



CASE STUDY

ENGINEERING ESOS VALUE IN COMPLEX ENERGY SYSTEMS

SCOPE

- 3 Businesses Audited
- Wind & Biomass Assets
- UK-Wide Coverage

HIGHLIGHTS

- Thermodynamic Efficiency Analysis
- SCADA Data Interrogation
- Custom Monitoring Strategies

IMPACT

- Full Compliance Achieved
- Actionable Savings Identified
- Ongoing Engagement for Phase 4



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ESOS ASSESSMENT SUMMARY

Arthian assisted Schrodgers Greencoat with ESOS Phase 3 assessments involving three distinct businesses managed by the investment group: Greencoat UK Wind, Sleaford Renewable Energy Plant and Templeborough Biomass Power Plant. These organisations manage highly specialised energy generation assets, including wind turbines and biomass plants—far outside the conventional ESOS focus on buildings, transport, and consumption.

Greencoat UK Wind alone contributes approximately 2% of the UK's electricity supply, underscoring the scale and significance of the assessment.

Our team supported compliance across all three businesses, working closely with the ESOS Lead Assessor and a multidisciplinary team of engineers and scientists. The assessment identified core opportunities for thermodynamic efficiency improvements, heat recovery, procedural enhancements, and improved monitoring and targeting strategies.



ESOS ASSESSMENT OVERVIEW

The assessment was initiated under tight time constraints, coinciding with the Environment Agency's rollout of a new portal and extended deadlines.

We began by engaging stakeholders to understand the organisational structures of each business and define the scope and boundary of the assessments. Initial data was collected and scrutinised to establish a base year and develop a comprehensive assessment plan, compliant with ESOS requirements for all three businesses.

Site visits and desktop reviews were conducted across geographically dispersed locations within the UK. Our team evaluated existing energy management practices, analysed baseline conditions, and identified improvement opportunities. These were prioritised based on feasibility, impact, and payback.

The final report and evidence pack were compiled with rigorous attention to detail, supporting compliance and providing actionable insights. Subsequent meetings and workshops were delivered to internal teams to embed findings and support future implementation.

ENERGY AUDIT

There were three energy audits completed covering multiple sites across the UK, including a portfolio of wind farms and two biomass facilities. These are complex operational environments involving turbine mechanics, thermodynamic systems, and energy generation processes.

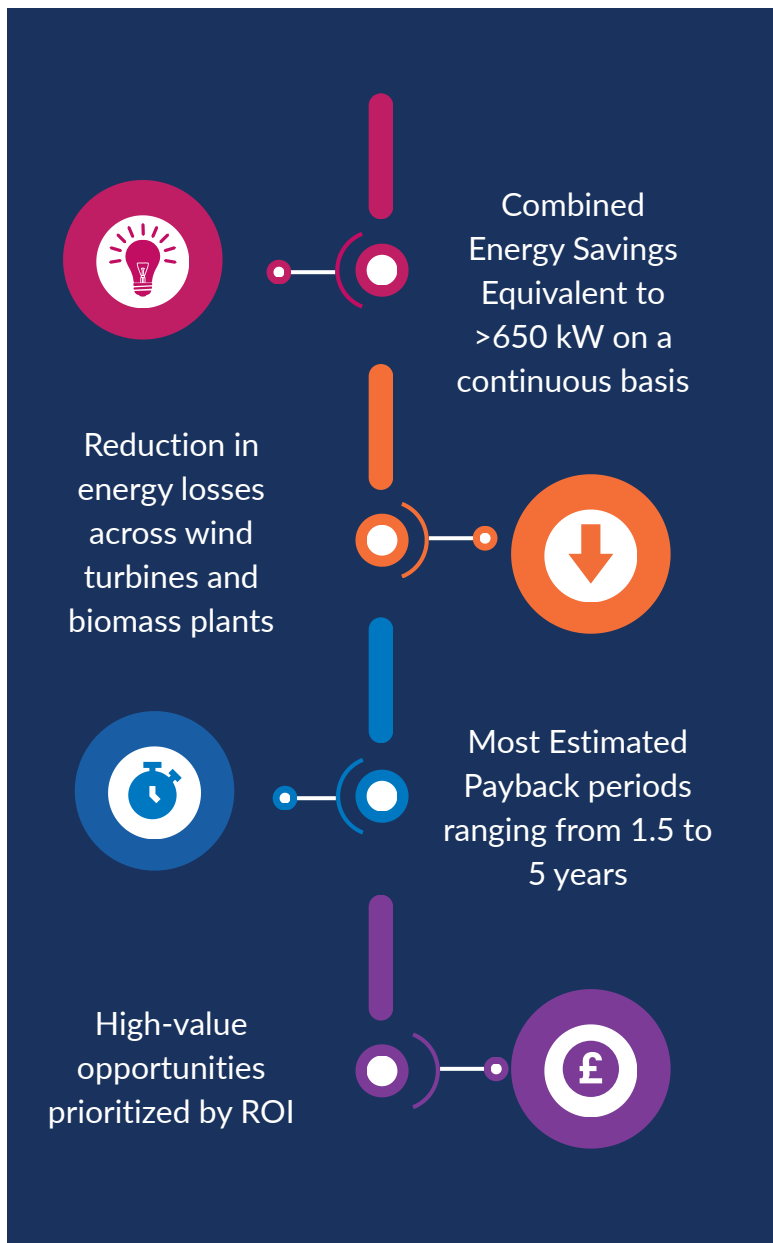
Our auditing methodology included:

- Onsite inspections and desktop reviews
- Analysis of operational data and SCADA systems
- Thermodynamic efficiency assessments
- Evaluation of energy-consuming systems and processes

Energy use and carbon emissions were broken down by asset type, with intensity ratios tailored to each organisation's operational context.

Our ESOS Lead Assessor and audit team brought over a decade of experience in energy auditing and compliance, enabling a bespoke and technically robust approach.





ENERGY SAVINGS OPPORTUNITIES AND PAYBACK

Improvement opportunities were identified through data interrogation and technical analysis. These included:

- Heat recovery from biomass processes
- Procedural changes to turbine operations
- Enhanced monitoring and targeting systems
- Improved data collection protocols

Each opportunity was evaluated with anticipated savings and payback periods calculated. Nearly 6,000,000 kWh were identified, combined across the 3 Greencoat organisations.

Challenges included the complexity of efficiency measures for generation assets and the fact that the generation assets were already operating very efficiently. These were addressed through bespoke analysis to target areas for energy improvement, stakeholder engagement, and technical innovation.

REPORTING THE ASSESSMENT FINDINGS AND EVIDENCE PACK

Findings were reported through comprehensive ESOS assessment reports for each business, which included:

- Executive summary and methodology
- Detailed site assessments
- Identified opportunities and recommendations
- Compliance checklist and sign-off documentation

The evidence pack included:

- Company Structure Review
- Site visit records
- Operational data analyses
- Total Energy Consumption Records
- Notification of compliance

The report was well received by each Greencoat Business, and has since led to further engagements within the group.

Future plans include:

- Implementation of identified opportunities through the ESOS Action Plans
- Annual reviews to track progress and refine strategies
- Continued partnership with our team for Phase 4 readiness

The groundwork laid in Phase 3 has positioned Schrodgers Greencoat for long-term energy efficiency and compliance success.

Testimonial

Javier Serrano, Schroders Greencoat

“ I would like to express our satisfaction with the excellent service provided by your consultants. From start to finish, their expertise, dedication, and attention to detail have been outstanding.

The consultant's assessment and report were of the highest quality, reflecting a deep understanding of the subject matter and providing valuable insights and recommendations. Their engagement and support throughout the project were exemplary, ensuring our objectives were met, and their ability to balance detail with the bigger picture was remarkable. Furthermore, the consultant delivered the report on time and within budget, showcasing their reliability.

Overall, I highly recommend your consultant for their exceptional service, and I look forward to future collaborations. Our experience with them has been exemplary, and I am confident in their ability to add significant value to any project

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