	Building
	100		

TABLE 18: ANNUAL ESTIMATED SIGNIFICANT ENERGY

TABLE 19: ANNUAL ESTIMATED SIGNIFICANT ENERGY CONSUMPTION BY CATEGORY

Category	%	KWh
Buildings	7.3	185,876
Transport	92.7	2,387,035
	100	2,572,911

There were considerable reductions in energy consumption on both transport and building use compared to ESOS Phase 2 – see table below.

TABLE 20: ANNUAL SAVINGS IN SIGNIFICANT ENERGY CONSUMPTION Vs ESOS PHASE 2

Category	Savings Since Phase 2 (kwh)	Cost Savings since Phase 2
Building	109,495	£8,705
Transport	2,230,545	£273,535
Total	2,340,040	£282,240

POTENTIAL ENERGY SAVINGS & RECOMMENDATIONS

It's important to note that the specific energy-saving opportunities and potential savings will vary from one organisation to another. ESOS assessments are tailored to each organisation's unique circumstances and are carried out by qualified assessors..

Recommendations are measured as High Cost, Medium Cost, Low Cost and No Cost.

Following site survey, it was established there were energy saving opportunities that if implemented, could help reduce both emissions and costs.

Figures compiled for Potential Cost & Energy Saving Recommendations for the site surveyed are estimated for the purpose of ESOS recommendations and are not a guarantee of cost for services. Estimates are based on current information supplied for a guidance method for the client for the purpose of the project requirements.

It is recommended the company obtain a full site survey assessment and quotation. Cost savings are calculated at the time of current commercial energy tariffs.

TABLE 21: ENERGY SAVINGS OPPORTUNITY RECOMMENDATIONS INDIVUAL MEASURES

CATECODY			ENERGY / COST SAVING		ANNUAL SAVINGS			CAPITAL	COST	PAYBACK
CATEG	IORY	RECOMMENDATION	RECOMMENDATIONS	BENEFIIS	кwн	COST £	CO2 (T)	COSTS	MEASURES	YEARS
HQ	В	SOLAR PV 25KW	CONSIDERATION OF INSTALLATION OF SOLAR PV SYSTEM	REDUCE ELECTRICITY COSTS & REDUCE CARBON FOOTPRINT.	14,203	£4,403	3	£31,250	HIGH COST	7.1
ALL	т	HVO PER 30,000 LITRES	CONSIDER CHANGING FUEL FROM DIESEL TO HVO	REDUCE CARBON EMISSIONS FOR FUEL BY 90%	20,400	£0	76	£537	LOW COST	N/A
HQ	В	VOLTAGE OPTIMISER	CONSIDER INSTALLING VOLTAGE OPTIMISER	REDUCE IMPACT OF ELECTRICITY VOLTAGE INTO SITE & REDUCE ELECTRICITY COSTS	14,303	£3,337	2	£3,607	LOW COST	1.1
ALL	т	ELECTRIC VEHICLES X 10 VANS & 10 CARS	CONSIDER PURCHASING/LEASING ELECTRIC VEHICLE OR HYBRID IF REQUIRED	REDUCTION IN FUEL COSTS & REDUCE CARBON FOOTPRINT	81,710	£36,140	45	£17,200	MEDIUM COST	0.5
HQ	В	REPLACE LIGHTING TO LED	REPLACE INEFFICIENT FLUORESCENT LIGHTS	REDUCE ELECTRICITY COSTS & REDUCE CARBON FOOTPRINT.	15,892	£12,268	8	£14,019	MEDIUM COST	1.2
HQ	в	PUSH STOP TAPS PER 12	INSTALL PUSH STOP TAPS - COST OF TAPS & INSTALLATION	REDUCTION IN HEATING COST, REDUCTION IN CARBON FOOTPRINT & REDUCE WASTAGE OF WATER.	5,400	£540	1	£1,500	LOW COST	2.8
HQ	в	LIGHT MOTION SENSORS	INSTALL MOTION/LIGHT SENSORS WITHIN THE BUILDING	REDUCTION IN ELECTRICITY. PROLONGED LIFE OF LIGHTS. REDUCE MAINTENANCE COSTS.	7,950	£2,465	2	£751	LOW COST	0.3
HQ	В	BUILDING TEMPERATURE AC	SET TEMPERATURES TO 21 DEGREES ON AC	REDUCTION IN ELECTRICITY COSTS & REDUCE CARBON FOOTPRINT	15,892	£4,927	3	£0	NO COST	Immediate
ALL	В	GREEN ELECTRICITY TARIFF	CONSIDER OPTING FOR A GREEN TARIFF UPON ENERGY AGREEMENT END	REDUCTION IN CO2 REPORTING	0	£0	30.7	VARIABLE	LOW COST	N/A
HQ	В	LAGGING EXPOSED PIPEWORK	LAG EXPOSED PIPEWORK TO MAINTAIN TEMPERATURE	REDUCE UNNECESSAY HEAT/COOL LOSS. REDUCE GAS COSTS & REDUCE CARBON FOOTPRINT	783	£78	0.2	£150	LOW COST	1.9
			TOTALS		176,533	£64,157	170	£69,014		1.1

ACTION PLAN

The Action Plan listed below are in accordance with Recommendation Table 21 (Points 1-10)

NO	RECOMMENDATION	RECOMMENDED TIMESCALE FOR IMPLEMENTATON
1	CONSIDERATION OF INSTALLATION OF SOLAR PV SYSTEM	0.12 MONTHS
2	CONSIDER CHANGING FUEL FROM DIESEL TO HVO	0-3 MONTHS
3	CONSIDER INSTALLING VOLTAGE OPTIMISER	IMMEDIATELY
4	INSTALL PUSH STOP TAPS	0-3 MONTHS
5	INSTALL LED LIGHTING	0-3 MONTHS
6	INSTALL MOTION/LIGHT SENSORS WITHIN THE BUILDING	0-3 MONTHS
7	LAG EXPOSED PIPEWORK TO MAINTAIN TEMPERATURE	IMMEDIATELY
8	CONSIDER PURCHASING/LEASING ELECTRIC VEHICLES	0-12 MONTHS
9	CONSIDER OPTING FOR A GREEN TARIFF UPON ENERGY AGREEMENT END	AT CONTRACT RENEWAL
10	SET TEMPERATURES TO 21 DEGREES ON AC	IMMEDIATELY

TABLE 22: LIST OF ACTION PLAN RELATING TO RECOMMENDATIONS

RECOMMENDATIONS & ADVICE

SOLAR PANELS – HIGH-COST CAPITAL REQUIRED

It is recommended to install a Solar PV system at HQ site and at all other sites if feasible.

Solar panels have a carbon footprint, but the industry has been working to reduce it. Advances in design and technology have improved solar panel efficiency, and the production process has become more efficient, lowering their carbon footprint. Solar PV emits significantly less carbon emissions compared to gas and coal-generated electricity.

Using an energy storage system, such as a solar battery, allows you to store excess electricity generated during the day for later use, making the system more efficient. Proper maintenance, including regular cleaning, ensures optimal performance of solar panels.

Solar energy is available worldwide and has become more affordable. The cost of solar PV installations has decreased in the past 5 years, making it a viable option for many businesses. Solar energy remains a renewable and carbon-reducing solution that empowers companies to generate their own clean electricity.

1. Cost savings

Solar panels generate free, green electricity during daytime hours, lowering your business demand for energy from the grid and potentially saving thousands of pounds on energy bills.

2. Solar income

Ideally, you would use all the solar power onsite, however any surplus power can be sold to the grid.

3. Financial stability

With energy prices predicted to sharply rise in the next 10 years, commercial solar panels allow you to effectively forward buy your electricity at a set price, making financial forecasting much easier.

4. Lower carbon footprint

Generating your own solar energy will significantly reduce your carbon footprint, increase your company's sustainable credentials, and improve your business reputation.

5. Low risk investment

Solar PV is a reliable and safe investment vehicle that provides returns exceeding those of traditional low risk financial products.

6. Leased Premises

It is important to obtain permission from the Landlord if the property is leased. It is also worth liaising with the Landlord and other tenants to see if a joint venture purchase if viable and the benefits be absorbed by all tenants.

7. Energy security

With the grid and district network operators struggling to meet the UK's growing energy demands, and the government's recent introduction of mandatory energy audits for large businesses via the Energy Savings Opportunity Scheme (ESOS) and the possibility of further energy usage regulation, independent solar installations are an excellent backup measure.

HYDROTREADED VEGETABLE OIL (HVO) – HIGH-COST CAPITAL REQUIRED

It is recommended to change to HVO fuel for fuel used on sites. HVO stands for Hydrotreated Vegetable Oil, is a renewable and sustainable diesel fuel alternative. It is produced through a process called hydro processing, which involves the hydrogenation of vegetable oils or animal fats. The resulting HVO fuel exhibits properties similar to fossil-based diesel fuel but with several environmental and performance benefits. HVO offers various advantages to commercial companies, particularly in the transportation and logistics sectors. Here are some of the key benefits: Environmental Sustainability: HVO is considered a "drop-in" renewable fuel, meaning it can be used as a direct substitute for conventional diesel fuel without any modifications to existing engines or infrastructure.

HVO is a low-carbon fuel with significantly reduced greenhouse gas emissions compared to fossil diesel. It can achieve up to 90% greenhouse gas emission reductions over its lifecycle, contributing to carbon footprint reductions and helping companies meet sustainability targets. Improved Air Quality: HVO has a cleaner combustion profile compared to conventional diesel, resulting in reduced emissions of pollutants such as particulate matter, nitrogen oxides (NOx), and sulphur oxides (SOx). By adopting HVO, commercial companies can contribute to improved air quality in urban areas and comply with increasingly stringent emission regulations. Performance and Compatibility: HVO has excellent fuel properties and compatibility with existing diesel engines and fuel systems. It offers high energy density, good lubricity, and excellent cold-weather performance, making it a reliable and efficient fuel choice for various commercial applications. Companies can transition to HVO seamlessly without requiring significant modifications or investments in their fleets or equipment. Fuel Security and Diversity: HVO provides companies with a renewable and domestically produced fuel option. As it can be derived from various feedstocks such as vegetable oils, animal fats, and used cooking oil, it offers a diversified and sustainable fuel supply. This reduces dependence on fossil fuel imports and enhances energy security.

Corporate Social Responsibility: Adopting HVO aligns with corporate social responsibility goals and demonstrates a commitment to sustainable practices. It can enhance a company's reputation, attract environmentally conscious customers, and meet the growing demand for sustainable products and services. Incentives and Support: Many governments and regulatory bodies offer incentives and support programs to encourage the adoption of renewable fuels like HVO. These incentives can include tax credits, grants, and subsidies, which can help offset the initial costs of transitioning to HVO and make it a financially viable option for commercial companies.

In summary, HVO presents commercial companies with a sustainable and environmentally friendly diesel alternative. By utilising HVO, businesses can reduce their carbon footprint, improve air quality, ensure fuel security, and align with sustainability objectives while maintaining compatibility and performance in their operations.

Installing energy-saving taps can offer several benefits, both for a business and for the environment.

Water Conservation: Energy-saving taps are designed to reduce the flow rate of water, which helps conserve water. By using less water while performing daily tasks like washing hands you can contribute to water conservation efforts and help preserve this precious natural resource.

Energy Efficiency: Energy-saving taps often come with features like infrared sensors or aerators that control the water flow. These technologies reduce the energy required to heat the water, as less hot water is used during each interaction. This, in turn, can lead to reduced energy consumption and lower utility bills.

Cost Savings: Lower energy consumption and water usage result in reduced utility bills. Over time, these cost savings can add up, helping to offset the initial investment in energy-saving taps.

Environmental Impact: Conserving water and energy has a positive impact on the environment. By reducing water consumption, less strain is placed on local water sources and ecosystems. Additionally, reducing energy usage lowers carbon emissions and contributes to the fight against climate change.

Hygiene and Convenience: Many energy-saving taps feature touchless operation, such as infrared sensors, which eliminate the need for physical contact with the tap handles. This touch-free operation enhances hygiene, as it reduces the transmission of germs and bacteria. Furthermore, it is more convenient for users, especially in public spaces where hygiene is critical.

Compliance with Regulations: In some regions, there may be regulations or building codes that require the use of water-saving fixtures, including energy-saving taps. Installing these taps ensures compliance with such regulations and avoids potential fines or penalties.

Longevity and Durability: Energy-saving taps are often built with high-quality materials and modern technology, making them more durable and reliable. This can result in less frequent replacements and reduced waste over time.

In conclusion, installing energy-saving taps offers a range of benefits, including water conservation, cost savings, reduced energy consumption, improved hygiene, and a positive impact on the environment. Adopting energy-saving taps is a wise choice for both practical and environmental reasons.

VOLTAGE OPTIMISER – HIGH-COST CAPITAL REQUIRED

It is recommended to install a Voltage Optimiser at HQ site.

Voltage optimisation (VO) is a transformer-based technology which optimises the incoming supply from the national grid to match the voltage required by equipment at your organisation. Optimising the voltage, will reduce your commercial energy use and costs as well as lowering your carbon footprint and CO2 emissions at the same time. Spikes, sags, or fluctuations in your voltage supply or a consistent overvoltage can cause damage to equipment, disrupt operations, and waste energy. Sudden changes in voltage can trip sensitive electrical equipment. Consistently supplying equipment with a higher voltage than required can cause damage or premature burnout.

Optimising, conditioning, and reducing your incoming voltage supply protects your electrical equipment while reducing electrical consumption, costs, and carbon emissions. The Importance of commercial voltage optimisation, regulation & management cannot be underestimated for any business looking to develop a net-zero strategy. We do not offer Voltage Optimisation for domestic premises.

The benefits of commercial voltage optimisation for your business include:

- Maximises electrical energy savings, which are at least 10% but normally more.
- Monitors voltage constantly to ensure voltage of 220v at all times.
- Increases the life span of your electrical equipment.
- Provides C02 emission savings.
- Simple installation between your meter and consumer unit
- Payback in as little as 1 4 years depending on electricity use.
- Available in a variety of specifications to suit all commercial uses.

A full survey is recommended by a VO company, to select which supplies could benefit by reducing the voltage.

ENERGY SAVING TAPS – LOW-COST CAPITAL REQUIRED

Installing energy-saving taps can offer several benefits, both for a business and for the environment.

Water Conservation: Energy-saving taps are designed to reduce the flow rate of water, which helps conserve water. By using less water while performing daily tasks like washing hands you can contribute to water conservation efforts and help preserve this precious natural resource.

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In conclusion, installing energy-saving taps offers a range of benefits, including water conservation, cost savings, reduced energy consumption, improved hygiene, and a positive impact on the environment. Adopting energy-saving taps is a wise choice for both practical and environmental reasons.

LED LIGHTING – HIGH-COST CAPITAL REQUIRED

Lighting accounts for 20% - 40% of all total electricity costs in most organisations. More efficient systems, good practise and maintenance of existing systems can reduce these by up to a third. Significant benefits of replacing inefficient lighting to LED includes:

Cost Savings: LED lighting is significantly more energy-efficient compared to traditional lighting options like incandescent or fluorescent bulbs. LED lights consume less electricity to produce the same amount of light, resulting in lower electricity bills. The initial investment in LED lighting may be higher, but the long-term savings on energy costs far outweigh the upfront expenses.

Longevity: LED lights have a much longer lifespan than traditional bulbs. They can last up to 25 times longer, reducing the frequency of replacements and maintenance costs. This also translates to fewer disruptions in operations due to lighting maintenance.

Improved Lighting Quality: LED lights produce bright, clear illumination with no flickering or warm-up time. They offer consistent light output and colour rendering, providing better visibility and enhancing the overall ambiance of the space.

Environmental Benefits: LED lighting is eco-friendly as it consumes less energy and contains no hazardous materials like mercury found in fluorescent bulbs. By reducing energy consumption, LED lights help mitigate greenhouse gas emissions and contribute to combating climate change. Additionally, the longevity of LED lights reduces the need for manufacturing, transportation, and disposal of lighting fixtures, further lowering their environmental impact.

Enhanced Reputation: Businesses that prioritise energy efficiency and sustainability are viewed favourably by customers, investors, and stakeholders. Demonstrating a commitment to environmental responsibility can enhance the company's reputation and attract environmentally conscious consumers. Adopting LED lighting as part of sustainable practices can contribute to building a positive brand image.

Regulatory Compliance: With increasing regulations and standards aimed at reducing energy consumption and greenhouse gas emissions, adopting LED lighting can help businesses stay compliant with environmental regulations and avoid potential penalties or fines. Additional Energy-Saving Measures: Incorporating motion sensors along with LED lighting further enhances energy efficiency by automatically adjusting lighting levels based on occupancy. This reduces energy waste in areas that are not in use, maximizing cost savings.

Overall, upgrading to LED energy-efficient lighting not only offers significant cost savings but also demonstrates a commitment to sustainability and enhances lighting quality.

MOTION LIGHT SENSORS – LOW-COST CAPITAL REQUIRED

Installing motion sensor lighting can help save energy. Motion sensor lighting systems are designed to automatically turn on lights when motion is detected in a specific area and turn them off when there is no activity present. This feature eliminates the need for manual control or relying on individuals to remember to switch off lights when leaving a room. By using motion sensors, energy waste due to lights being left on unnecessarily is minimized. In areas with low or intermittent occupancy, such as hallways, bathrooms, or storage rooms, motion sensor lighting ensures that lights are only active when needed. This can lead to significant energy savings over time. Additionally, motion sensor lighting systems often include adjustable settings for sensitivity and duration of illumination. These settings can be customized to suit specific needs, ensuring that lights are activated appropriately based on the level of motion and the desired time span for illumination. By reducing the runtime of lights and preventing lights from being left on in unoccupied areas, motion sensor lighting helps optimize energy usage and lowers electricity costs. It is a practical and efficient solution for improving energy efficiency in various environments, including offices, commercial buildings, and outdoor spaces.

PIPE LAGGING- LOW-COST CAPITAL REQUIRED

When a heating cylinder or pipework is not insulated, heat can easily dissipate, requiring the heating system to work harder to maintain the desired temperature. This leads to increased energy usage and higher energy bills. However, by applying lagging insulation, the heat loss is minimized, allowing the heating system to operate more efficiently.

Insulation materials such as fiberglass, mineral wool, or foam can be used to lag the heating cylinder and/or pipework. These materials have excellent thermal properties and help to retain the heat within the cylinder. It is important to ensure that the lagging material is properly installed and covers the entire surface of the cylinder/pipework to maximize its effectiveness.

Overall, lagging a pipework or a heating cylinder is a cost-effective energy-saving measure that can significantly reduce heat loss and improve the efficiency of the heating system.

ELECTRIC VEHICLES – MEDIUM-COST CAPITAL REQUIRED

It is recommended to consider replacing all diesel and petrol cars to Electric Vehicles when lease expires. Electric vehicles (EVs) have emerged as a promising alternative to traditional fuel-based vehicles, driven by advancements in battery technology and environmental concerns. This report examines the benefits of EVs, their cost-effectiveness, and the expanding infrastructure supporting their adoption.

Environmental Benefits:

The foremost advantage of EVs lies in their significant reduction of emissions compared to gas-powered cars. This emission reduction extends not only during vehicle operation but also throughout the entire lifecycle. By choosing EVs, individuals contribute to mitigating air pollution and combating climate change, particularly benefiting vulnerable communities disproportionately affected by transportation emissions.

Cost-Effectiveness:

The financial advantages of EVs are substantial. While the initial sticker price of an electric vehicle may be higher than that of a gas-powered counterpart, the total cost of ownership over the vehicle's lifetime is lower. This cost reduction stems from lower fuel expenses, minimal maintenance requirements, and reduced repair costs. With fewer parts, absence of internal combustion engines, and diminished brake wear, EVs demonstrate superior durability and cost-efficiency.

Infrastructure and Market Growth:

Charging infrastructure has been a concern for prospective EV owners. However, the number of charging stations in the UK has been consistently increasing, assuaging these concerns. Additionally, a wide range of EV options is already available on the market, including sedans, SUVs, hatchbacks, and even pickup trucks. Furthermore, the ongoing commitment of major car manufacturers in the U.S. to ramp up electric vehicle production ensures an expanding selection in the coming years.

Supporting the EV Industry:

Choosing an electric car not only benefits individual owners but also supports the growth of the EV industry. Increased EV demand stimulates the development of essential charging infrastructure, making the transition to electric vehicles more accessible for a broader population. The proliferation of EVs and the subsequent reduction in gas-powered vehicles ultimately lead to cleaner air and a healthier environment for all.

The carbon intensity of UK electricity currently averages above 100g CO2e/kWh (carbon dioxide equivalent per kilowatt hour). In contrast, HVO produces just 32g CO2e/kWh. On days when there is little sun or wind, electricity can even spike to 100 times the carbon intensity of HVO.

GREEN ENERGY TARIFF - LOW CAPITAL REQUIRED (CARBON SAVING ONLY)

It is recommended to change to a green electricity tariff for all sites. Green energy is derived from renewable sources such as wind and solar, making it environmentally sustainable. Opting for a green energy tariff ensures that your electricity usage is offset by an equivalent amount of renewable electricity. This helps balance out the environmental impact caused by conventional energy generation. On the other hand, green gas production is more challenging and less prevalent in the market. Although fully renewable tariffs tend to be more expensive, they offer significant benefits for carbon reporting. This is because the usage of renewable energy can be categorised as market-based, potentially resulting in zero reported emissions, depending on the contractual arrangements. By choosing a fully renewable tariff, organisations can demonstrate their commitment to reducing carbon emissions and aligning with sustainable practices.

HEATING CONTROLS - NO COST CAPITAL REQUIRED

It is recommended maintain heating/cooling levels to a maximum of 24 degrees for AC and 21 degrees for heating. There are significant energy savings that will be achieved through the rationalisation of the heating/cooling and temperature controls. It is recommended that the following actions are carried out.

- Align all heating zones temperature points to 21 degrees Celsius
- Align all cooling zones temperature points to correct optimum occupation.
- Align Hot Water System time schedule to the correct optimum occupation.

ADDITIONAL RECOMMENDATIONS

ENERGY MANAGEMENT POLICY

It is recommended that a dedicated Energy Management Policy is formulated and approved by Senior Management and issued to staff at all levels in order to focus attention on all matters of energy consumption and costs.

It is advisable to appoint a specific member of staff who should be made responsible for all consumption/emission factors and energy efficiency, by creating the position of a dedicated "Energy Warden". This individual should be responsible for identifying all opportunities to reduce the Site's energy consumption and to monitor all progress towards this aim. Energy Management should become an integral part of company day to day activities. As well as significant financial rewards, good energy management can bring other important benefits for businesses and employees.

Energy efficiency should be incorporated into every major purchasing decision as a matter of documented policy. Company notice boards and broadcast emails to publicise energy efficiency and environmental objectives. Having an effective Energy Management Policy can improve competitive advantage. Many consumers and investors will choose to support socially responsible businesses, so companies that demonstrate "green" credentials, or which have achieved recognised standards are arguably in a stronger position in the market. Organisations can also influence their supply chain, preferring suppliers that operate an environmental management system or are working towards one can be attractive to customers and investors. An energy efficient organisation is a well-run organisation.

FLEET RECOMMENDATIONS

Regular inspections and maintenance

Conduct regular inspections to identify and address issues affecting energy efficiency, such as worn-out parts, leaks, or damaged components.

Keep the engine well-maintained, including regular servicing and oil changes, to ensure it operates efficiently. Check and clean or replace air filters regularly to maintain optimal engine performance.

Driver training and incentives

Provide drivers with training on fuel-efficient driving techniques, including smooth acceleration and braking, and avoiding excessive idling. Encourage drivers to use cruise control on highways to maintain a consistent speed. Implement incentive programs to reward drivers for achieving fuel efficiency targets, encouraging them to adopt eco-friendly driving practices.

Regular auditing and benchmarking

Conduct regular audits of fuel consumption and efficiency, benchmarking against industry standards to identify areas for improvement.

SOURCES OF GRANTS & FUNDING FOR IMPLEMENTING ENERGY EFFICIENT MEASURES.

This list outlines some sources of possible government financial support to help cover the costs of implementing ESOS energy audit recommendations.

• Office for Low Emission Vehicles, plug-in car or van grant

You can get a grant towards the cost of each new electric (plug-in) car or van you buy provided it meets certain conditions.

https://www.gov.uk/plug-in-car-van-grants/overview

• The Energy Saving Trust (EST) provides free transport audits, supported by the Department for Transport for certain company vehicle fleets.

https://www.energysavingtrust.org.uk//business/transport

• Renewable Heat Incentive

This government scheme, managed by Ofgem, provides financial support for the installation and use of renewable heating systems in business and homes.

https://www.gov.uk/government/policies/increasing-the-use-of-low-carbon technologies/supporting-pages/renewable-heat-incentive-rhi.

• Energy Saving Products (BEIS)

https://etl.beis.gov.uk/?gclid=Cj0KCQjwhL6pBhDjARIsAGx8D59dghYUchEB1KZj-E6RG4QKX4Ok32VDEOd0dh27gsyDppCGpyG0f4caAns1EALw_wcB

- Industrial Energy Transformation Fund (IETF): The IETF provided funding for energy efficiency and decarbonization projects in the industrial sector. It supported businesses in upgrading equipment and processes to reduce energy consumption and emissions.
- Green Finance Schemes: The UK government encouraged green finance initiatives to help businesses access funding for sustainable projects. This included green loans and green bonds that could be used for various sustainability and carbon reduction efforts.
- Energy Efficiency Financing: Various financing and loan schemes were available through organizations like the Carbon Trust to support energy efficiency upgrades in buildings and processes.
- Innovate UK Funding: Innovate UK, part of UK Research and Innovation, offered funding for innovative projects related to clean energy, low-carbon technologies, and sustainability. These projects often targeted emissions reduction and energy efficiency.
- The Climate Change Agreements (CCAs): CCAs provided energy-intensive industries with a reduction in the Climate Change Levy (CCL) in exchange for meeting energy efficiency and carbon reduction targets.
- Renewable Energy Support: Various schemes, including the Renewables Obligation (RO), Contracts for Difference (CfD), and the Feed-In Tariff (FIT), supported businesses in adopting renewable energy sources like wind, solar, and biomass.
- Heat Networks Investment Project (HNIP): HNIP provided funding for businesses looking to develop low-carbon and energy-efficient heat networks.
- Local Authority Grants: Many local authorities in the UK offered grants and support for businesses aiming to reduce carbon emissions, often in the form of energy efficiency grants and support.

WHAT TO DO NEXT

Your ESOS audit will include a number of suggestions for energy-saving measures that your organisation can implement. Once the audit is complete, Phase 3 requires your organisation to use it as the basis for an energy-saving action plan.

The Responsible Officer must confirm the results of the audit have been shared with any subsidiaries of AFMC.

The deadline to submit your plan is 5 December 2024, six months after the ESOS Phase 3 compliance deadline.

ESOS ACTION PLAN

ESOS includes additional compliance stages following the submission of the compliance notification:

- ESOS action plans and
- ESOS annual progress updates.

Following the submission of the compliance notification, the Participant (KSG) must produce an action plan, setting out:

- What you intend to do to reduce energy consumption
- When you intend to do it
- Whether it was recommended through your ESOS Assessment
- What energy savings you expect to achieve over the four-year period covered by the action plan
- How you estimated these savings

The action plan must be signed off by a board level director (or equivalent) and submitted via the compliance notification system by the action plan deadline, which for the third compliance period is 5 December 2024.

You do not need to justify your reasoning for choosing to include any particular action in the action plan, but you will subsequently be required to state in annual progress updates whether you achieved the actions in the action plan.

The purpose of the action plan is to require participants to consider what actions from the ESOS audit (or alternative compliance routes) they may wish to carry out before the next ESOS assessment, as well as plan future action to implement energy savings that they will make a public commitment to.

If you do not intend to take any action to reduce energy consumption before the next compliance date, you can submit a notification stating that you will take no action. This will be recorded and published. If your published action plan states that you will take no action, but you do subsequently take action to reduce energy consumption, you can still submit and have published an annual progress update stating any actions you have taken.

All participants that qualified for ESOS in a given compliance period are required to subsequently produce an action plan and report against it, unless you had had no energy responsibility during a compliance period and provided a compliance notification stating this.

The responsible undertaking that was responsible for submitting the compliance notification on the compliance date is also responsible for compliance with the action plan and progress updates and is responsible for reporting on behalf of the same corporate structure, in the absence of any change to that structure.

If you do not submit an action plan by the deadline, by default it will be recorded and published that you do not intend to carry out any energy saving action.

All organisations which were required to comply with ESOS in a given compliance period must submit and provide updates against an action plan which covers the subsequent four years, termed the action plan period. Action plan and annual progress update timings

For full information please click the link and select Point 12 – Action Plan

https://www.gov.uk/government/publications/comply-with-the-energy-savingsopportunity-scheme-esos/complying-with-the-energy-savings-opportunity-schemeesos#esos-action-plan

DIRECTOR / SENIOR MANAGER DECLARATION

As a Board Level Director or Senior Manager, I confirm that:

- I am satisfied to the best of my knowledge that the organisation is within the scope of the ESOS scheme by company turnover and number of staff employed.
- I am satisfied to the best of my knowledge that the organisation is compliant with the scheme.
- I am satisfied to the best of my knowledge that the information provided in the organisation's notification is correct.
- I am satisfied to the best of my knowledge that the organisation has noted opportunities for reducing their energy consumption.

F	PARTICIPANT SIGN OFF
DIRECTOR/ SENIOR MANAGER NAME	
SIGNATURE	
DATE	
ESOS LEAD AUDITOR NAME	Michael Walker
SIGNATURE	-IBL AM
DATE	25 th July 2024