Accelerated Capital Allowances Eligibility Criteria

Category: **Heating and Electricity Provision**

Technology: **Boiler Controls**

Boiler Controls are defined as specifically designed equipment that maximise the energy efficiency of new and/or existing boiler and burner plant.

Boiler Controls equipment is considered to include the following:

Oxygen Trim Controls

Oxygen trim controls which automatically monitor the oxygen or carbon monoxide concentration in boiler flue gases and vary the air and fuel supply to the burner to limit excess or low oxygen concentrations in the fuel/air mix.

Burner Systems

Burner systems are designed to provide boiler modulation and combustion control through the use of digital microprocessor based systems with the aim of optimising energy use. They include new burners with controls and retrofit burner control systems.

Sequencers

Boiler sequencer controls which optimise fuel usage by managing the firing sequence of different boilers to ensure that the most efficient boiler(s) are selected to match the prevailing load conditions.

Metering

Energy meters which can track boiler performance and report boiler system efficiency to the user.

Eligibility Criteria Overview

In order to be included on the ACA Specified List, the specific Boiler Controls equipment must meet *all* of the relevant requirements set out below.

Note: *Supporting documentation that clearly demonstrates ACA compliance according to the conditions below will be required as part of the ACA checking process. Detailed information on the types of documents accepted can be found in the separate Supporting Documentation guidelines.*

Oxygen Trim Controls specific Eligibility Criteria:

No.	Condition
1.	Equipment must contain the following elements: ▪ Electronic Oxygen (or Carbon Monoxide) sensor designed for fitting in the boiler flue near the boiler ▪ Boiler temperature or pressure sensor ▪ Actuated air supply control damper ▪ Actuated valve on fuel supply

	▪ Control panel which takes a reading from the sensor and adjusts the air supply damper and fuel supply accordingly.
2.	Overall equipment to be accurate to minimum accuracy of ± 1% excess oxygen ("overall" refers to the "sum of errors" across the system)
3.	Must permit integration with burner management systems.
4.	Capability to output to BMS or other equivalent control system.

Burner Systems <u>specific</u> Eligibility Criteria:

No.	Condition
5.	Burners must have microprocessor based controls that are capable of continuously modulating burner output in response to measured temperature or pressure values over a turn-down ratio as appropriate below: ▪ Gas (≥ 1,200kW): ≥4 to 1 ▪ Oil (≥ 1,200kW): ≥2.5 to 1 ▪ Gas or dual fuel (<1,200kW): ≥3 to 1 ▪ Oil (< 1,200kW): ≥2 to 1 Note: Turn-down ratio is a measure of the range within which the burner can be adjusted. Turn down of 4 to 1 indicates adjustment in the range 25% to 100%.
6.	Microprocessor must control the air/fuel ratio to limit Oxygen levels in exhaust gasses to the following levels: ▪ 3% O_2 at 100% rated boiler output ▪ 4% O_2 at 50% rated boiler output
7.	CO levels in the exhaust gases must be less than: ▪ 50 ppm for boilers ≥1,200kW ▪ 100 ppm for boilers < 1,200kW
8.	All valves and dampers to be fitted with precision servomotors.
9.	Burner must be fitted with an air damper which is fully closed on burner shutdown.
10.	All burner fans must be fitted with VSD control on the fan motor.
11.	Oil fired burners must comply with the performance criteria set out in IS EN 267, or scientific equivalent. <u>**or**</u> Gas fired burners must comply with the performance criteria set out in IS EN 676, or scientific equivalent.

Sequencer <u>specific</u> Eligibility Criteria:

No.	Condition
12.	The sequencer must be microprocessor based.
13.	Must use sensors to measure heating system flow and return temperatures.
14.	Must be able to control and isolate a minimum of two boilers.

15.	Must have the capability of storing and consulting individual control parameters for each connected boiler.
16.	Must select the appropriate boiler(s) based on the optimum efficiency of the whole system.
17.	All equipment and/or components must be CE marked as required by the specific EU directive(s).
18.	Appropriate operating & maintenance manuals must be available to the end-user in order to optimise the achievement of any potential energy efficiency gains.
19.	Training: Appropriate training must be available to the end-user, such that the end user can run the system in an energy efficient manner.

Metering <u>specific</u> Eligibility Criteria

No.	**Condition**
20.	Meter must be microprocessor based.
21.	Meter must be designed to measure the appropriate boiler parameters (Flow, temperature pressure) and calculate the associated energy usage in kW and kWh.
22.	Equipment must be specifically for use with boiler or steam systems with a view to optimising boiler efficiency.
23.	Meters must be able to measure across a varying load profile (wide turndown range).
24.	Meter output to have: • Local display output. • Output to BEMS or equivalent system
25.	Accuracy of equipment to be minimum ± 2%.

---------- End of ACA eligibility criteria ----------

Please see next section for technical detail submission and supporting documentation guidance

The following information is not part of the official criteria document published within the relevant statutory Instrument; it has been added here for guidance purposes only in order to provide assistance with the submission of product details and the provision of the required supporting documentation.

Note: *All information contained within this guidance document is subject to change without notice*

Technical information required in product submission

The following are the specific technical values required as part of the product submission for this technology:

Boiler control product type

As part of the product submission you must select which type of boiler control your product is. Only one type can be chosen per submitted product.

Supporting documentation required

Described below is the list of documents that are accepted as proof of compliance for the specific Boiler Controls conditions.

Note: This information will only be requested AFTER you submit your product's basic details online.

<u>Important Notes to Product Providers</u>
Please ensure that you read the "Important Notes to Product Providers" section at the end of this document prior to submitting documentation.

Oxygen Trim Controls specific Eligibility Criteria:

No.	Condition	Supporting Documentation Requirement
1.	Equipment must contain the following elements: ▪ Electronic Oxygen (or Carbon Monoxide) sensor designed for fitting in the boiler flue near the boiler ▪ Boiler temperature or pressure sensor ▪ Actuated air supply control damper ▪ Actuated valve on fuel supply ▪ Control panel which takes a reading from the sensor and adjusts the air supply damper and fuel supply accordingly.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition. **OR** A copy of an official signed declaration on headed paper which confirms that the equipment contains the required elements. Official declarations should explicitly state the product(s) for which the constituent elements are being confirmed (i.e. do not provide a letter stating compliance with ACA Condition X). Where a document is used to demonstrate conformance for a number of products or range of products it should clearly specify each individual product covered by that document.
2.	Overall equipment to be accurate to minimum accuracy of ± 1% excess oxygen ("overall" refers to the "sum of errors" across the system)	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.
3.	Must permit integration with burner management systems.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.
4.	Capability to output to BMS or other equivalent control system.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.

Component List
The component list contains details and part numbers of any ancillary equipment that may be supplied to a customer as an additional component to the overall submitted system. It must be formatted according to the ACA component list template. When components are detailed in a component list, reference must be made to official and published brochures or data sheets where these components are described. These brochures/datasheets must then be supplied in addition to the component list.

Burner Systems specific Eligibility Criteria:

No.	Condition	Supporting Documentation Requirement
5.	Burners must have microprocessor based controls that are capable of continuously modulating burner output in response to measured temperature or pressure values over a turn-down ratio as appropriate below: ▪ Gas (≥ 1,200kW): ≥4 to 1 ▪ Oil (≥ 1,200kW): ≥2.5 to 1 ▪ Gas or dual fuel (<1,200kW): ≥3 to 1 ▪ Oil (< 1,200kW): ≥2 to 1 Note: Turn-down ratio is a measure of the range within which the burner can be adjusted. Turn down of 4 to 1 indicates adjustment in the range 25% to 100%.	Evidence of official testing by manufacturer or independent test lab carried out according to a relevant standard or stated methodology that confirms the requirements of the condition. Test reports should be of the format described in the 'Important Notes to Product Providers' section of this document.
6.	Microprocessor must control the air/fuel ratio to limit Oxygen levels in exhaust gasses to the following levels: ▪ 3% O_2 at 100% rated boiler output ▪ 4% O_2 at 50% rated boiler output	Evidence of official testing by manufacturer or independent test lab carried out according to a relevant standard or stated methodology that confirms the requirements of the condition. Test reports should be of the format described in the 'Important Notes to Product Providers' section of this document.
7.	CO levels in the exhaust gases must be less than: ▪ 50 ppm for boilers ≥1,200kW ▪ 100 ppm for boilers < 1,200kW	Evidence of official testing by manufacturer or independent test lab carried out according to a relevant standard or stated methodology that confirms the requirements of the condition. Test reports should be of the format described in the 'Important Notes to Product Providers' section of this document.

No.	Condition	Supporting Documentation Requirement
8.	All valves and dampers to be fitted with precision servomotors.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition. The product provider should include a product provider note stating the page number on the document supplied where compliance with the condition is demonstrated. **OR** A copy of an official signed declaration on headed paper which confirms the requirements of the condition. Official declarations should explicitly state the product for which CE marking is being confirmed (i.e. do not provide a letter simply stating general compliance with the relevant ACA Condition). Where a document is used to demonstrate conformance for a number of products or range of products it should clearly specify each individual product covered by that document.
9.	Burner must be fitted with an air damper which is fully closed on burner shutdown.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition. The product provider should include a product provider note stating the page number on the document supplied where compliance with the condition is demonstrated. **OR** A copy of an official signed declaration on headed paper which confirms the requirements of the condition. Official declarations should explicitly state the product for which the declaration is being made (i.e. do not provide a letter simply stating general compliance with the relevant ACA Condition). Where a document is used to demonstrate conformance for a number of products or range of products it should clearly specify each individual product covered by that document.

No.	Condition	Supporting Documentation Requirement
10.	All burner fans must be fitted with VSD control on the fan motor.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition. The product provider should include a product provider note stating the page number on the document supplied where compliance with the condition is demonstrated. **OR** A copy of an official signed declaration on headed paper which confirms the requirements of the condition. Official declarations should explicitly state the product for which the declaration is being made (i.e. do not provide a letter simply stating general compliance with the relevant ACA Condition). Where a document is used to demonstrate conformance for a number of products or range of products it should clearly specify each individual product covered by that document.

No.	Condition	Supporting Documentation Requirement
11.	Oil fired burners must comply with the performance criteria set out in IS EN 267, or scientific equivalent. **or** Gas fired burners must comply with the performance criteria set out in IS EN 676, or scientific equivalent.	Oil Fired Burners Accredited certification that the equipment complies with the standard below. **OR** Evidence of official testing by manufacturer or independent test lab carried out according to the principles outlined in the performance standard below. Test reports should be of the format described in the 'Important Notes to Product Providers' section of this document. Accepted standards are: EN 267. See note on 'Scientific Equivalence' in Important Notes to Product Providers section at end of this document. Gas Fired Burners Accredited certification that the equipment complies with the standard below. **OR** Evidence of official testing by manufacturer or independent test lab carried out according to the principles outlined in the performance standard below. Test reports should be of the format described in the 'Important Notes to Product Providers' section of this document. Accepted standards are: EN 676. See note on 'Scientific Equivalence' in Important Notes to Product Providers section at end of this document.

Sequencer <u>specific</u> Eligibility Criteria:

No.	Condition	Supporting Documentation Requirement
12.	The sequencer must be microprocessor based.	Official and published manufacturer's technical data sheet or brochure that demonstrates proof of compliance with the requirements of the condition.
13.	Must use sensors to measure heating system flow and return temperatures.	Official and published manufacturer's technical data sheet or brochure that demonstrates proof of compliance with the requirements of the condition.
14.	Must be able to control and isolate a minimum of two boilers.	Official and published manufacturer's technical data sheet or brochure that demonstrates proof of compliance with the requirements of the condition.
15.	Must have the capability of storing and consulting individual control parameters for each connected boiler.	Official and published manufacturer's technical data sheet or brochure that demonstrates proof of compliance with the requirements of the condition.
16.	Must select the appropriate boiler(s) based on the optimum efficiency of the whole system.	Official and published manufacturer's technical data sheet or brochure that demonstrates proof of compliance with the requirements of the condition.
17.	All equipment and/or components must be CE marked as required by the specific EU directive(s).	Official and published manufacturer's technical data sheet or brochure that demonstrates CE marking compliance. **<u>OR</u>** A copy of an official signed declaration on headed paper which confirms CE marking compliance. Official declarations should explicitly state the product for which CE marking is being confirmed (i.e. do not provide a letter simply stating general compliance with the relevant ACA Condition). Where a document is used to demonstrate conformance for a number of products or range of products it should clearly specify each individual product covered by that document.

No.	Condition	Supporting Documentation Requirement
18.	Appropriate operating & maintenance manuals must be available to the end-user in order to optimise the achievement of any potential energy efficiency gains.	A copy of an official signed declaration on headed paper which confirms that the appropriate operating and maintenance manuals are provided. Where possible, information on the availability of technical documentation to download online should be given. **NB:** A signed declaration is required to comply with this condition in all cases. Submitting copies of user manuals is not sufficient and not required by this condition.
19.	Training: Appropriate training must be available to the end-user, such that the end user can run the system in an energy efficient manner.	A copy of a signed official statement on headed paper confirming that the appropriate end-user training is available is required in all cases. The signed declaration must explicitly state that training is available to the end-user, rather than simply stating that the system is compliant with relevant ACA Condition. **NB:** Submitting copies of training manuals is not sufficient and not required by this condition.

Component List
The component list contains details and part numbers of any ancillary equipment that may be supplied to a customer as an additional component to the overall submitted system. It must be formatted according to the ACA component list template. When components are detailed in a component list, reference must be made to official and published brochures or data sheets where these components are described. These brochures/datasheets must then be supplied in addition to the component list.

Metering specific Eligibility Criteria:

No.	Condition	Supporting Documentation Requirement
20.	Meter must be microprocessor based.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.
21.	Meter must be designed to measure the appropriate boiler parameters (Flow, temperature pressure) and calculate the associated energy usage in kW and kWh.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.
22.	Equipment must be specifically for use with boiler or steam systems with a view to optimising boiler efficiency.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.
23.	Meters must be able to measure across a varying load profile (wide turndown range).	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.
24.	Meter output to have: • Local display output. • Output to BEMS or equivalent system	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.
25.	Accuracy of equipment to be minimum ± 2%.	Evidence of official testing by manufacturer or independent test lab carried out according to a relevant standard or stated methodology that confirms the requirements of the condition. Test reports should be of the format described in the 'Important Notes to Product Providers' section of this document.

Component List
The component list contains details and part numbers of any ancillary equipment that may be supplied to a customer as an additional component to the overall submitted system. It must be formatted according to the ACA component list template. When components are detailed in a component list, reference must be made to official and published brochures or data sheets where these components are described. These brochures/datasheets must then be supplied in addition to the component list.

Important Notes to Product Providers

General

There should be a clear link between all supporting documentation supplied and the product being submitted. This will typically take the form of a product code or product name that can be cross referenced between the submitted product and relevant supporting documentation. If product codes / names have been changed since publication of the supporting documentation, then official evidence of this must be provided with the supporting documentation supplied.

Any deviation from these requirements will result in the supporting documentation not being considered adequate for the purposes of demonstrating compliance with the criteria conditions. This will in turn delay the submission and/or result in the product not being considered eligible.

Where the ACA criteria or help documentation reference compliance to appropriate rather than specific standards, the onus is on the product provider to ensure that supporting documentation supplied references recognised standards that apply to the submitted product, i.e. the product must be covered under the scope of a recognised standard.

If any product submitted is later found not to meet the performance or specification criteria, then this product will cease to be considered eligible for the ACA.

Note: When supplying the supporting documentation through the online process you must ensure that the correct page number(s) of the document is referenced when compliance with the relevant condition is being demonstrated. An explanatory note should also be given where more than one page number is referenced.

Test Report

A test report must comprise of the following elements:
An outline of the complete test including introduction, details on test conditions, the specific model details of the product tested, the steps taken in the test, the results, graphical representations, and a conclusion. All documents should be on headed paper and the document should be officially signed off. **All documentation must be in English,** or include adequate translation.

Certification

Where certificates are provided, all tests must be carried out by an organisation that is accredited by a national accreditation body recognised via the European Cooperation for Accreditation (preferred) or the International Accreditation Forum. **All documentation must be in English,** or include adequate translation.

Scientific Equivalence

Some ACA criteria conditions allow for scientifically equivalent tests and/or standards to be used. In the event that a product has not been designed, manufactured or tested to the specific standard named, then documentation relating to an equivalent internationally recognised standard may be used (where the phrase 'Or scientific equivalent' is included in the ACA condition or help documentation). In such applications, the onus will be on the product submitter to demonstrate satisfactory equivalence of the standards. However, submissions which reference such supporting documentation may take longer to process, and if the product provider does not provide satisfactory evidence of equivalence, then the product will not be considered eligible for the ACA. **All documentation must be in English,** or include adequate translation.

Note: Where specific standards are cited in a condition or in the ACA help documentation, then documentation demonstrating that the relevant products have been designed, manufactured or tested to these specific standards is preferred. Scientific equivalence is considered the exception rather than the norm.

Representative testing

Where test information is required for a range of technically similar products (e.g. configurations of one base product) then in exceptional instances a form of representative testing may be utilised once agreed in advance with SEI. Such testing is where only representative products are tested from a technically similar group or range of products. Provided a clear correlation can be demonstrated between the tested product and technically similar non-tested product, and that such a correlation clearly demonstrates the compliance of the non-tested product, representative testing may form an acceptable basis for supporting documentation.

Note: Where representative testing is used for a group or range of products, if the tested or representative product is removed from the list of eligible products then all related products are also removed.