ESOS recommendations template: final report

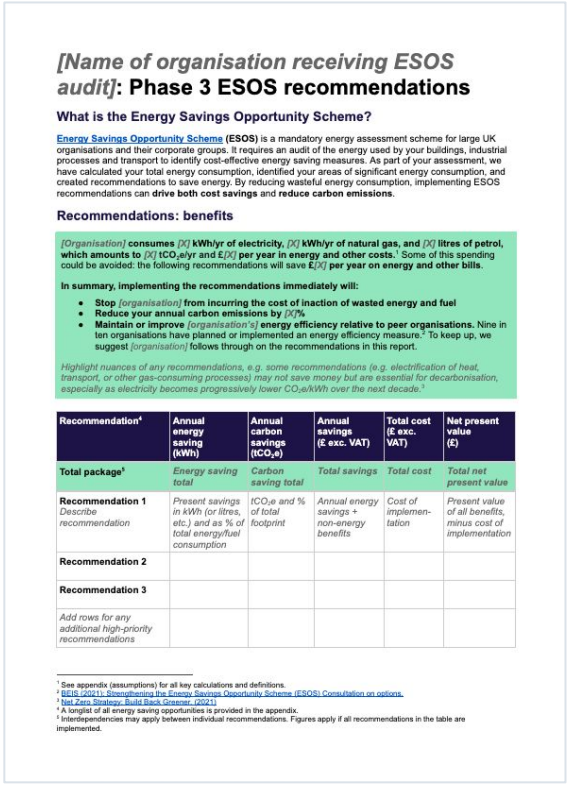
Delivery date: 30th March 2022

THE BEHAVIOURAL INSIGHTS TEAM

CATAPULT Energy Systems

Executive summary

1. BEIS commissioned the Behavioural Insights Team (BIT) and Energy Systems Catapult (ESC) to explore how behavioural insights could be used to develop an ESOS recommendations template.
2. BIT and ESC conducted qualitative interviews and workshops with ESOS lead assessors and organisations to obtain feedback on multiple draft iterations. We incorporated ideas and insights from this process with behavioural science principles to develop a final proposed recommendations template.
3. Assessors and organisations generally welcomed the provision of a recommendations template to drive consistency of reporting within the industry.
4. Most organisations were open to receiving recommendations in this format. Assessors were similarly open; however, many noted that they may integrate certain features of the template into their existing approach rather than fully adopting it. Both expressed that flexibility in use is important, and opposed mandated use.
5. There was uncertainty about the extent to which the recommendations template will impact take-up of recommendations. The template addresses some – but by no means all – barriers to implementation raised by interview and workshop participants.



***[Name of organisation receiving ESOS audit]*: Phase 3 ESOS recommendations**

What is the Energy Savings Opportunity Scheme?

Energy Savings Opportunity Scheme **(ESOS)** is a mandatory energy assessment scheme for large UK organisations and their corporate groups. It requires an audit of the energy used by your buildings, industrial processes and transport to identify cost-effective energy saving measures. As part of your assessment, we have calculated your total energy consumption, identified your areas of significant energy consumption, and created recommendations to save energy. By reducing wasteful energy consumption, implementing ESOS recommendations can **drive both cost savings** and **reduce carbon emissions**.

Recommendations: benefits

[Organisation] **consumes** *[X]* **kWh/yr of electricity,** *[X]* **kWh/yr of natural gas, and** *[X]* **litres of petrol, which amounts to** *[X]* **tCO_2e/yr and £***[X]* **per year in energy and other costs.**[1] Some of this spending could be avoided: the following recommendations will save **£***[X]* **per year on energy and other bills.**

In summary, implementing the recommendations immediately will:

- **Stop** *[organisation]* **from incurring the cost of inaction of wasted energy and fuel**
- **Reduce your annual carbon emissions by** *[X]***%**
- **Maintain or improve** *[organisation's]* **energy efficiency relative to peer organisations.** Nine in ten organisations have planned or implemented an energy efficiency measure.[2] To keep up, we suggest *[organisation]* follows through on the recommendations in this report.

Highlight nuances of any recommendations, e.g. some recommendations (e.g. electrification of heat, transport, or other gas-consuming processes) may not save money but are essential for decarbonisation, especially as electricity becomes progressively lower CO_2e/kWh over the next decade.[3]

Recommendation[4]	Annual energy saving (kWh)	Annual carbon savings (tCO_2e)	Annual savings (£ exc. VAT)	Total cost (£ exc. VAT)	Net present value (£)
Total package[5]	*Energy saving total*	*Carbon saving total*	*Total savings*	*Total cost*	*Total net present value*
Recommendation 1 *Describe recommendation*	*Present savings in kWh (or litres, etc.) and as % of total energy/fuel consumption*	*tCO_2e and % of total footprint*	*Annual energy savings + non-energy benefits*	*Cost of implementation*	*Present value of all benefits, minus cost of implementation*
Recommendation 2					
Recommendation 3					
Add rows for any additional high-priority recommendations					

[1] See appendix (assumptions) for all key calculations and definitions.
[2] BEIS (2021): Strengthening the Energy Savings Opportunity Scheme (ESOS): Consultation on options.
[3] Net Zero Strategy: Build Back Greener, (2021)
[4] A longlist of all energy saving opportunities is provided in the appendix.
[5] Interdependencies may apply between individual recommendations. Figures apply if all recommendations in the table are implemented.

Contents

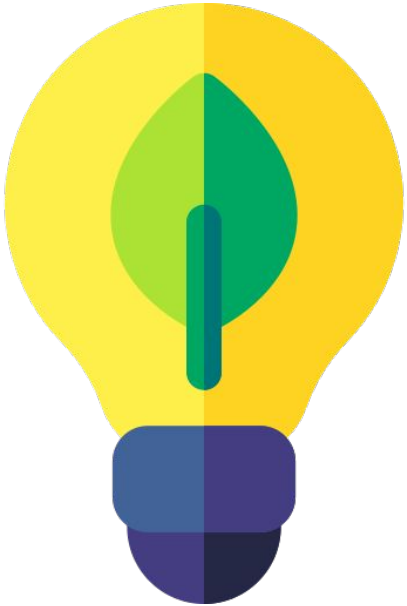
1. Project aims and methodology

Why and how we created the final recommendations template

THE BEHAVIOURAL INSIGHTS TEAM

Policy context

- Launched in 2014, the **Energy Savings Opportunity Scheme** (ESOS) requires organisations that qualify to carry out an energy audit at least once every 4 years of their buildings, industrial processes, and transport to identify opportunities for energy efficiency.
- A 2020 Post-Implementation Review (PIR) of the scheme found that **participants did not always act upon the energy savings opportunities** and many perceived ESOS as purely a compliance activity.
- To date, there is no standardised format for assessors to present recommendations to organisations. Following the PIR, BEIS issued a consultation on strengthening ESOS. This included a proposal that the **provision of a recommendations template** could encourage higher quality and more consistent presentation of data to organisations, facilitating take-up of recommendations.



Project aims

BEIS commissioned the Behavioural Insights Team (BIT) and Energy Systems Catapult (ESC) to explore how behavioural insights could be used to **develop a recommendations template**, with the view ultimately to:

Improve the **quality** of the energy audit and recommendations

Increase **the number and scope of recommendations** that organisations take up

Project research questions

The project brief contained the following research questions:

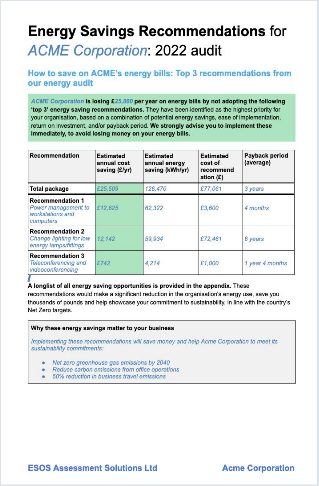
- What changes (e.g. presentation of data, language/terminology use, layout of recommendations) could be made to increase the uptake of recommendations?
- How can the government encourage the use of a recommendations template by lead assessors and ESOS participants?
- Are there differences in what type of language / presentation will encourage the implementation of physical changes to increase the energy efficiency of ESOS participants' buildings, industrial processes, and transport, compared to changes to energy use behaviours?

We developed additional research questions for the qualitative research:

- How do assessors currently conduct an ESOS audit and provide recommendations?
- What determines whether some organisations take up recommendations and some don't?
- What do assessors and organisations think of the draft recommendations template, and how could it be improved?

Methodology: qualitative interviews and workshops incorporating user-centred design tools

1. Draft recommendations template based on BEIS' first draft (see Appendix 1), BIT and ESC subject-matter knowledge.



Energy Savings Recommendations for *ACME Corporation*: 2022 audit

How to save on ACME's energy bills: Top 3 recommendations from our energy audit

ACME Corporation **is losing £***25,000* **per year on energy bills by not adopting the following 'top 3' energy saving recommendations.** They have been identified as the highest priority for your organisation, based on a combination of potential energy savings, ease of implementation, return on investment, and/or payback period. **We strongly advise you to implement these immediately, to avoid losing money on your energy bills.**

Recommendation	Estimated annual cost saving (£/yr)	Estimated annual energy saving (kWh/yr)	Estimated cost of recommendation (£)	Payback period (average)
Total package	£25,509	126,470	£77,061	3 years
Recommendation 1 *Power management to workstations and computers*	£12,625	62,322	£3,600	4 months
Recommendation 2 *Change lighting for low energy lamps/fittings*	12,142	59,934	£72,461	6 years
Recommendation 3 *Teleconferencing and videoconferencing*	£742	4,214	£1,000	1 year 4 months

A longlist of all energy saving opportunities is provided in the appendix. These recommendations would make a significant reduction in the organisation's energy use, save you thousands of pounds and help showcase your commitment to sustainability, in line with the country's Net Zero targets.

Why these energy savings matter to your business

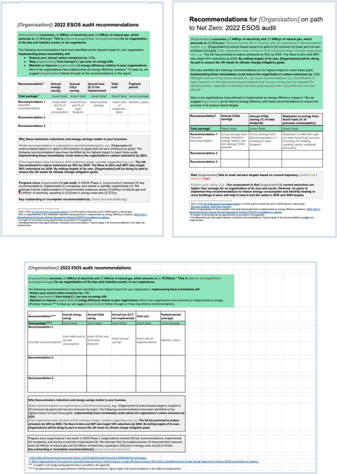
Implementing these recommendations will save money and help Acme Corporation to meet its sustainability commitments:

- *Net zero greenhouse gas emissions by 2040*
- *Reduce carbon emissions from office operations*
- *50% reduction in business travel emissions*

ESOS Assessment Solutions Ltd — Acme Corporation

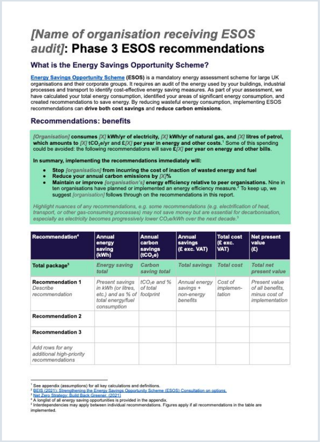
2. 45 minute interviews with 7 organisations and 7 assessors – to understand the ESOS process, barriers and enablers to implementation, and obtain feedback on the draft template.

3. Create three recommendations templates, based on original version + interview findings.



4. 2 x 2 hour workshops with most of the same organisation representatives and assessors that participated in interviews to obtain further feedback and improvement ideas.

5. Draft final recommendations template based on workshop findings.



***[Name of organisation receiving ESOS audit]*: Phase 3 ESOS recommendations**

What is the Energy Savings Opportunity Scheme?

Recommendations: benefits

Recommendation	Annual energy saving (kWh)	Annual carbon savings (tCO_2e)	Annual savings (£ exc. VAT)	Total cost (£ exc. VAT)	Net present value (£)
Total package	*Energy saving total*	*Carbon saving total*	*Total savings*	*Total cost*	*Total net present value*
Recommendation 1 *Describe recommendation*					
Recommendation 2					
Recommendation 3					
Add rows for any additional high-priority recommendations					

Sample and recruitment

To gain an understanding of the perspectives of both those who would complete the recommendations template and those who would receive it, we spoke to lead assessors and organisations.

We sampled for three primary criteria: sector and size for organisations, and professional body and size for lead assessors. Secondary criteria included geographical location and speaking to both internal and external lead assessors.

We drew on ESC's network to recruit our sample.
In total we spoke to 15 individuals; 7 lead assessors and 8 organisations.

Due to the nature of qualitative research and the informal recruitment strategy, this is a small sample which is not intended to be representative.

Organisations	
Sector	**Size (no. of employees)**
Aerospace and Defence	Large
Engineering	Medium
Finance	Large
Finance	Large
Finance	Large
Real Estate	Medium
Retail	Large
Utility	Small

Lead assessors	
Professional body	**Size (no. of employees)**
CIBSE	Small
CIBSE	Large
Energy Institute	Small
Energy Institute	Small
Energy Institute	Small
Energy Institute	Medium
Energy Institute	Large

2. The proposed recommendations template

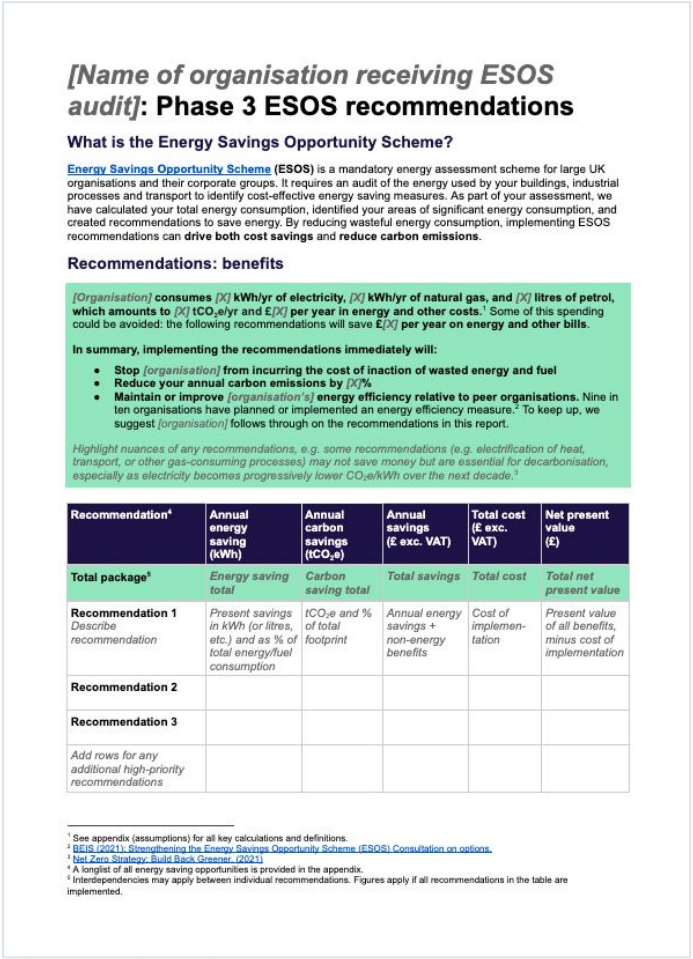
Key features, and our reasoning

THE BEHAVIOURAL INSIGHTS TEAM

Final recommendations template: first page

Key features:

- Summary on the **purpose and scope of ESOS** – for senior stakeholders' context and to increase credibility. *Most workshop participants emphasised the importance of context setting for senior management.*
- Summary of **recommendations** the assessor strongly endorses to make it **easy** for senior stakeholders to understand priorities. *Most workshop and interview participants strongly endorsed this feature of the template.*
- **Salience:** Drawing attention to the benefits of the recommendations through **colour**. *Most workshop and interview participants endorsed the use of colour in this way.*
- **Framing:** Tailoring the narrative to organisation motivations by including how ESOS helps to **decarbonise operations** and adding **tCO_2e savings** for recommendations. *We have sought a balance in linking to decarbonisation but not making it the overriding emphasis of the template, in line with comments at the workshops and interviews.*



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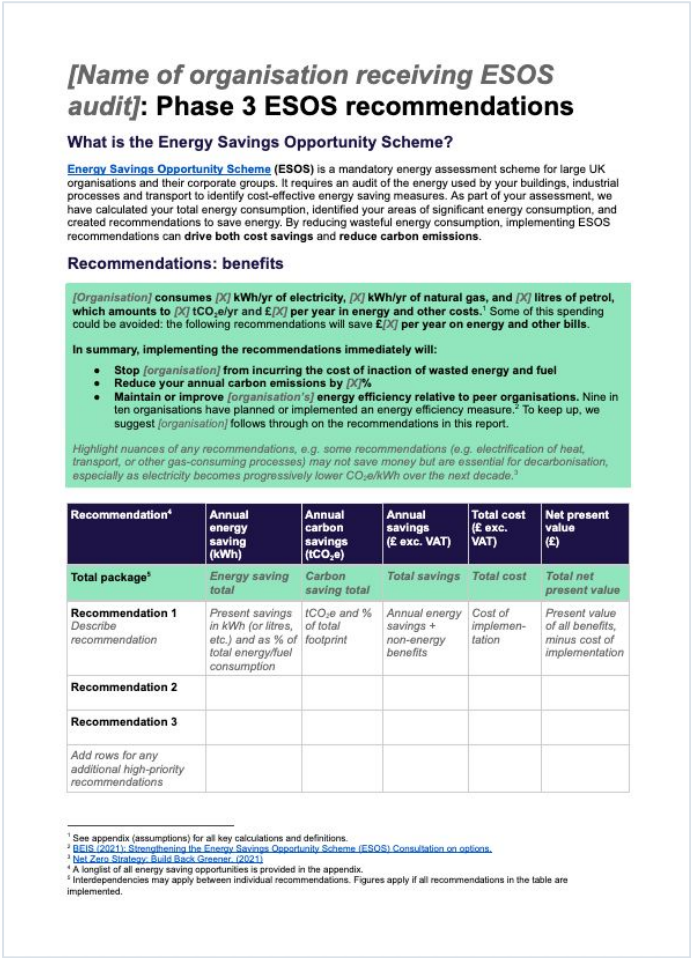
Final recommendations template: first page (continued)

Key features (continued):

- **Highlighting social norms:** The template draws attention to the fact that a great majority or organisations have planned or implemented energy efficiency measures. *This was one of two social norms included in templates workshop participants saw, and was the strongly preferred of the two.*
- **Using framing around loss aversion:** Highlighting the financial cost of inaction (i.e. savings that aren't being realised) by not implementing the recommendation. *Workshop participants disagreed on the merits of framing benefits as 'losses' if recommendations were not taken up. However, 'costs of inaction' was seen as an appropriate, clear alternative phrase.*
- **Making it easy** for assessors: Throughout, instructional prompts and soft defaults in light grey text help assessors to fill in template. *We have made these as clear and self-explanatory as possible, in line with workshop participants' comments on the usefulness of clear, concise instructions in the template.*



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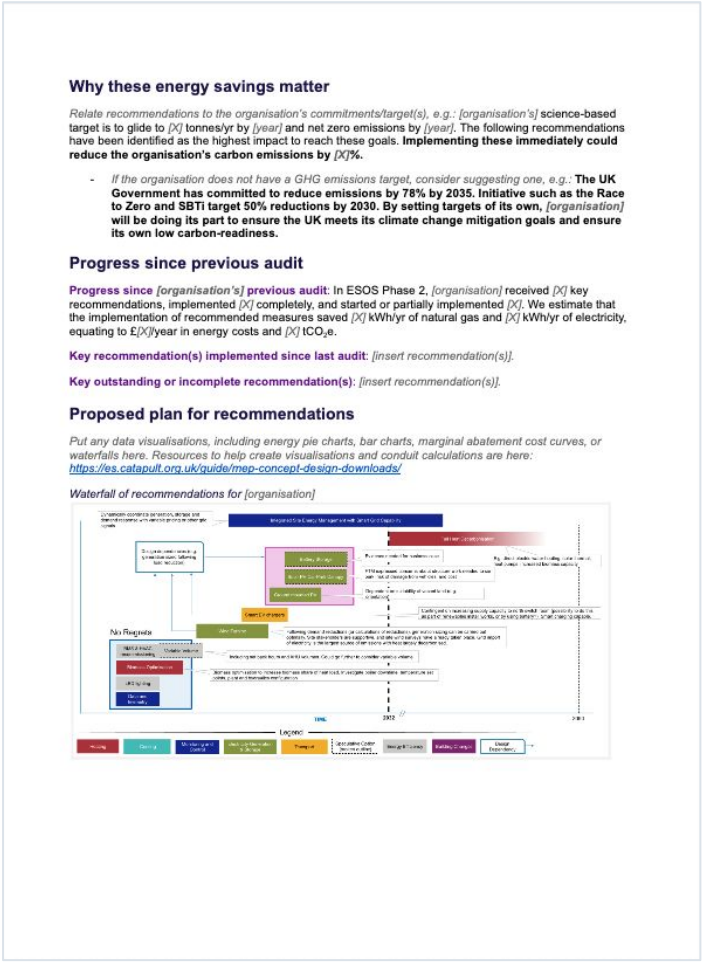
Final recommendations template: second page

Key features:

- Utilising corporate **identity**: The template relates the recommendations to the organisations' CSR and GHG emissions commitments. If the organisation does not have formal targets, the template prompts assessors to suggest one and notes the UK's commitments. *This feature of the template strikes a balance between some workshop and interview participants' view that assessors should connect ESOS to Net Zero and others' view that the main message must remain energy saving opportunities.*
- Creating **accountability** by summarising progress since last audit, both in terms of recommendations implemented and those still outstanding. *This feature was somewhat controversial in the workshop given questions about its feasibility, but our view is that most assessors and organisations' representatives endorsed it as reasonable and effective at motivating action.*
- **Salience:** assessors are prompted to include data visualisations linked to the recommendations. *We also link to tools developed by Modern Energy Partners to aid assessors in this endeavour.*



Why these energy savings matter

Relate recommendations to the organisation's commitments/target(s), e.g.: [organisation's] science-based target is to glide to *[X]* tonnes/yr by *[year]* and net zero emissions by *[year]*. The following recommendations have been identified as the highest impact to reach these goals. **Implementing these immediately could reduce the organisation's carbon emissions by *[X]*%.**

- *If the organisation does not have a GHG emissions target, consider suggesting one, e.g.:* **The UK Government has committed to reduce emissions by 78% by 2035. Initiative such as the Race to Zero and SBTi target 50% reductions by 2030. By setting targets of its own, *[organisation]* will be doing its part to ensure the UK meets its climate change mitigation goals and ensure its own low carbon-readiness.**

Progress since previous audit

Progress since *[organisation's]* previous audit: In ESOS Phase 2, *[organisation]* received *[X]* key recommendations, implemented *[X]* completely, and started or partially implemented *[X]*. We estimate that the implementation of recommended measures saved *[X]* kWh/yr of natural gas and *[X]* kWh/yr of electricity, equating to £*[X]*/year in energy costs and *[X]* tCO_2e.

Key recommendation(s) implemented since last audit: *[insert recommendation(s)].*

Key outstanding or incomplete recommendation(s): *[insert recommendation(s)].*

Proposed plan for recommendations

Put any data visualisations, including energy pie charts, bar charts, marginal abatement cost curves, or waterfalls here. Resources to help create visualisations and conduit calculations are here: https://es.catapult.org.uk/guide/mep-concept-design-downloads/

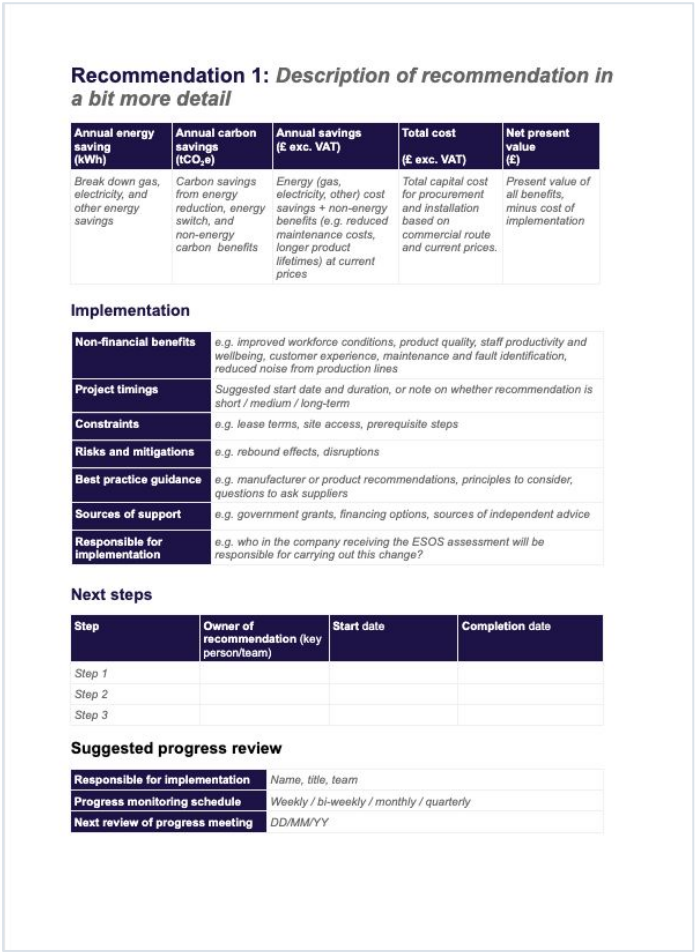
Waterfall of recommendations for [organisation]

Final recommendations template: third page

Key features:

- **Making it easy:** The suggested implementation plan for each key recommendation encourages assessors to assign **responsibility**.
- **Planning:** In particular, assessors are implicitly encouraged to work with organisations on defining next steps, risks and mitigations, and constraints.
- **Prompt:** Finally, the page nudges organisations to have a monitoring schedule for each recommendation to maintain progress.

*Overall, this feature generated mostly positive reactions from workshop and interview participants as useful to encourage assessors to make **pragmatic** recommendations, nudge assessors and organisations to start important conversations about **implementation**, and generate **accountability** for recommendations. Participants cautioned that assessors would not always be able to fill in these action plans, but even then could note common next steps and best practices.*



Recommendation 1: ***Description of recommendation in a bit more detail***

Annual energy saving (kWh)	Annual carbon savings (tCO_2e)	Annual savings (£ exc. VAT)	Total cost (£ exc. VAT)	Net present value (£)
Break down gas, electricity, and other energy savings	*Carbon savings from energy reduction, energy switch, and non-energy carbon benefits*	*Energy (gas, electricity, other) cost savings + non-energy benefits (e.g. reduced maintenance costs, longer product lifetimes) at current prices*	*Total capital cost for procurement and installation based on commercial route and current prices.*	*Present value of all benefits, minus cost of implementation*

Implementation

Non-financial benefits	*e.g. improved workforce conditions, product quality, staff productivity and wellbeing, customer experience, maintenance and fault identification, reduced noise from production lines*
Project timings	*Suggested start date and duration, or note on whether recommendation is short / medium / long-term*
Constraints	*e.g. lease terms, site access, prerequisite steps*
Risks and mitigations	*e.g. rebound effects, disruptions*
Best practice guidance	*e.g. manufacturer or product recommendations, principles to consider, questions to ask suppliers*
Sources of support	*e.g. government grants, financing options, sources of independent advice*
Responsible for implementation	*e.g. who in the company receiving the ESOS assessment will be responsible for carrying out this change?*

Next steps

Step	Owner of recommendation (key person/team)	Start date	Completion date
Step 1			
Step 2			
Step 3			

Suggested progress review

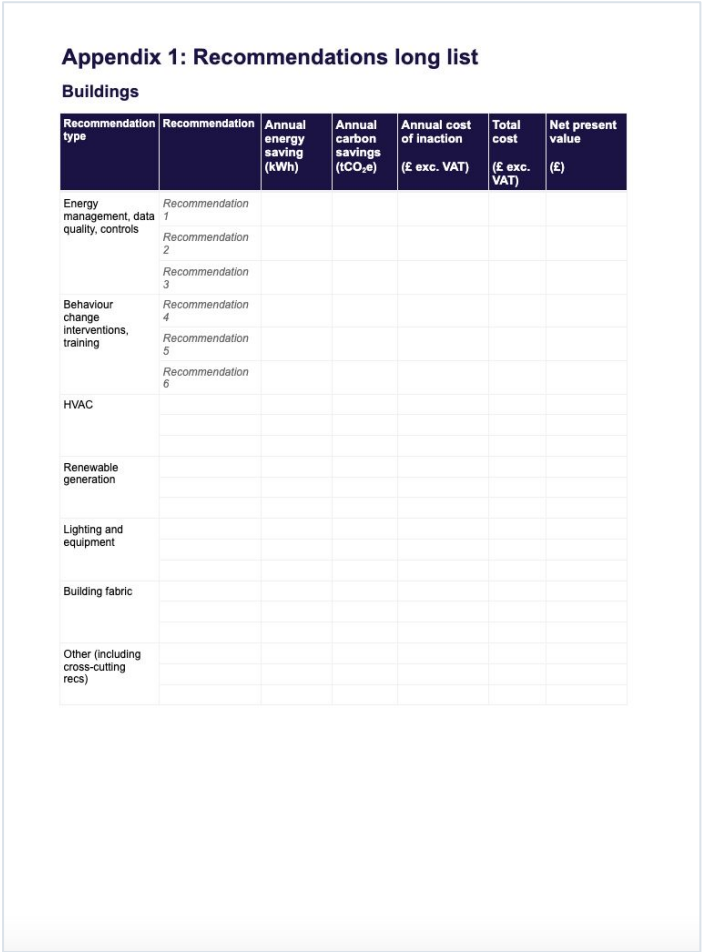
Responsible for implementation	*Name, title, team*
Progress monitoring schedule	*Weekly / bi-weekly / monthly / quarterly*
Next review of progress meeting	*DD/MM/YY*

Final recommendations template: final sections

Key features:

- A long list of additional recommendations, broken down by buildings, transport and industrial processes.
- Recommendation types for each category include those which are applicable to all (e.g. behaviour change interventions and training), and those which are specific to the category (e.g. fleet procurement for transport).

This long-list allows assessors to present all other recommendations, including uncosted recommendations, a key priority for the template according to some workshop participants. The layout is consistent with the recommendations page to aid readability. Categories are broadly mutually exclusive and (with the addition of the final 'other' category) exhaustive.



Appendix 1: Recommendations long list

Buildings

Recommendation type	Recommendation	Annual energy saving (kWh)	Annual carbon savings (tCO_2e)	Annual cost of inaction (£ exc. VAT)	Total cost (£ exc. VAT)	Net present value (£)
Energy management, data quality, controls	*Recommendation 1*					
	Recommendation 2					
	Recommendation 3					
Behaviour change interventions, training	*Recommendation 4*					
	Recommendation 5					
	Recommendation 6					
HVAC						
Renewable generation						
Lighting and equipment						
Building fabric						
Other (including cross-cutting recs)						

Final recommendations template: final sections

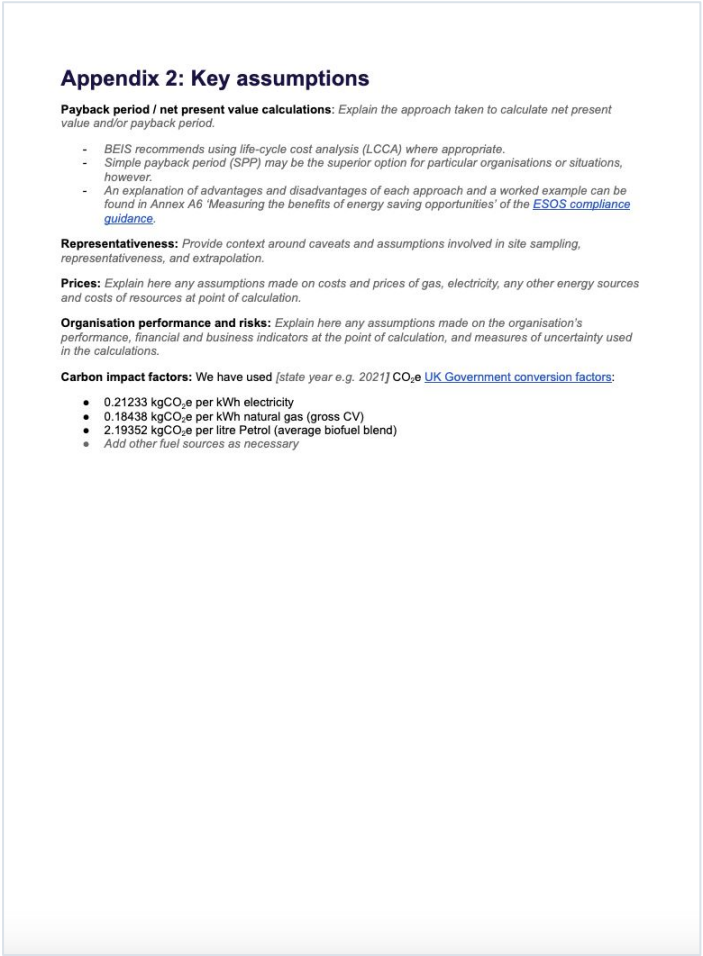
Finally, the second appendix section shows key assumptions to increase the **recommendations' credibility**, covering:

- Payback period calculation
- Representativeness
- Prices
- Organisation performance and risks
- CO_2e impact factors for natural gas, electricity, and petrol (with link to Defra conversion factors for other sources of CO_2e impact, such as diesel, coal, etc.)

Ideally, a well-filled out section on assumptions will enable comparisons to previous assessments.

We have kept this page at the end to avoid creating information overload for senior management focused on the first pages of the template.

The grey text on this final page also includes tips and resources for assessors to conduct the assessment.



Appendix 2: Key assumptions

Payback period / net present value calculations: *Explain the approach taken to calculate net present value and/or payback period.*

- *BEIS recommends using life-cycle cost analysis (LCCA) where appropriate.*
- *Simple payback period (SPP) may be the superior option for particular organisations or situations, however.*
- *An explanation of advantages and disadvantages of each approach and a worked example can be found in Annex A6 'Measuring the benefits of energy saving opportunities' of the ESOS compliance guidance.*

Representativeness: *Provide context around caveats and assumptions involved in site sampling, representativeness, and extrapolation.*

Prices: *Explain here any assumptions made on costs and prices of gas, electricity, any other energy sources and costs of resources at point of calculation.*

Organisation performance and risks: *Explain here any assumptions made on the organisation's performance, financial and business indicators at the point of calculation, and measures of uncertainty used in the calculations.*

Carbon impact factors: We have used *[state year e.g. 2021]* CO_2e UK Government conversion factors:

- 0.21233 $kgCO_2e$ per kWh electricity
- 0.18438 $kgCO_2e$ per kWh natural gas (gross CV)
- 2.19352 $kgCO_2e$ per litre Petrol (average biofuel blend)
- *Add other fuel sources as necessary*

3. Interview findings

Reactions to first recommendations template

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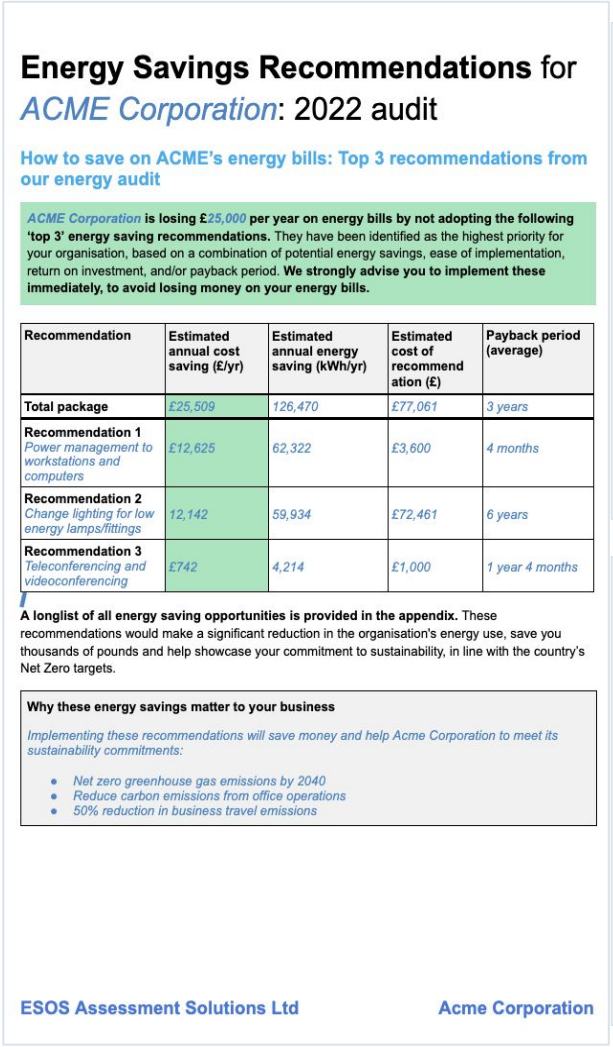
First recommendations template

Based on BEIS' first draft, ESC subject-matter knowledge and BIT application of BI principles, this was our first template design. Key features include:

- Making it **easy** and **attractive**: Using intuitive design with clear information hierarchy.
- A summary narrative at the top of the document **utilising loss aversion** by framing recommendations as avoiding waste.
- Highlighting **key recommendations** the assessor strongly recommends.
- Using **colour** to attract attention to savings.
- **Utilising corporate identity**: Relating the recommendations to the organisations' CSR commitments and targets.
- Creating **accountability**: Implementation notes for each key recommendation, including suggested next steps and progress review.



Energy Savings Recommendations for *ACME Corporation*: 2022 audit

How to save on ACME's energy bills: Top 3 recommendations from our energy audit

ACME Corporation **is losing £***25,000* **per year on energy bills by not adopting the following 'top 3' energy saving recommendations.** They have been identified as the highest priority for your organisation, based on a combination of potential energy savings, ease of implementation, return on investment, and/or payback period. **We strongly advise you to implement these immediately, to avoid losing money on your energy bills.**

Recommendation	Estimated annual cost saving (£/yr)	Estimated annual energy saving (kWh/yr)	Estimated cost of recommendation (£)	Payback period (average)
Total package	*£25,509*	*126,470*	*£77,061*	*3 years*
Recommendation 1 *Power management to workstations and computers*	*£12,625*	*62,322*	*£3,600*	*4 months*
Recommendation 2 *Change lighting for low energy lamps/fittings*	*12,142*	*59,934*	*£72,461*	*6 years*
Recommendation 3 *Teleconferencing and videoconferencing*	*£742*	*4,214*	*£1,000*	*1 year 4 months*

A longlist of all energy saving opportunities is provided in the appendix. These recommendations would make a significant reduction in the organisation's energy use, save you thousands of pounds and help showcase your commitment to sustainability, in line with the country's Net Zero targets.

Why these energy savings matter to your business

Implementing these recommendations will save money and help Acme Corporation to meet its sustainability commitments:

- *Net zero greenhouse gas emissions by 2040*
- *Reduce carbon emissions from office operations*
- *50% reduction in business travel emissions*

ESOS Assessment Solutions Ltd **Acme Corporation**

Recommendation 1

Description of recommendation	*Power management to workstations and computers*
Benefits (annual cost of **not** investing)	*£12,625/yr*
Expected annual energy **saving**	*62,322 kWh/yr*
Cost of recommendation	*£3,600*
Expected **return on investment**	*4 months*
Additional financial savings potential	*Longer product lifetimes*
Non-financial benefits	*Staff productivity and wellbeing*
Overall **owner responsible** for implementation	*Andrea Roberts, IT manager*
Sources of **support**	*Technical advice available*
Suggested **intervention point**	*Immediately*
Constraints	*N/A*

Next steps to carry out recommendation

Step	Owner at company	Contact details (email / phone number)	Start date	Completion date
Source three quotations for software and hardware solutions	*Andrea Roberts, IT*	*andrea.roberts@acme.co.uk*	*May 2022*	*June 2022*
Install software and inform staff	*Tina Young, IT*	*tina.young@acme.co.uk*	*June 2022*	*July 2022*
Check that software is running properly	*Andrea Roberts, IT*	*andrea.roberts@acme.co.uk*	*July 2022*	*August 2022*

Progress review

Responsible for implementation	*IT manager*
Progress monitoring schedule	*Monthly*
Next review of progress meeting	*30/08/2022*

Appendix: Recommendations long list

Buildings

Recommendation type	Recommendation	Estimated annual saving (£)	Estimated annual saving (KWh)	Estimated cost (£)	Payback period (years)
Data quality	Recommendation 1				
	Recommendation 2				
	Recommendation 3				
Energy management	Recommendation 4				
	Recommendation 5				
	Recommendation 6				
Behaviour change interventions	Recommendation 7				
Training					
Controls					
Zero / low-cost recommendations					
Short term investments (3 years payback or less)					
Longer term investments (over 3 years payback)					

Positive reactions to the first template

Participants reacted **largely positively** to the template shown in the interviews. Features that stood out included:

- The upfront summary of key recommendations
- Linking recommendations to the organisation's targets
- Detail on how to roll out key recommendations
- Including non-energy benefits
- The overall simplicity of the template

Most participants expected that a standardised template would **drive consistency** in the industry. This would help to more easily compare progress between ESOS cycles, in turn aiding measurement and evaluation. It might also enable greater collaboration and fresh thinking by reducing barriers to engaging with a specific audit.

Organisations and assessors were generally open to **using the template**. However it was noted that the template wasn't that different to the existing approach of many of the assessors we spoke to. Rather than fully adopting it, they may instead adapt parts of it into their existing template. As a result, they emphasised that **flexibility of the template** is critical.

Constructive criticism of the first template

Participants suggested that **certain features should be tweaked**, including:

- Simplifying the language throughout
- Defining what is meant by energy (e.g. gas, electricity and other energy sources)
- Including more detail on the implementation details on the second page, e.g. anticipated disruption to the organisation, best practice guidance

Participants also suggested **new features that could be added,** including:

- Adding more emphasis on Net Zero and including CO_2e savings
- Showing savings in absolute terms (e.g. kWh) and relative terms (e.g. % of energy consumption)
- Adding the assumptions used to obtain figures, e.g. payback calculation, impact factors for gas and electricity
- Including more information on the current practices of the organisation
- Adding a social comparison to other organisations
- Developing the template as an Excel spreadsheet

Due to the high-level nature of ESOS, some assessors highlighted that it may be **difficult to fill in detailed next steps for each recommendation**. However it was noted they could suggest initial steps to get the ball rolling on implementation.

Mixed reactions to the first template

There were mixed reactions as to whether or not this template would impact the take-up of recommendations:

- One organisation mentioned that this template would make it **easier to write ITTs** for completing the recommendations.
- A few organisations mentioned that the simplicity of the report would make it easier to **communicate the information to others** in the organisation.
- A couple of participants noted that it depended on the **counterfactual** assessment. It was perceived that it could increase take-up of recommendations compared to mediocre audits, but not those already completed to a high standard.
- A few organisations noted that while this template is a **helpful first step** for presenting the recommendations from the audit, the level of detail isn't sufficient and they would need to conduct a full **business case assessment** for each recommendation.
- It was noted that the template **doesn't address all the barriers** to implementing ESOS recommendations. A full list of barriers identified is provided in the 'additional insights' section.

4. Workshop findings

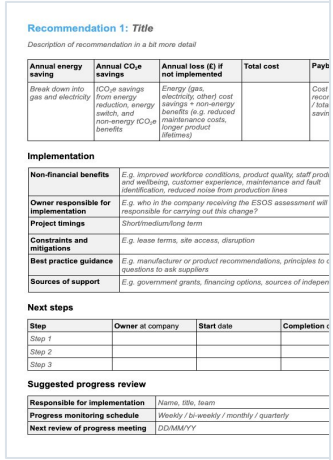
Reactions to recommendations templates shown in workshops

THE BEHAVIOURAL INSIGHTS TEAM

The first template shown at workshop: a ‘new best effort’ with changes from first template after interviews

Key changes to interview stimulus included:

- **Complementary motivations for action:** Added tCO_2e on recommendations, given interviews noting importance of **reducing carbon footprint** for some decision-makers.
- **Utilising loss aversion:** Added **loss-framing** to recommendations – emphasising that taking up a recommendation allows the organisation to avoid what would otherwise be **loss**/**waste** of money, kWh, etc.
- **Contextualising benefits:** Included notes to assessors to express outcomes in absolute **and relative (%)** values based on comments that relative values help some key decision-makers contextualise recommendations.
- **Credibility framing:** Listed key assumptions to increase the **recommendations' credibility** (e.g. gas and electricity CO_2e impact factors, how recommendations work together), in line with interview suggestions.
- **Making it easy:** **Simplified language** where possible.



Recommendation 1: *Title*

Description of recommendation in a bit more detail

Annual energy saving	Annual CO_2e savings	Annual loss (£) if not implemented	Total cost	Payb
Break down into gas and electricity	*tCO₂e savings from energy reduction, energy switch, and non-energy tCO₂e benefits*	*Energy (gas, electricity, other) cost savings + non-energy benefits (e.g. reduced maintenance costs, longer product lifetimes)*		*Cost recor / tota savin*

Implementation

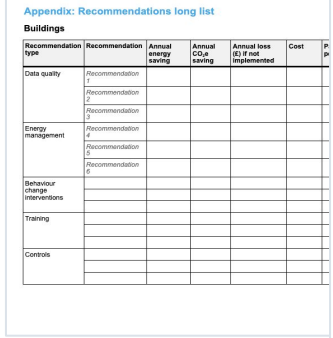
Non-financial benefits	*E.g. improved workforce conditions, product quality, staff prod and wellbeing, customer experience, maintenance and fault identification, reduced noise from production lines*
Owner responsible for implementation	*E.g. who in the company receiving the ESOS assessment will responsible for carrying out this change?*
Project timings	*Short/medium/long term*
Constraints and mitigations	*E.g. lease terms, site access, disruption*
Best practice guidance	*E.g. manufacturer or product recommendations, principles to c questions to ask suppliers*
Sources of support	*E.g. government grants, financing options, sources of indepen*

Next steps

Step	Owner at company	Start date	Completion d
Step 1			
Step 2			
Step 3			

Suggested progress review

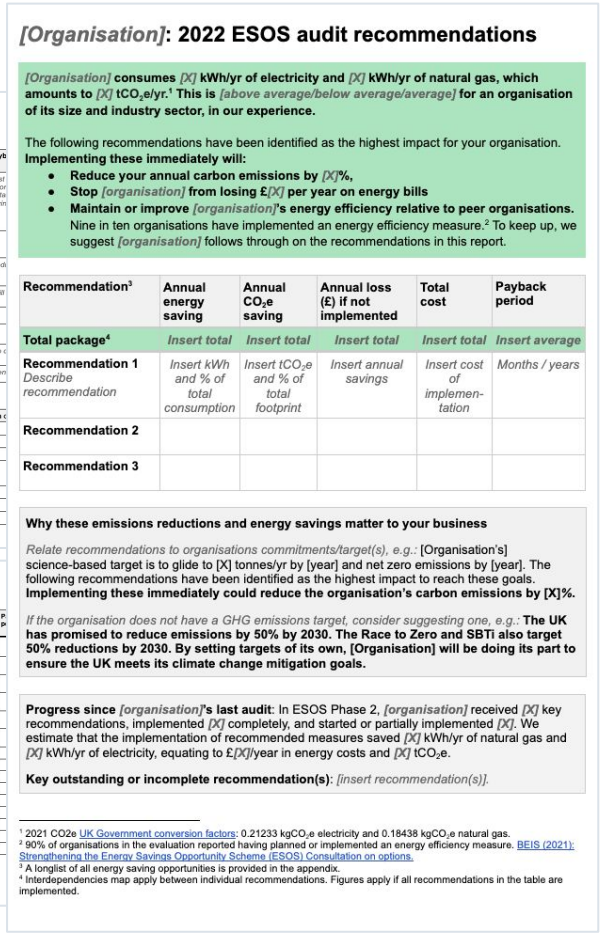
Responsible for implementation	*Name, title, team*
Progress monitoring schedule	*Weekly / bi-weekly / monthly / quarterly*
Next review of progress meeting	*DD/MM/YY*



Appendix: Recommendations long list

Buildings

Recommendation type	Recommendation	Annual energy saving	Annual CO_2e saving	Annual loss (£) if not implemented	Cost	P p
Data quality	*Recommendation 1*					
	Recommendation 2					
	Recommendation 3					
Energy management	*Recommendation 4*					
	Recommendation 5					
	Recommendation 6					
Behaviour change interventions						
Training						
Controls						



[Organisation]: 2022 ESOS audit recommendations

[Organisation] **consumes** *[X]* **kWh/yr of electricity and** *[X]* **kWh/yr of natural gas, which amounts to** *[X]* **tCO₂e/yr.[1] This is** *[above average/below average/average]* **for an organisation of its size and industry sector, in our experience.**

The following recommendations have been identified as the highest impact for your organisation. **Implementing these immediately will:**

- **Reduce your annual carbon emissions by** *[X]***%,**
- **Stop** *[organisation]* **from losing £***[X]* **per year on energy bills**
- **Maintain or improve** *[organisation]***'s energy efficiency relative to peer organisations.** Nine in ten organisations have implemented an energy efficiency measure.[2] To keep up, we suggest *[organisation]* follows through on the recommendations in this report.

Recommendation[3]	Annual energy saving	Annual CO_2e saving	Annual loss (£) if not implemented	Total cost	Payback period
Total package[4]	*Insert total*	*Insert total*	*Insert total*	*Insert total*	*Insert average*
Recommendation 1 *Describe recommendation*	*Insert kWh and % of total consumption*	*Insert tCO₂e and % of total footprint*	*Insert annual savings*	*Insert cost of implementation*	*Months / years*
Recommendation 2					
Recommendation 3					

Why these emissions reductions and energy savings matter to your business

Relate recommendations to organisations commitments/target(s), e.g.: [Organisation's] science-based target is to glide to [X] tonnes/yr by [year] and net zero emissions by [year]. The following recommendations have been identified as the highest impact to reach these goals. **Implementing these immediately could reduce the organisation's carbon emissions by [X]%.**

If the organisation does not have a GHG emissions target, consider suggesting one, e.g.: **The UK has promised to reduce emissions by 50% by 2030. The Race to Zero and SBTi also target 50% reductions by 2030. By setting targets of its own, [Organisation] will be doing its part to ensure the UK meets its climate change mitigation goals.**

Progress since *[organisation]***'s last audit**: In ESOS Phase 2, *[organisation]* received *[X]* key recommendations, implemented *[X]* completely, and started or partially implemented *[X]*. We estimate that the implementation of recommended measures saved *[X]* kWh/yr of natural gas and *[X]* kWh/yr of electricity, equating to £*[X]*/year in energy costs and *[X]* tCO_2e.

Key outstanding or incomplete recommendation(s): *[insert recommendation(s)].*

[1] 2021 CO2e UK Government conversion factors: 0.21233 $kgCO_2e$ electricity and 0.18438 $kgCO_2e$ natural gas.
[2] 90% of organisations in the evaluation reported having planned or implemented an energy efficiency measure. BEIS (2021): Strengthening the Energy Savings Opportunity Scheme (ESOS) Consultation on options.
[3] A longlist of all energy saving opportunities is provided in the appendix.
[4] Interdependencies map apply between individual recommendations. Figures apply if all recommendations in the table are implemented.

Positive reactions to ‘new best effort’ template first page

Workshop participants liked the **simplicity** of the form’s structure and content. Most said it was clear and that they would be **comfortable showing the form to senior decision-makers** to help them understand the ESOS audit’s key recommendations, though most organisations said they would need to do additional work before sharing ‘upward’. Participants added that, in principle, standardised documentation would make sharing easier.

Participants *liked* the ‘soft’ **social norm**: ***‘Nine in ten organisations have implemented an energy efficiency measure. To keep up, we suggest [organisation] follows through on the recommendations in this report.*** That said, participants *disliked* the stronger social norm – ‘***This is [above average/below average/average] for an organisation of its size and industry sector, in our experience’*** – as infeasible and unrealistic for assessors to deliver.

Various workshop participants, in separate groups, responded positively to the more **‘emotional’** language, e.g. in the cut-out box justifying the importance of following through on the recommendations – to stop waste, improve profitability, *and* meet sustainability targets.

Why these emissions reductions and energy savings matter to your business

Relate recommendations to organisations commitments/target(s), e.g.: [Organisation’s] science-based target is to glide to [X] tonnes/yr by [year] and net zero emissions by [year]. The following recommendations have been identified as the highest impact to reach these goals. **Implementing these immediately could reduce the organisation’s carbon emissions by [X]%.**

If the organisation does not have a GHG emissions target, consider suggesting one, e.g.: **The UK has promised to reduce emissions by 50% by 2030. The Race to Zero and SBTi also target 50% reductions by 2030. By setting targets of its own, [Organisation] will be doing its part to ensure the UK meets its climate change mitigation goals.**

Constructive criticism to ‘new best effort’ template first page

Workshop participants raised concerns about whether/how decision-makers could interrogate headline figures. A few participants suggested that recommendations summaries should **explain carbon impact calculations** (including defining emissions scope, geography, and impact factors), **caveats** around site sampling and representativeness, and other calculations where decision-makers might challenge the underlying assumptions. However, there was disagreement over how much these details were necessary in an ‘exec summary’ style recommendations template.

A few workshop participants noted that terminology should be **aligned with Science Based Targets** and/or Streamlined Energy and Carbon Reporting. Where requirements differ between programmes, participants said that assessors should be clear about differences.

One participant noted that **framing recommendation benefits as ‘losses’ would be confusing** and off-putting, at least in the financial industry, where ‘loss’ already has a precise meaning. An alternative wording raised was ‘costs of inaction’ – which still uses a loss framing to harness loss aversion, while generating less confusion. This alternative wording was preferred by participants.

Annual loss (£) if not implemented
Energy (gas, electricity, other) cost savings + non-energy benefits (e.g. reduced maintenance costs, longer product lifetimes)

Reactions to ‘new best effort’ template recommendation pages

Most participants who commented on the recommendation pages said they were useful, helping to:

- Assign **responsibility** and increase **accountability**
- Encourage the creation of an **action plan**
- Encourage the **consideration of constraints** and mitigations

Participants said that some assessors and organisations would be unable to complete parts of the table, but most participants said the expectations on the assessor implied by the page were reasonable. One assessor noted it was *‘about time’* that assessors were expected to discuss **feasibility and next steps** with organisations.

Useful tools: Participants said the ***non-financial benefits***, ***best practice guidance***, and ***sources of support*** were all useful for organisations but potentially difficult for assessors to fill out.

Recommendation 1: *Title*

Description of recommendation in a bit more detail

Annual energy saving	Annual CO_2e savings	Annual loss (£) if not implemented	Total cost	Payback period
Break down into gas and electricity	*tCO_2e savings from energy reduction, energy switch, and non-energy tCO_2e benefits*	*Energy (gas, electricity, other) cost savings + non-energy benefits (e.g. reduced maintenance costs, longer product lifetimes)*		*Cost of recommendation / total cost savings*

Implementation

Non-financial benefits	*E.g. improved workforce conditions, product quality, staff productivity and wellbeing, customer experience, maintenance and fault identification, reduced noise from production lines*
Owner responsible for implementation	*E.g. who in the company receiving the ESOS assessment will be responsible for carrying out this change?*
Project timings	*Short/medium/long term*
Constraints and mitigations	*E.g. lease terms, site access, disruption*
Best practice guidance	*E.g. manufacturer or product recommendations, principles to consider, questions to ask suppliers*
Sources of support	*E.g. government grants, financing options, sources of independent advice*

Next steps

Step	**Owner** at company	**Start** date	**Completion** date
Step 1			
Step 2			
Step 3			

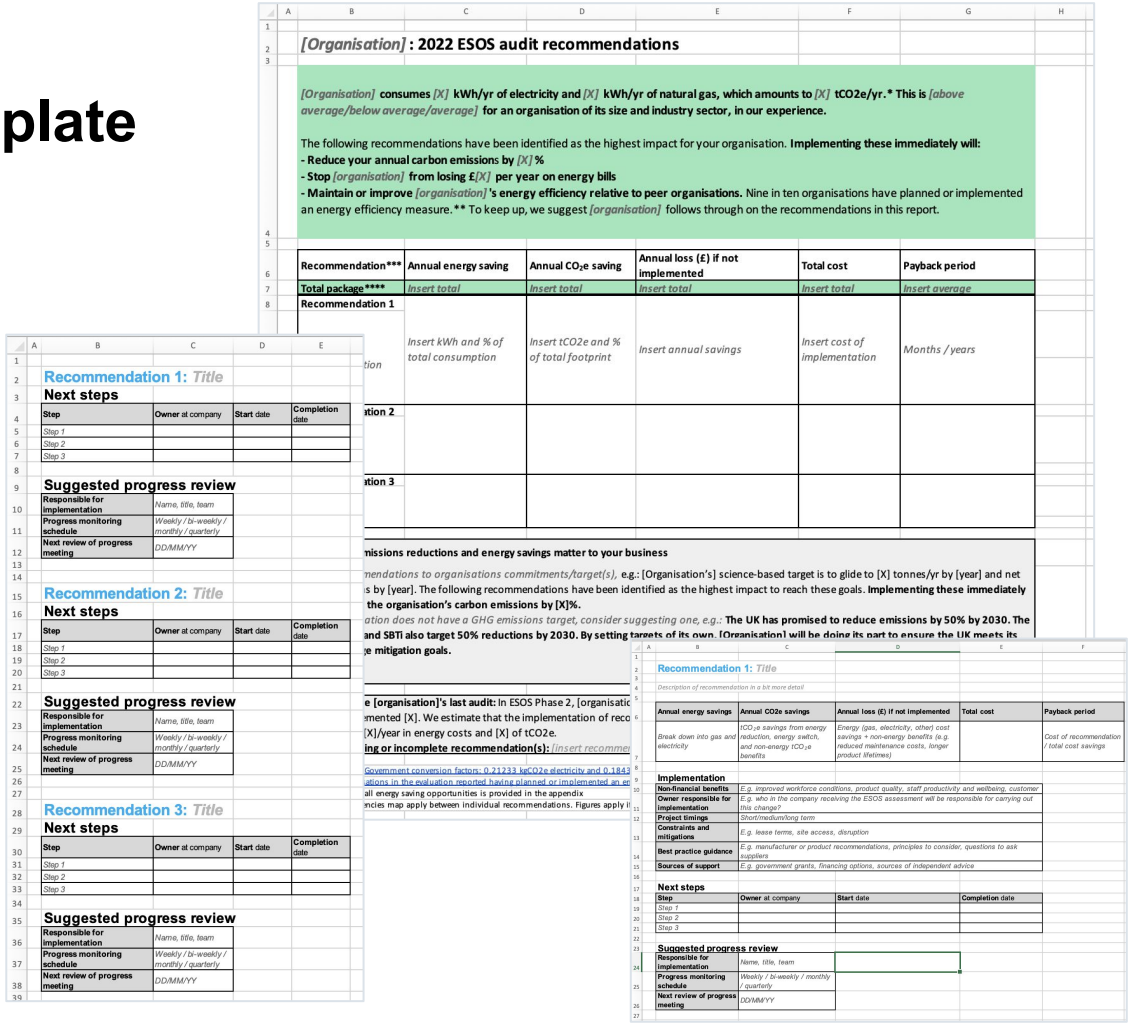
Suggested progress review

Responsible for implementation	*Name, title, team*
Progress monitoring schedule	*Weekly / bi-weekly / monthly / quarterly*
Next review of progress meeting	*DD/MM/YY*

The second template: a spreadsheet-based template

This idea was inspired by some interview participants' comments that it would be useful to deliver recommendations in **spreadsheet format**. The recommendations could then be linked to the **assumptions, calculations, and details underpinning the headline numbers**. Proposed benefits included:

- **Positive framing:** Some interview participants said that this linking would increase the recommendations' credibility.
- **More interactive elements:** The linking would allow curious decision-makers to look 'under the hood' at the assessor's workings.



[Organisation] : 2022 ESOS audit recommendations

[Organisation] consumes *[X]* kWh/yr of electricity and *[X]* kWh/yr of natural gas, which amounts to *[X]* tCO2e/yr.* This is *[above average/below average/average]* for an organisation of its size and industry sector, in our experience.

The following recommendations have been identified as the highest impact for your organisation. **Implementing these immediately will:**
- **Reduce your annual carbon emissions by** *[X]* **%**
- **Stop** *[organisation]* **from losing £***[X]* **per year on energy bills**
- **Maintain or improve** *[organisation]* **'s energy efficiency relative to peer organisations.** Nine in ten organisations have planned or implemented an energy efficiency measure.** To keep up, we suggest *[organisation]* follows through on the recommendations in this report.

Recommendation***	Annual energy saving	Annual CO_2e saving	Annual loss (£) if not implemented	Total cost	Payback period
Total package****	*Insert total*	*Insert total*	*Insert total*	*Insert total*	*Insert average*
Recommendation 1	*Insert kWh and % of total consumption*	*Insert tCO2e and % of total footprint*	*Insert annual savings*	*Insert cost of implementation*	*Months / years*
Recommendation 2					
Recommendation 3					

missions reductions and energy savings matter to your business

mendations to organisations commitments/target(s), e.g.: [Organisation's] science-based target is to glide to [X] tonnes/yr by [year] and net s by [year]. The following recommendations have been identified as the highest impact to reach these goals. **Implementing these immediately the organisation's carbon emissions by [X]%.**

ation does not have a GHG emissions target, consider suggesting one, e.g.: **The UK has promised to reduce emissions by 50% by 2030. The and SBTi also target 50% reductions by 2030. By setting targets of its own, [Organisation] will be doing its part to ensure the UK meets its e mitigation goals.**

e [organisation]'s last audit: In ESOS Phase 2, [organisatic emented [X]. We estimate that the implementation of reco [X]/year in energy costs and [X] of tCO2e.

ing or incomplete recommendation(s): *[insert recommen*

Government conversion factors: 0.21233 kgCO2e electricity and 0.1843 ations in the evaluation reported having planned or implemented an en all energy saving opportunities is provided in the appendix ncies map apply between individual recommendations. Figures apply i

Recommendation 1: *Title*

Next steps

Step	Owner at company	Start date	Completion date
Step 1			
Step 2			
Step 3			

Suggested progress review

Responsible for implementation	*Name, title, team*
Progress monitoring schedule	*Weekly / bi-weekly / monthly / quarterly*
Next review of progress meeting	*DD/MM/YY*

Recommendation 2: *Title*

Next steps

Step	Owner at company	Start date	Completion date
Step 1			
Step 2			
Step 3			

Suggested progress review

Responsible for implementation	*Name, title, team*
Progress monitoring schedule	*Weekly / bi-weekly / monthly / quarterly*
Next review of progress meeting	*DD/MM/YY*

Recommendation 3: *Title*

Next steps

Step	Owner at company	Start date	Completion date
Step 1			
Step 2			
Step 3			

Suggested progress review

Responsible for implementation	*Name, title, team*
Progress monitoring schedule	*Weekly / bi-weekly / monthly / quarterly*
Next review of progress meeting	*DD/MM/YY*

Recommendation 1: *Title*

Description of recommendation in a bit more detail

Annual energy savings	Annual CO2e savings	Annual loss (£) if not implemented	Total cost	Payback period
Break down into gas and electricity	*tCO_2e savings from energy reduction, energy switch, and non-energy tCO_2e benefits*	*Energy (gas, electricity, other) cost savings + non-energy benefits (e.g. reduced maintenance costs, longer product lifetimes)*		*Cost of recommendation / total cost savings*

Implementation

Non-financial benefits	*E.g. improved workforce conditions, product quality, staff productivity and wellbeing, customer*
Owner responsible for implementation	*E.g. who in the company receiving the ESOS assessment will be responsible for carrying out this change?*
Project timings	*Short/medium/long term*
Constraints and mitigations	*E.g. lease terms, site access, disruption*
Best practice guidance	*E.g. manufacturer or product recommendations, principles to consider, questions to ask suppliers*
Sources of support	*E.g. government grants, financing options, sources of independent advice*

Next steps

Step	Owner at company	Start date	Completion date
Step 1			
Step 2			
Step 3			

Suggested progress review

Responsible for implementation	*Name, title, team*
Progress monitoring schedule	*Weekly / bi-weekly / monthly / quarterly*
Next review of progress meeting	*DD/MM/YY*

Reactions to spreadsheet template

Workshop participants agreed that the spreadsheet was useful to allow decision-makers to **probe details**, calculations, and assumptions. Spreadsheets allow a **'cascade view'**: a high level overview of recommendations, underpinned by lower-level, more detailed sheets. Increased confidence by senior stakeholders in the calculations could improve buy-in and take-up of recommendations.

A few participants also noted that spreadsheets enable teams leading implementation of recommendations to:

- **Refine calculations** in response to new information uncovered during implementation
- **Create their own data visualisations**, helpful to explain recommendations to key decision-makers in the organisation, persuade them, and respond to follow-up questions
- Manage and **organise data from many sites** and/or areas of significant energy consumption.

Participants noted that spreadsheet templates lend themselves to the government **iterating** on the first template by providing extra tools to conduct common calculations (e.g. LCCA).

A few participants worried that spreadsheet templates may be harder for some assessors to use – e.g. assessors from smaller organisations who are accustomed to summarising findings and recommendations in prose.

Further considerations on spreadsheet versus prose document for recommendations template

There was disagreement about whether spreadsheets were appropriate final summaries for key decision-makers in organisations. Participants agreed that the answer depends on individual organisations' internal processes.

- Some representatives from organisations said that – if the assessor delivered their final recommendations in a spreadsheet – **they would subsequently need to turn the spreadsheet into a prose report** before delivering it to senior decision-makers.
- However, others said that spreadsheets were adequate for explaining recommendations in their organisations; or that presentations to senior staff would necessarily summarise/synthesise the longer recommendations report anyway.

Indeed, there are two levels of customers for ESOS assessments: **senior decision-makers**, who **sign off** and provide buy-in for recommendations, and **energy managers** and other individuals/teams responsible for both **explaining** recommendations to senior decision-makers and **implementing** recommendations that senior decision-makers approve.

- The recommendations template will likely be an intermediate document for many organisations, with implementation staff extracting key information to create a presentation for senior sign-off.
- The spreadsheet template would be useful for refining calculations and creating new visualisations, but the Word template was closer in form/presentation to the final deliverable.

The third template shown at the workshop: a first page focused on Net Zero

This idea was inspired by comments from interviewees (both assessors and organisations) that many organisations will be more motivated by **connecting recommendations to their sustainability targets** (including, for some organisations, their science-based targets to reach Net Zero) than by focusing on savings – especially given that the savings may be somewhat small compared to their overall budgets.

Key features:

- Combined introductory narrative + social norm with the cut-out box about why the recommendations matter to create a **coherent Net-Zero focused narrative**.
- Added cut-out box on organisation's **risk of failure to meet Net-Zero targets**, based on assessor subjective assessment.
- An example recommendation for a measure that would not save money but would generate **carbon savings** (electrifying heat).

Recommendations for *[Organisation]* on path to Net Zero: 2022 ESOS audit

***[Organisation]* consumes *[X]* kWh/yr of electricity and *[X]* kWh/yr of natural gas, which amounts to *[X]* tCO_2e/yr.**[1] *Discuss how this fits (or clashes) with the organisation's decarbonisation targets, e.g.:* [Organisation's] science-based target is to glide to [X] tonnes/yr by [year] and net zero emissions by [year]. *If the organisation does not have a GHG emissions target, consider suggesting one, e.g.:* The UK has promised to reduce emissions by 50% by 2030. The Race to Zero and SBTi also target 50% reductions by 2030. **By setting targets of its own, [Organisation] will be doing its part to ensure the UK meets its climate change mitigation goals.**

We have identified the following recommendations as the highest impact to reach these goals. **Implementing these immediately could reduce the organisation's carbon emissions by *[X]*%.** *Highlight nuances of any recommendations, e.g. some recommendations (e.g. electrification of heat, transport, or other gas-consuming processes) may not save money but are important for decarbonisation, especially as electricity becomes progressively lower CO_2e/kWh over the next decade.*[2]

Nine in ten organisations have planned or implemented an energy efficiency measure.[3] But we suggest *[organisation]* go far beyond energy efficiency with these recommendations to ensure the success of its science based targets.

Recommendation[4]	Annual CO2e savings	Annual CO2e saving (% of total footprint)	Reduction in energy from fossil fuels (% of previous consumption)
Total package[5]	*Insert total*	*Insert total*	*Insert total*
Recommendation 1 *Describe recommendation*	*tCO_2e savings from energy reduction, energy switch, and non-energy CO2e benefits*	*tCO_2e savings from Recommendation 1 / company's total footprint*	*Reduction in kWh from gas (or other fossil fuel) sources of energy for heating, cooking, and/or industrial processes*
Recommendation 2			
Recommendation 3			

Risk *[organisation]* fails to meet net-zero targets based on current trajectory: *[select* Low / Medium/ High]

Explain your rating. E.g.: ***Our assessment is that [organisation]'s current emissions are higher than average for an organisation of its size and sector. However, its plans to implement key recommendations to reduce energy consumption and electrify heating in most buildings it owns will help it meet it and the nation's 2030 and 2050 targets.***

[1] 2021 CO2e UK Government conversion factors: 0.21233 kgCO_2e electricity and 0.18438 kgCO_2e natural gas.
[2] Net Zero Strategy: Build Back Greener
[3] 90% of organisations in the evaluation reported having planned or implemented an energy efficiency measure. BEIS (2021): Strengthening the Energy Savings Opportunity Scheme (ESOS) Consultation on options.
[4] A longlist of all energy saving opportunities is provided in the appendix.
[5] Interdependencies map apply between individual recommendations. Figures apply if all recommendations in table are implemented.

Reactions to Net Zero focused template

Participants disagreed to some extent on how much ESOS should focus on **decarbonisation** above and beyond decarbonisation from **energy savings**.

- **ESOS should include Net Zero:** Some participants stated the need to include Net Zero on the template, noting that it was '*too important not to include*'. They also emphasised that organisations undertake energy efficiency improvements for environmental as well as financial reasons; **decarbonisation is important to protect organisations' reputations**, address investor concerns, and future-proof organisations from future regulations.

- **Net Zero is outside the scope of ESOS**: Other participants noted the **risk of reducing the focus on energy efficiency**, noting that some organisations would be confused or overwhelmed. A few participants noted that this mixing of goals might even backfire from the perspective of achieving Net Zero: energy efficiency is among the most beneficial decarbonisation activities, and substituting it for other decarbonisation activities such as procuring emissions offsets could be counterproductive.

A fairly strong consensus was that, while decarbonisation was topical, **this template stretched the scope of ESOS**. ESOS feeds into an organisation's carbon footprint, but doesn't cover everything (it excludes Scope 3 emissions only covers emissions from UK operations). There was interest and receptiveness in emphasising Net Zero benefits of energy savings, but more lightly.

Cross-cutting reactions and ideas

Purpose of template: Participants agreed that most assessors will deliver two documents – one with details of calculations and all ESOS requirements fulfilled, and an 'executive summary' for senior managers to understand recommendations. We discussed that the assumption of this project was that assessors already had the capacity and opportunities to complete the detailed calculations document; and that our focus was on the recommendations template, only.

Include uncosted recommendations: Assessors sometimes generate recommendations without estimating their costs and benefits (because of lack of time). The final template needs to be clear that this is acceptable (e.g. in recommendations long-list) in order to avoid discouraging assessors from providing uncosted recommendations.

Details of CO_2e savings calculations: It is important to define the scope, geography, and sensitivity of extrapolation from sampled sites to the rest of estate. In particular:

Embodied carbon: Need to consider embodied carbon in all templates. A new piece of equipment or system may be more efficient, but embodied carbon may tip the replacement into adding (net) CO_2e.

Other caveats: It may be useful to include a 'caveats' section to the summary sheet (or to the more detailed report) to emphasise where expected benefits or other estimates are sensitive to assumptions.

5. Additional insights

Insights from interviews and workshops beyond the scope of the recommendations template

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Barriers to implementing recommendations

These comments are reflective of the existing scheme and mention several issues the 2021 consultation aimed to address. ESOS being viewed as a **compliance activity** was mentioned by many (although not all) organisations and assessors as a prominent barrier to implementation of recommendations. This appears to be driven by a number of factors:

As already noted, ESOS is currently **focused on energy, not carbon.** There may be a tension between ESOS recommendations and other obligations and assessments stemming from **Net Zero commitments**, meaning more focus is placed on Science Based Targets and Net Zero plans that include Scope 3 and non-UK emissions.

As a result, there may be **lack of engagement from senior stakeholders** in the organisations, who have different priorities.

Some organisations said they are **already doing a lot of energy efficiency work** in their BAU operations, and ESOS can be **difficult to integrate** into existing work.

The ESOS audit is perceived to be **high-level**, generally conducted over a few days and based on a subset of sites and significant energy users. **Additional scoping** is often required by the organisation to implement recommendations, such as internal re-evaluation of costings.

One assessor noted that this view is **implicitly supported by the EA portal,** which doesn't require any information about the recommendations the assessor made or a commitment to follow through on them.

Barriers to implementing recommendations

Additional barriers include:

Lack of **funding,** and recommendations proposed by assessors which aren't **commercially viable**.

The **complexity** of both implementing recommendations and measuring their effectiveness. Behaviour change interventions were noted as being particularly challenging to evaluate.

Constraints imposed by the **property lease**. For one organisation, the last ESOS phase was not taken seriously as they were vacating the property soon. Even when this isn't the case, payback periods need to be shorter than the lease time in order to be motivating.

Misaligned incentives and uncertainty regarding where **responsibility** lies between landlords and tenants in terms of implementing energy efficiency measures.

The **time** required to implement a recommendation, and the **associated disruption** to the business.

Enablers to implementation

Enablers to implementing recommendations (partially) within assessor's control include:

Obtaining 'buy-in' from senior stakeholders in the organisation, and providing an **executive summary** for senior management.

The assessor **knowing the organisation well**. This results in clarity of expectations and being able to provide recommendations that are **appropriate, realistic and well costed.**

Including **non-energy and non-financial benefits** in recommendations' benefits, e.g. staff productivity and wellbeing.

Enablers to implementing recommendations outside assessor's control include:

Increasing **salience of Net Zero**. Organisations reported being hungrier to reduce carbon footprint than in previous ESOS phases, and this also opens people up to longer payback periods.

Higher energy costs raise the importance and attractiveness of energy saving opportunities. There is an expectation that the next ESOS phase will be treated as a bigger priority than previously.

More time to undertake the audit allow assessors to go into more depth, organisations to prepare for assessments, and assessors to craft recommendations that fit the organisation's needs and priorities.

Additional insights into ESOS

As indicated by the list of barriers to implementation, **assessors feel that they are limited** in how much they can influence organisations to follow through with their recommendations.

Assessors felt that the **quality of ESOS is impacted** because many clients tend to engage assessors close to the deadline. As a result, they often don't have the time and resources required to do a thorough business analysis. Some requested whether the audits could be more spread out, for example being conducted in alphabetical order of company names, or by industry.

ESOS is seen as most helpful for **smaller organisations** – organisations who do qualify for ESOS but nevertheless do not have large energy and environmental management teams. Indeed, ESOS may be the only explicit nudge for these organisations to consider energy saving opportunities in a formal way.

Both assessors and organisations raised questions about **when the recommendations template would be issued.** They noted that phase 3 assessments are soon to be or already underway, and if their in house tools need to be updated to accommodate the template having as much notice as possible would be helpful.

Additional insights into ESOS

A few participants requested that BEIS/EA provide **additional guidance**. This broadly fell into three categories:

- **Support for assessors to use the recommendations template.** Including instructions for use, links to additional resources such as sources of financial support that they can recommend, and guidance on how assessors should refer to Net Zero.
- **Additional support for assessors completing ESOS audits.** For example an excel sheet that calculates life-cycle cost. Having this “BEIS accredited” would be a credibility-enhancing element of such a tool.
- **Client facing documents.** Simple guidance assessors can provide to clients to help them to understand more about ESOS and their requirements.

6. Modern Energy Partners tools to package with the recommendations template

Options to consider

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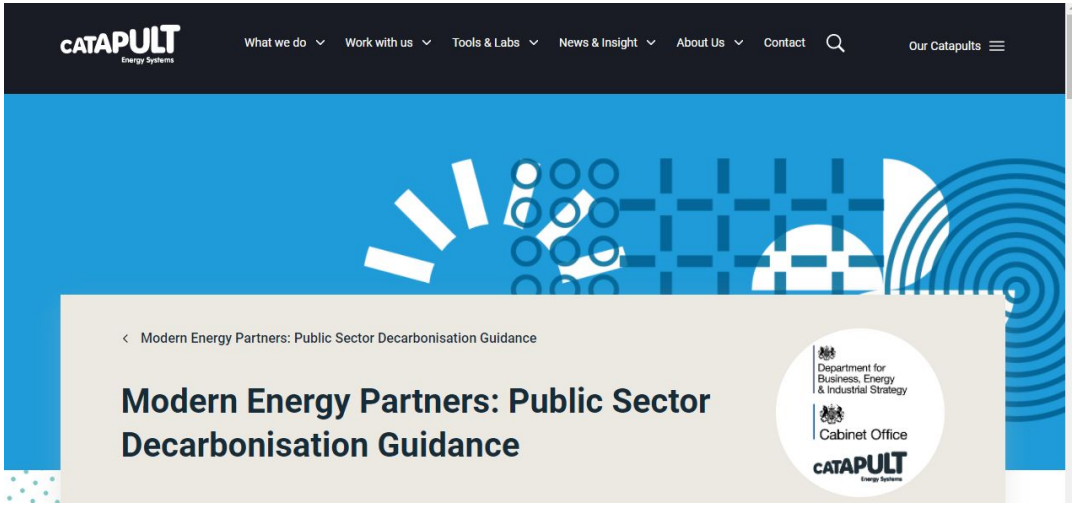
Additional options to support ESOS consistency

A few participants requested that BEIS/EA provide **additional guidance** (see slide 38). One option is to signpost to already available tools which support better quality energy data analysis and opportunity assessment.

Modern Energy Partners (MEP), a BEIS (SICE) funded innovation programme looking at decarbonising the public sector, has recently published a suite of tools and guidance for assessors to identify and communicate promising energy-saving measures. These are **freely available** from the Energy Systems Catapult website.



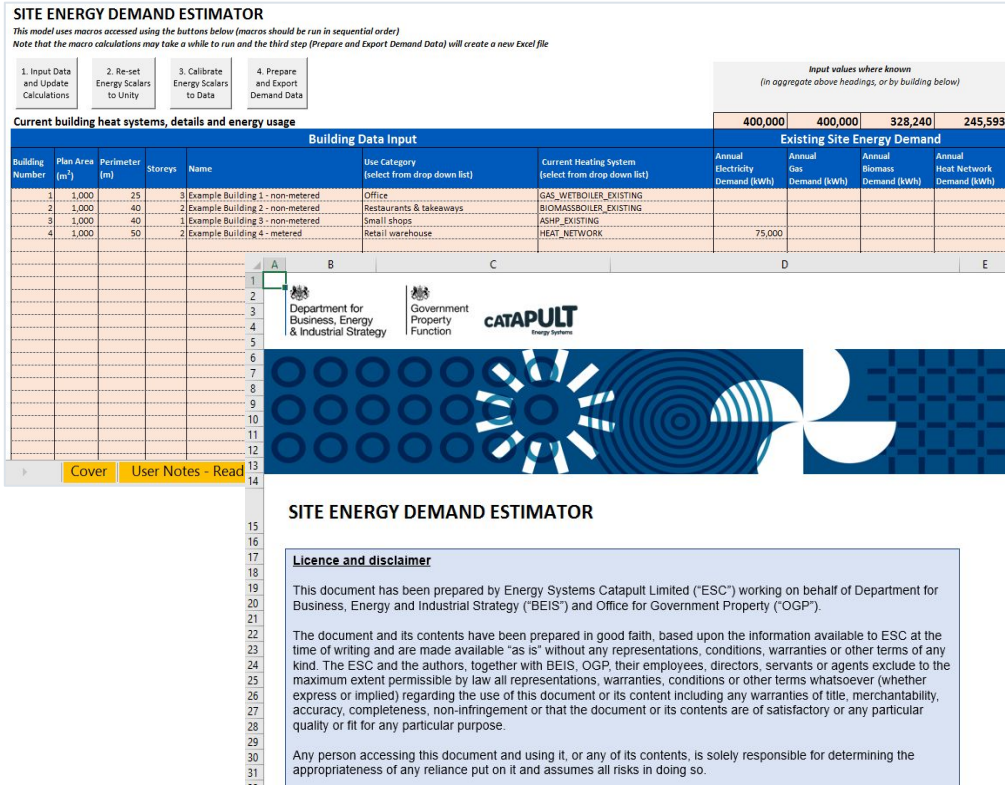
Additional options to support ESOS consistency

MEP tools include:

Carbon and cost estimators providing trajectories of future emissions and costs.

Energy consumption estimators, based on BEIS energy data, which could be used to help with establishing energy use and benchmarking.

Estimators for energy efficiency measures such as LED lighting, BMS, Building Fabric improvements and some aspects of renewable installations.



7. Appendix

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Appendix 1: Initial recommendations template designed by BEIS

Page 1

ESOS recommendations

Set out corporate sustainability and/or CSR commitments (including targets)

Savings identified from recommendations - summary					
End use	Measure type	Estimated annual energy saving	Estimated annual £ saving	Estimated cost of measures	Payback period
Buildings	Data quality				
	Energy management				
	Behaviour change interventions				
	Training				
	Controls				
	Zero/low-cost measures				
	Short term investments (3 years payback or less)				
	Longer term investments (over 3 years payback)				
Industrial processes	Data quality				
	Energy management				
	etc				
Transport	Data quality				
	etc				
Total					

Opportunity 1

Description of opportunity	
Expected annual energy saving	
Annual cost of not investing	Total cost Cost relative to salient metric e.g. comparable increase in sales
Additional financial savings potential	E.g. reduced maintenance costs, longer product lifetimes
Cost of measure and expected return on investment/payback	
Non-financial benefits	E.g. improved workforce conditions, product quality, staff productivity and wellbeing, customer experience, maintenance and fault identification, reduced noise from production lines
Relevance to corporate priorities and/or CSR commitments	E.g. link to new product lines, new building outfitting, job creation, purchase of new equipment
Percentage of ESOS participants that have taken up this opportunity to date	
Next steps to carrying out measure	E.g. further surveys, expertise needed, options to consider, scheduling considerations
Sources of support	E.g. government grants, sources of independent advice, financing options
Suggested intervention point	E.g. lease renewal, plant replacement, equipment end of life
Constraints	E.g. lease terms, site access, disruption

Page 2

Opportunity 2

Description of opportunity	
Expected annual energy saving	
etc	

Opportunity 3

Description of opportunity	
Expected annual energy saving	
etc	

Recommended package of measures

Measure	Estimated annual energy saving	Estimated annual £ saving	Estimated cost of measure	Payback period
Measure 1				
Measure 2				
Measure 3 etc				
Total package				

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