

Energy Company Obligation (ECO2): Explanatory notes for monitoring

The technical and score monitoring questions available on our website¹ must be used for all ECO technical and score monitoring conducted on measures installed from 1 June 2015. Suppliers may produce their own version of the monitoring question forms, by adding additional monitoring questions if they wish. However any such bespoke monitoring question forms must include all of the technical monitoring and score monitoring questions set out in this document. Where all questions are not included in a monitoring form any monitoring conducted using this form will not be eligible.

Responses to additional questions added by the supplier, and responses to best practice questions, are not part of the monitoring and reporting exercise. Any measure that fails ONLY such questions is not a technical or score monitoring fail.

Under the Energy Company Obligation (ECO), obligated energy companies are expected to monitor the quality of installations and the accuracy of scores (technical and score monitoring respectively). Energy companies must instruct suitably qualified independent agents to carry out technical monitoring and score monitoring on a sample of ECO measures that they have installed.

Please see Chapter 9 of our [ECO2 Guidance: Delivery²](#) for details of the requirements for technical monitoring and score monitoring.

This document provides explanatory notes for the monitoring questions referred to in the Delivery Guidance, to be used for ECO technical monitoring and score monitoring. Ofgem has developed the questions in conjunction with industry and obligated energy companies. The questions must be used for all ECO technical monitoring and score monitoring conducted on measures installed from 1 June 2015. The ECO1 technical monitoring questions must be used for monitoring of measures installed in April and May 2015³ to allow time for IT systems and monitoring agents to implement the ECO2 monitoring questions.

This document also provides explanatory notes on “best practice” monitoring questions⁴ which are an information gathering exercise to highlight practices that result in the installation of measures of the highest quality. The questions may be used alongside technical monitoring of measures installed from 1 June 2015, but use of the best practice questions is not a monitoring requirement and is therefore optional although we encourage monitoring agents to complete this set of questions.

¹ <https://www.ofgem.gov.uk/ofgem-publications/94052/eco2coremonitoringquestions-xlsx>.

² <https://www.ofgem.gov.uk/publications-and-updates/energy-company-obligation-2015-17-eco2-guidance-delivery>.

³ <https://www.ofgem.gov.uk/publications-and-updates/energy-companies-obligation-technical-monitoring-questions>.

⁴ <https://www.ofgem.gov.uk/ofgem-publications/94047/eco2bestpracticemonitoringquestions-xlsx>.

Contents

1. Technical monitoring	2
2. Technical monitoring questions: competency – explanatory notes	2
3. Technical questions: District Heating System – explanatory notes	2
4. Technical monitoring questions: Remote re-inspections – explanatory notes	2
5. Score monitoring	3
6. Scoring questions - explanatory notes	3
7. Best practice monitoring for information gathering	5
8. What to do if an agent records a measure as a “fail”	5
9. What to do if an agent finds that a notified measure has not been installed	7

1. Technical monitoring

Technical monitoring is intended to ensure that a measure has been installed in accordance with relevant standards.

Technical monitoring inspections should take place at one of two installation stages:

- Mid-installation inspection: This inspection is only required for certain measures (EWI, IWI, FRI, PCWI, RIRI UFI). Where a finishing layer e.g. render is applied to a measure, these inspections should take place after the insulation has been fitted but before the finishing layer has been applied.
- Post-installation inspection.

Where both installation inspections are applicable to a measure, please refer to table 1 for the recommended split in monitoring between mid-installation and post-installation.

2. Technical monitoring questions: competency – explanatory notes

Technical monitoring agents will assess whether measures are being installed in accordance with PAS 2030:2014. This can be demonstrated by assessing the competency of installers carrying out the work and whether the installation is being carried out in line with the appropriate product certificate and/or system designer’s instructions.

All competency questions are undertaken during mid-installation, when the installers are on-site at the premises installing the measure(s).

3. Technical questions: District Heating System – explanatory notes

District Heating System connections (relating to CERO and CSCO only) are subject to post-installation technical monitoring to assess whether the insulation pre-conditions have been met. Details of the insulation pre-conditions associated with District Heating System measures are available in Chapter 3 of the Delivery Guidance.

Please note that pre-condition two (which relates to premises located in multi-storey buildings that do not include the top floor of the multi-storey building) is concerned only with exterior-facing walls that are of cavity wall construction type. If there are cavity walls that ‘cannot be insulated’ with cavity wall insulation, it is not necessary to treat these cavity walls with external or internal wall insulation.

4. Technical monitoring questions: Remote re-inspections – explanatory notes

Suppliers may choose to remotely re-inspect the 18 questions marked as suitable in our [Energy Company Obligation \(ECO2\): Core Monitoring Questions](#) document. Where these questions fail a technical monitoring inspection, they can only be re-inspected remotely in cases where it has been deemed possible by the technical monitoring agent during their original site inspection. We do not allow the remote re-inspection of any technical monitoring question that is not listed as suitable in our core monitoring questions document.

Remedial work must be evidenced using photographs taken from the same view both during the original site inspection and after the failure has been remediated. All photographs must be captured using a suitably high resolution, record the date on which the photo was taken, location of the premises and the measure being assessed. Where possible, we expect all photographic evidence to be GPS location-stamped.

If the documentary evidence provided for remote re-inspection does not provide sufficient certainty for the technical monitoring agent to determine that remedial work has been completed to the required standard, the TMA must undertake a site audit.

Suppliers must indicate on their technical monitoring reports that a measure has been remotely re-inspected so that we can monitor trends in failure rates for all remotely re-inspected measures.

Where possible, the remote re-inspection should be conducted by a representative of the same technical monitoring company and preferably by the same technical monitoring agent who conducted the original site audit. The TMA may request further evidence and suppliers may implement additional processes to increase the accuracy of remote re-inspections, or enhance consumer protections.

5. Score monitoring

Score monitoring is intended to ensure that the inputs used to calculate the carbon saving or cost score of a measure are accurate. The score monitoring questions assess whether certain SAP or RdSAP fields used in the calculation match the characteristics of the premises.

Score monitoring inspections should only take place during post-installation inspections. Further details of the score monitoring requirement are available in Chapter 9 of the Delivery Guidance.

Score monitoring agents must either be:

- a. in England and Wales, an accredited Domestic Energy Assessor or a Green Deal Advisor, or
- b. in Scotland, members of Approved Organisations.

Where a supplier would like to use an agent with a different/equivalent qualification it should contact us.

6. Scoring questions - explanatory notes

The following notes are based on SAP 2012 version 9.92. The aim of these notes is to assist with interpretation of the scoring questions; they are not intended to replace or amend definitions set out in SAP 2012 version 9.92.

Score monitoring agents are not expected to dismantle or remove any part of the property or appliances to verify the input data. The scoring questions ask the monitoring agents to verify whether a particular characteristic of the property 'matches' the SAP or RdSAP calculation. Monitoring agents are expected to use their best professional judgement to decide whether the data used in the calculation matches exactly or is a suitable representation of the characteristics of the property.

Floor area (SAP and RdSAP)

The RdSAP input data file will provide floor dimensions for each storey. The SAP input data file will have floor dimensions for each storey as well as the total floor area. For consistency, please check the floor area for each storey. If the variation between the SAP/RdSAP input data for floor area and the measurement by the monitoring agent is less than 10% then this can be recorded as a PASS.

Roof type (RdSAP only)

In RdSAP the options for roof types include flat roof, pitched roof with access to loft, pitched roof with no access to loft and other dwelling above (very commonly used in mid-floor flats). The monitoring agent needs to check whether the description of roof type in the RdSAP input data file matches the premises.

Loft insulation (RdSAP only)

In RdSAP the options available for existing loft insulation are none, unknown, 12mm, 25mm, 50mm, 75mm, 100mm, 150mm, 200mm, 250mm, 270mm, 300mm, 350mm and 400mm or more. If the existing insulation thickness falls between two of these categories, the lowest thickness option should be recorded. For example, if the insulation thickness is 260mm, it should be recorded as 250mm. 'Unknown' should be selected only as a last resort, for example when the loft cannot be accessed.

Wall insulation (RdSAP only)

The options available in RdSAP include filled cavity, as built (which means the software will determine the insulation levels of the wall based on the requirements of the building regulations at the time of construction), external insulation, internal insulation, filled cavity + external, filled cavity + internal, unfilled cavity + external, unfilled cavity + internal, and 'unknown'. 'Unknown' should be selected only when the wall insulation cannot be determined, for example when it looks different from any documentary evidence available for the insulation.

Main space heating type and system description (SAP and RdSAP)

The monitoring agent should verify all SAP/RdSAP information relating to the space heating system. This means whether the system includes boiler or storage heaters, the system model name, and boiler type. If there is more than one main heating system in the property, these checks should be performed on all main space heating systems.

Dwelling and detachment type (SAP and RdSAP)

The monitoring agent should verify all SAP/RdSAP information relating to the dwelling and detachment type. Dwelling types are classified as one of: house, bungalow, flat, maisonette and park home. Detachment types are classified as one of: detached, semi-detached, mid-terrace, end-terrace, enclosed mid-terrace and enclosed end-terrace.

Percentage of measure installed (SAP and RdSAP)

Suppliers must install 100% of a measure at a premise, unless there are reasonable grounds for not doing so. The monitoring agent should check that the percentage of the measure installed matches the percentage in the SAP or RdSAP input data file.

For clarity, below are some examples of what constitutes 100% of a measure for different measure types:

- if a house has 100m² of exterior-facing cavity walls and 75m² is insulated with CWI, then percentage of measure installed = 75%.
- for loft insulation, 100% of the measure will be the insulation of the entire loft, including the hatch.

7. Best practice monitoring for information gathering

Best practice monitoring is an information gathering exercise designed to highlight installation practices, methods or techniques that consistently result in the installation of measures of the highest quality. Although technical monitoring agents are not required to complete this separate set of questions, we encourage them to do so, as the aim of this exercise is to drive improvements throughout the industry, provide consumers with high quality measures and inform our audit strategy.

Where a 'fail' is recorded against a best practice question set (but not a "fail" for the associated core technical monitoring question), suppliers are not required to remedy the fail and will not lose savings for the measure. Suppliers may however wish to remediate those measures in the interests of promoting best practice.

8. What to do if an agent records a measure as a "fail"

The monitoring agent who completes the monitoring questions for a measure must record whether the measure is a "pass" or "fail". If the measure is a fail the monitoring agent must also record each question (and its number) against which the measure has failed.

Suppliers must notify us of all measures that fail monitoring, along with their response to each fail. Each quarter we will send suppliers a report template ('Responding to TM Fails') which they must complete by summarising the fails reported in the previous quarter and telling us what they have done in response to each fail.

Suppliers must return the completed 'Responding to TM Fails' report each quarter when they submit the batch of technical monitoring results for the most recent quarter.

When suppliers complete the 'Responding to TM Fails' report, the company that installed the measure rather than a managing agent must be captured within the 'Installer' field. In cases where the measure is included in PAS 2030, and is installed by a PAS certified installation company, we would expect this name to be captured rather than a company the PAS certified installer company has sub-contracted the installation to.

A supplier's response to a fail will depend on which question(s) the fail has been recorded against. This will fall into one of the following four categories. A single measure may fail under more than one category in which case the supplier will need to respond to each failure separately.

(i) 'Fail' against technical monitoring

A supplier may choose to remedy the fail and, in doing so, avoid losing savings for the measure. If the supplier chooses to undertake remedial work, the supplier must re-inspect the

installation again after the work is completed. If a supplier is unable to complete remedial work, they must explain why they were unable to do so using the 'Responding to TM Fails' report.

An installation fail is expected to be remediated within three months of the last day of the month in which the monitoring agent identified the failure.

If a measure is not both remediated and re-inspected within six months of the last day of the month in which the failure was identified by the monitoring agent, we will revoke any earlier decision to attribute savings to the measure or refuse to attribute savings to the measure.⁵

We expect a supplier to make reasonable efforts to contact the occupant in order to conduct remedial work or re-inspection. In some instances a supplier may be unable to access premises (termed 'non-access').

More details of how a supplier can evidence instances of 'non-access' and our response to these instances can be found in our supplementary guidance note 'ECO Technical Monitoring False Fail and Non-Access Guidance'.⁶

(ii) 'Fail' against mid-installation questions

Under technical monitoring, a measure that failed during a mid-installation inspection must be remediated and re-inspected, within six months of the last day of the month in which the failure was identified by a monitoring agent. If this does not happen, we will revoke any earlier decision to attribute savings to the measure or refuse to attribute savings to it.⁷

Suppliers are permitted to remediate a measure at mid-installation (i.e. before the measure is completed). However, technical monitoring agents do not have the authority to halt work; the onus is upon the supplier to resolve any 'fails'.

(iii) 'Fail' against competency

A competency fail should be remedied before the installation is completed. Suppliers should confirm how a competency fail was addressed in the 'Responding to TM Fails' report. If a supplier is unable to do so, they must explain why they were unable to do so in the 'Responding to TM Fails' report.

(iv) 'Fail' against score monitoring

We expect measures that fail score monitoring to be re-scored within three months of the last day of the month in which the monitoring agent identified the failure.

If a measure is not re-scored within six months of the last day of the month in which the failure was identified by the monitoring agent, we will revoke an earlier decision to attribute savings to the measure or refuse to attribute savings to it.

If the measure has already been notified to us, the supplier should use the 'Responding to TM Fails' report to tell us whether the notified savings remain correct or should be changed. If there is a change, we will ask the supplier to amend their notification of that measure.

⁵ <https://www.ofgem.gov.uk/publications-and-updates/energy-company-obligation-2015-17-eco2-guidance-delivery>.

⁶ <https://www.ofgem.gov.uk/ofgem-publications/93992/non-accessnotepublished-pdf>.

⁷ <https://www.ofgem.gov.uk/publications-and-updates/energy-company-obligation-2015-17-eco2-guidance-delivery>.

Disputing a fail

Suppliers may dispute a monitoring agent's finding and wish to correct it rather than take one of the actions described above. If this is the case, suppliers should raise this dispute with the TM agent. If the TM agent accepts your dispute, please mark the fail as 'Overturned by agent' in the comments box of the 'Responding to TM Fails' report. Otherwise, please record your dispute in the comments box in the 'Responding to TM Fails' report and, separately, contact us about the matter.

9. What to do if an agent finds that a notified measure has not been installed

In addition to completing the monitoring questions for this measure, please report this to the ECO Fraud Prevention and Audit team.

Contact us at eco@ofgem.gov.uk where there is any doubt over the outcome of a question.

Table 1. Summary table of monitoring required for each measure type

Measure Type	Measure Name	Measure is monitored	Monitoring category*	Scoring Questions (post-install only)	Competency questions	Compliance questions	Stage 2 (mid-install) questions	Stage 3 (post-install)
Internal Wall Insulation	Internal Wall Insulation System	yes	IWI	✓	✓		✓ For 50% of inspections**	✓ For 50% of inspections**
	Internal Wall Insulation for Cavity Walls	yes	IWI	✓	✓		✓ For 50% of inspections**	✓ For 50% of inspections**
External Wall Insulation	External Wall Insulation System (including non-brick solid wall insulation)	yes	EWI	✓	✓		✓ For 50% of inspections**	✓ For 50% of inspections**
	External Wall Insulation for Cavity Walls	yes	EWI	✓	✓		✓ For 50% of inspections**	✓ For 50% of inspections**
	Park Home External Wall Insulation Systems	no						
Cavity Wall Insulation	Cavity Wall Insulation	yes	CWI	✓				✓
Party Wall Insulation	Party Cavity Wall Insulation	yes	PCWI	✓			✓	
Loft Insulation	Loft Insulation Ceiling : Virgin Level	yes	LIV	✓				✓
	Loft Insulation Ceiling : Top-up	yes	LITU	✓				✓
	Loft Insulation (rafter)	yes	LIR	✓		✓	✓	
Room In Roof Insulation	Room in Roof Insulation	yes	RIRI	✓		✓	✓	
Flat Roof Insulation	Flat Roof Insulation	yes	FRI	✓	✓		✓ For 50% of inspections**	✓ For 50% of inspections**
Under Floor Insulation	Under floor Insulation	yes	UFI	✓	✓		✓ For 50% of inspections**	✓ For 50% of inspections**
	Hot Water Cylinder Insulation	no						
	Insulation to all primary pipework	no						
Draught Proofing	Draught Proofing	yes	DP	✓				✓
Window Glazing	Window glazing	yes	WG	✓				✓
	Passageway walk through doors	no						
	High Performance External doors with less	no						
	High Performance External doors with more	no						

Measure Type	Measure Name	Measure is monitored	Monitoring category*	Scoring Questions (post-install only)	Competency questions	Compliance questions	Stage 2 (mid-install) questions	Stage 3 (post-install)
New Boiler	Qualifying Boiler Replacement	yes	NB	✓				✓
	Qualifying Boiler Replacement-Mains gas	yes	NB	✓				✓
	Qualifying Boiler replacement - non boiler (depend on the measure type installed)	yes	NB	✓				✓
	Non Qualifying boiler installation	yes	NB	✓				✓
Boiler Repair	Qualifying Boiler repair (1year)	yes	BR	✓				✓
	Qualifying Boiler repair (2 years)	yes	BR	✓				✓
New Electric Storage Heater	Qualifying Boiler replacement - ESH	yes	NESH	✓				✓
	Qualifying ESH heater replacement	yes	NESH	✓				✓
	Electric storage heaters	yes	NESH	✓				✓
Electric Storage Heater Repair	Qualifying Electric storage heating repair (1 year)	yes	ESHR	✓				✓
	Qualifying Electric storage heating repair (2 years)	yes	ESHR	✓				✓
	Warm Air units	no						
Heating Controls	Heating Controls	yes	HC	✓				✓
	Flue Gas Recovery Device	no						
	Heat recovery Ventilation	no						
	Radiator Panels	no						
DHS	District Heating System – Connections	yes	DHS					✓ For pre-conditions only***
	Air source Heat pumps	no						
	Ground source heat pumps	no						
	Biomass Boilers	no						
	Micro combined heat and power	no						
	Photovoltaics	no						
	Micro wind	no						
	Micro hydro	no						

* **IWI** – Internal Wall Insulation, **EWI** – External Wall Insulation, **CWI**- Cavity wall Insulation, **PCWI** – Party Cavity Wall Insulation, **LIV**- Loft Insulation: Virgin, **LITU** - Loft Insulation: Top-Up, **RIRI** – Room in Roof Insulation, **FRI**- Flat Roof Insulation, **UFI** – Under Floor Insulation, **DP** – Draught Proofing, **WG** – Window glazing, **NB** – New Boiler (replacement boiler), **BR** – Boiler Repair, **NESH** – New Electric Storage Heater, **ESHR** – Electric Storage Heater Repair, **HC** – Heating Controls.

** Recommended splitting of monitoring between mid-installation and post-installation.

*** Technical monitoring for District Heating System is for insulation pre-conditions only.