

ETS2.2

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Why ETS2.2?

- To satisfy additional requirements of MRG 2007:
 - Requirements for installation with low emissions
 - Provision for the 'Fall-back' approach
 - Uncertainty assessments
 - Refine Regulator/verifier understanding of monitoring plans
 - Non-accredited lab data
 - Etc.
- To make form more intuitive to complete

ETS2.2 General Improvements

- Show/hide examples against each table
- Add more rows to most tables
- Reformat tables
- Comments (provide context specific help)
- Tick boxes
- Hyperlinks to guidance (and back)
- Automatic formatting of some fields
- Data validation on some fields
- Drop down lists (expandable)
- Macros to hide/show parts of form

Macros

Negative side:

- Can cause problems with virus checkers/email servers

Positive side:

- Aid to complete the form
- Result in less errors
- Helps us to upload data to our database

The form can be completed without macros...

... but **we advise that macros are enabled.**

ETS2.2 Outline

Form comprises several tabs:

- **Introduction** – includes confidentiality statement (for information)
- **Form ETS2** – the monitoring plan
- **Annex I** – Monitoring & Reporting principles from MRG 2007 (for information)
- **Guidance** – how to complete the ETS2.2 form (please read)
- **Table 1** – minimum tier requirements from MRG 2007 (for information)

A1 – About Your Monitoring Plan

Requires:

- Permit/NAP number
- Operator/Installation name
- Contact details
- An estimate of your annual fossil CO₂ emissions
- Installation with low emissions?



NEW

Estimate of Annual Fossil CO₂

- Average verified annual emissions data
- OR
- Best available data
- Take into account any planned changes

Fossil CO₂ includes:

- Emissions from fuels and processes, except biomass fuels
- Contaminants in a biomass source (i.e. <3%)
- Exclude any CO₂ transferred out of the installation

Estimate of Annual Fossil CO₂

- Estimate is used to determine emissions category:
 - Category A – less than 50 kt
 - Category B – greater than 50 but less than 500 kt
 - Category C – greater than 500 kt

This has a bearing on:

- Minimum tier requirements (Table 1)
- Determination of monitoring plan
- Provisions for installation with low emissions

Installations with Low Emissions

Defined as:

- An installation with less than 25 kt fossil CO₂ emissions per year.

Reduces requirement for completion of monitoring plan:

- Can apply a minimum tier 1 for all sources (A4.2a)
- Can use meter supplier's data without further uncertainty assessment (A4.1)
- No requirement for sampling/analysis (A4.3/A4.4)
- Use purchase records for fuels/materials without further uncertainty assessment (A4.2a)

Installations with Low Emissions

Form ETS2.2 Monitoring Plan (Phase II)

A1.6 Do you satisfy the criteria for installations with low emissions (as defined by Section 16 of MRG 2007)?

Installations with annual fossil CO₂ emissions less than 25 ktonnes per year are defined as installations with low emissions as per Section 16 of MRG 2007. If you have ticked this box you will not need to complete sections 4.2b, 4.3 and 4.4 of this form.

Yes

Warning!



Please note that this option is only available to those installations with an estimated annual emission of less than 25 ktonnes fossil CO₂. Please check your response to question A1.5.

OK

A2 – About the Installation

A2.1 requires details of scheduled activities:

- List of emission points
- List of sources giving rise to emissions (e.g. boilers/processes)
- List of fuels/materials which produce these emissions

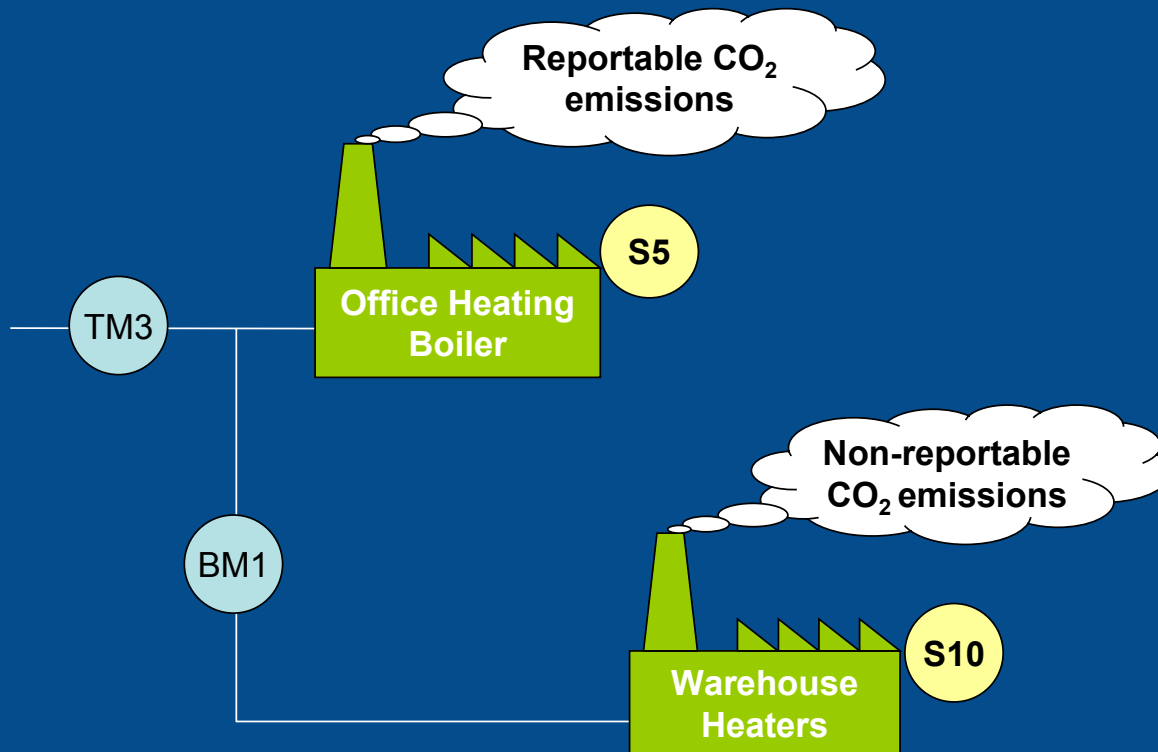
A2.2 requires details of any non-scheduled activities

- Only if these are fed by meters also supplying scheduled activities



NEW

Inclusion of Non-Scheduled Activities



Emission Sources

- Equipment giving rise to emissions
- Could be individual items or suitable groups of items
 - Boilers fed by a common meter

Source Streams

- Fuels/materials giving rise to CO₂ emissions

Reference Preferences!

- **Axx** for emissions points
 - Boiler Stack (A1)
- **Sxx** for emission sources
 - Boiler 1 (S1)
 - Kiln 2 (S2)
- **Fxx** for fuel source streams
 - Natural gas (F1)
 - Gas oil (F2)
- **Mxx** for material source streams
 - Limestone (M1)

A3 – Monitoring Description

- Specify whether Calculation, Measurement or both methods will be used to determine CO₂ emissions
- Description of the method itself including e.g.:
 - How often meters are read
 - How meter data is used
 - How fuel/material specific data is used (EF/NCV)
 - The calculation used e.g. $Act * NCV * EF * OF$
- Should be concise but aid understanding of the remainder of the form



NEW

A4 – Calculation Methodology

Requires the following information:

- Description of metering devices for each source stream (A4.1)
- Whether the ‘fall-back’ approach is proposed (A4.2)
- List of tiers applied for each source stream (A4.2a)
- Justification for selected tiers (A4.2b)
- Approaches for sampling of fuels/materials (A4.3)
- Analytical approaches (A4.4)

- Installations with low emissions do not need to complete A4.2b, A4.3 or A4.4



NEW

A4.1 – Description of Metering Devices

For each source stream require:

- Type of metering device
 - List of common meter types
 - Ability to specify own description
- Unique reference to the meter:
 - Prefer serial number
 - Possible to use generic term e.g. GM-01 but need to maintain a documented list on site
 - Note permit condition to notify changes

Source stream ref.	Type of metering device	Unique reference to the device
	Turbine meter	TM01 (MPR 123456789)
	Turbine meter	TM02 (MPR 987654321)
	Bellows meter	BM03 (MPR 56789)
	Orifice meter	OM 01
	Venturi meter	VM 02
	Ultrasonic meter	UM 03
	Vortex meter	VM 03
	Coriolis meter	CM 01
	Ovalrad meter	OB 01
	Delivery orders	PO 01
	Bellows meter	BM 01

A4.1 – Description of Metering Devices

For each source stream require:

- Individual meter uncertainty
- Overall uncertainty
- Location of metering device - sufficient to allow identification during site visit



NEW

Individual meter uncertainty (+/- %)	Overall metering uncertainty (+/- %)	Location
1.40%	1.40%	Adjacent to North Site factory gate
1.50%	1.46%	Adjacent to South Site factory gate
3.50%	2.00%	Adjacent to main office building
5.00%	1.46%	Mounted in feed to boiler 1
2.50%	1.46%	Mounted in feed to boiler 2
1.50%	1.46%	Mounted in feed to boiler 3

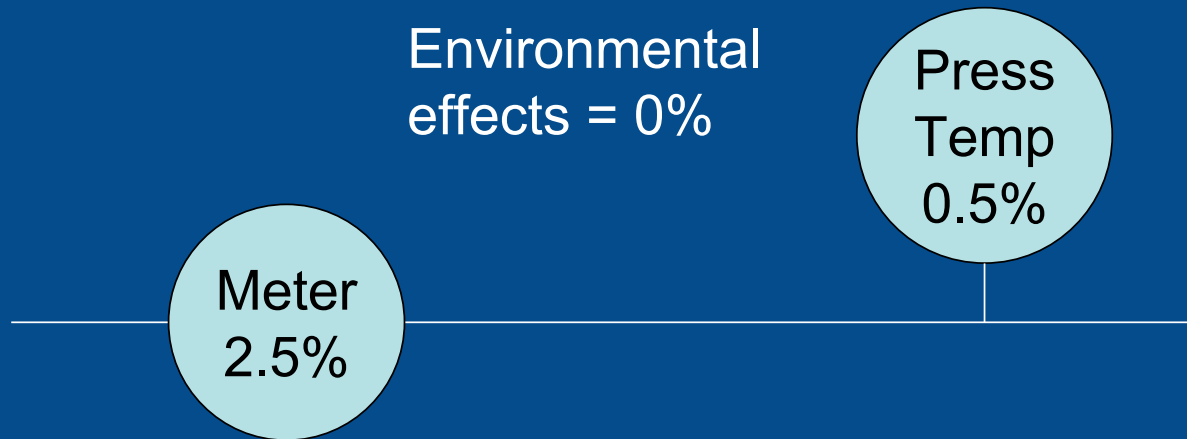
Individual Meter Uncertainty

Depends on:

- Specific uncertainty of the meter itself, U_1
- Context specific factors e.g. the environment in which it is used, U_2
- Pressure/temperature correction (for gases), U_3
- The combined uncertainty can be expressed as:

$$U = \sqrt{U_1^2 + U_2^2 + U_3^2}$$

Individual Meter Uncertainty



$$U = \sqrt{2.5\%^2 + 0\%^2 + 0.5\%^2} = 2.55\%$$

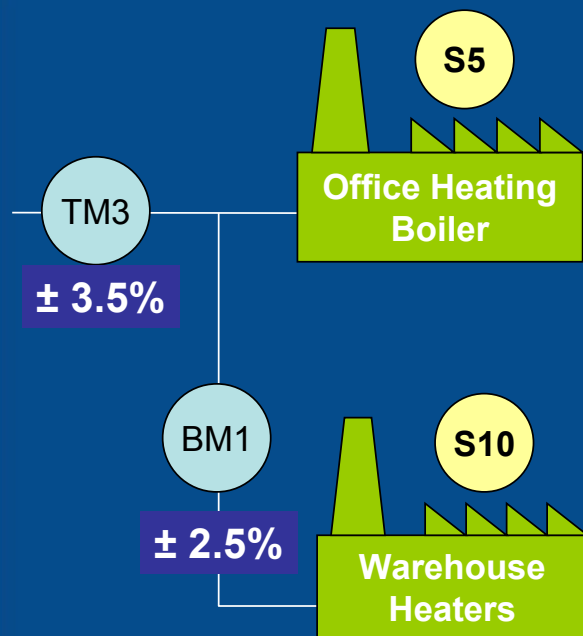
Overall Uncertainty

Overall meter uncertainty depends on:

- Number of meters, i
- Flow weighting against each meter, x_i
- Whether individual meter uncertainties are uncorrelated/independent
- For uncorrelated uncertainties:

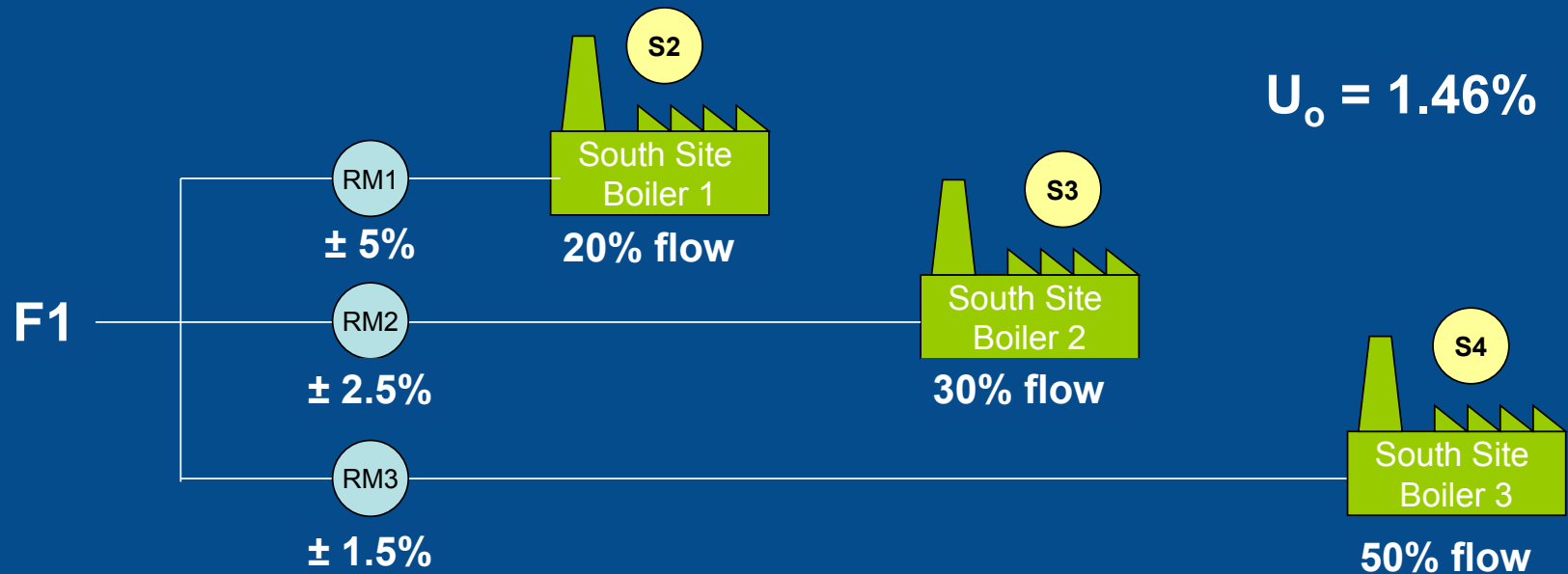
$$U_o = \frac{\sqrt{(x_1 \times U_1)^2 + (x_2 \times U_2)^2 + \dots + (x_n \times U_n)^2}}{|x_1 + x_2 + \dots + x_n|}$$

Overall Uncertainty Example 1



- Meters TM3 and BM1 each have an individual uncertainty
- As emissions from S10 are not reportable, overall uncertainty for S10 is simply n/a
- Overall uncertainty for S5 depends on the individual uncertainties of both meters and the proportion of flow measured by each meter

Overall Uncertainty Example 2



A4.2 – Fall-back approach

- Applicable if it is not possible to meet at least tier 1 for all minor/major sources.
- Uncertainty for the total emission value must be:
 - $< \pm 7.5\%$ (Category A)
 - $< \pm 5.0\%$ (Category B)
 - $< \pm 2.5\%$ (Category C)
- Uncertainty assessment must be carried out to GUM and ISO5186:2005
- Must notify the Regulator in advance
- Note: Installations using the fall-back approach are reported annually in the Article 21 report to EU

A4.2a – Tiers Applied

For each source stream need to specify:

- Tiers for Activity, Net Calorific Value, Emission Factor, Oxidation Factor, Conversion Factor & Composition Data (as applicable)
- Estimated annual emission from source stream
- Source stream emission as % of total emission
- Source category, i.e. major, minor or de minimis
- Whether **highest** tiers are applied



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Tiers to be applied (corresponding to MRG 2007 Annexes II to XI as applicable)						Estimated annual fossil CO ₂ emission from source stream tCO ₂	% of total fossil CO ₂ emission	Source category	Highest tiers applied?
Activity data	Net CV	Emission factor	Composition data	Oxidation factor	Conversion factor				
4	3	3	n/a	2	n/a	85,000	34.00%	Major	Yes
4	3	3	n/a	2	n/a	105,000	42.00%	Major	Yes
2	2a	2a	n/a	2	n/a	10,500	4.20%	Minor	n/a

A4.2a – Tiers Applied

- Activity tiers applied need to reflect the uncertainties specified in A4.1, e.g. Combustion (Annex II)
 - Tier 1 < $\pm 7.5\%$
 - Tier 2 < $\pm 5.0\%$
 - Tier 3 < $\pm 2.5\%$
 - Tier 4 < $\pm 1.5\%$
- Tiers should be in line with the requirements of section 5.2 (MRG 2007), i.e.:
 - Highest tiers for Category B/C installations
 - Minimum tiers must be applied as per Table 1 (copy provided in ETS2.2)

A4.2a – Installations with Low Emissions

- May apply a minimum tier 1 (as per section 16)
- Should select activity tier 1* from drop down list rather than the default tier 1, unless submitting evidence of uncertainty


* Note: installations with low emissions may apply a minimum tier 1 (as per section 16) unless submitting evidence of uncertainty. In such cases, a tier 1* should be selected from the drop down list rather than the default tier 1.					
163	Emission source ref.	Source stream ref.	(corresponding to M)		
			Activity data	Net CV	Emission factor
164					
168	S1	F1	1	3	
169	S2-S4, S7	1*		2a	2
170	S5	1		2a	2
171		2			
172		3			
173		4			
174		No tier			
		n/a			


A4.2a – Fall-Back Approach

- If you have answered “Yes” to question A4.2, tiers automatically default to n/a
- You will need to enter n/a for any rows added
- **Still required to complete remainder of A4.2a!**

161 *uncertainty. In such cases, a tier 1* should be selected from the drop down list.*

163	Emission source ref.	Source stream ref.	Tiers to be applied (corresponding to MRG 2007 Annexes II to XI as applicable)					Estimated annual fossil CO ₂ emission from source stream tCO ₂	% of total fossil CO ₂ emission	Source category	Highest tiers applied?
			Activity data	Net CV	Emission factor	Composition data	Oxidation factor				
164											
168			n/a	n/a	n/a	n/a	n/a	n/a			
169			n/a	n/a	n/a	n/a	n/a	n/a			
170			n/a	n/a	n/a	n/a	n/a	n/a			
171			n/a	n/a	n/a	n/a	n/a	n/a			
172			n/a	n/a	n/a	n/a	n/a	n/a			
173			n/a	n/a	n/a	n/a	n/a	n/a			
174			n/a	n/a	n/a	n/a	n/a	n/a			
175			n/a	n/a	n/a	n/a	n/a	n/a			
176			n/a	n/a	n/a	n/a	n/a	n/a			
177			n/a	n/a	n/a	n/a	n/a	n/a			

179  Click to add more rows

180  Reformat table

181

A4.2b Justification for Tiers Applied

- Use this table to justify:
 - Not meeting highest tier requirements
 - Not meeting minimum tier requirements
- This applies to ALL applied tiers, not just activity
- Justifications should refer to unreasonable costs and/or technical feasibility
- Installations with low emissions do not need to complete A4.2b

A4.2b Justification for Tiers Applied

- **Minor sources streams**
 - Tier 1 may be applied as a minimum
- **De minimis sources streams**
 - A 'no tier' estimation approach may be applied
- **Pure Biomass source streams**
 - A 'no tier' estimation approach may be applied
- All of the above are subject to competent authority approval

A4.3 – Sampling Approaches

For each source stream need to detail:

- The relevant parameter, e.g. NCV, EF, OF
- Description of the sampling approach used
- Any applicable standards, e.g. CEN, ISO, national standards, best practice guidelines
- Sampling frequency
- If no sampling is undertaken, simply state this
- Installations with low emissions do not need to complete A4.3



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A4.4 – Analytical Approaches

For each source stream need to detail:

- The relevant parameter, e.g. NCV, EF, OF
- Description of the analytical approach used
- Any applicable standards, e.g. CEN, ISO, national standards, best practice guidelines
- Whether analysis is underpinned by an ISO17025 accreditation
- Frequency of analysis
- Installations with low emissions do not need to complete A4.4



NEW

Use of National Inventory Data

- If not applying site specific fuel data, please select the default option from the drop down list under description

e n	Parameter	Description	S
	NCV & EF	Data to be taken from the latest UK national inventory as submitted to the United Nations Framework Convention on Climate Change	
		Data to be taken from the latest UK national inventory as submitted to the U	

If you do not carry out any site specific analysis, please select the text from the drop down list.

Frequency of Sampling/Analysis

- Refer to Section 13.6 (MRG 2007)
- Drop down list includes common frequencies
- Also possible to manually type in a particular frequency

ISO17025	Frequency
Yes	Continuous

Choose an analysis frequency from the list below. Where this is not specified in the list below, please specify.

- Continuous
- Daily
- Weekly
- Monthly
- Quarterly
- Biannual
- Annual

ISO10725 vs Non-Accredited Labs

- Select either Yes, No or N/A from drop down list
- If selecting “No”, note the requirement to specify the laboratory name and method as Section B2 information.

plied to each source stream - MRG 2007

of information for the emission factor...
on, etc.

Standard	ISO17025
	Yes
	Continuous
	<input type="text"/>
	<input type="text"/>
	<input type="text"/>

Where using a non-ISO17025 accredited laboratory, you should provide the name and evidence of the equivalent requirements as Section B2 information.

Yes
No
n/a

Use of On-line Gas Chromatographs

- Select “Yes” if using an ISO17025 accredited organisation to carry out the ISO10723 performance evaluation
- Section 13.5 (MRG 2007) outlines requirements for use of on-line GC equipment
- Note that the use of non-ISO17025 accredited labs does not extend to the performance evaluation of a GC

A5 – Measurement Methodology

Possible to use CEMS to determine CO₂ emissions if:

- Method results in a more accurate value of emissions than alternative calculation approach while avoiding unreasonable cost **AND**
- Comparison between measurement and alternative calculation approach is based on identical set of emission sources and source streams
- Use Table A5.1 to justify this
- Note: Installations using CEMS are reported annually in the Article 21 report

A5.2 – Description of CEMS

Description should include:

- Emission points measured
- Frequency of measurements
- Equipment used
- Calibration procedures
- Data collection and storage procedures

A5.3 – Tiers for Measurement Method

- Need to specify a tier corresponding to the uncertainty of the measurement method
- Tiers are specified in Annex XII:
 - Tier 1 $< \pm 10\%$
 - Tier 2 $< \pm 7.5\%$
 - Tier 3 $< \pm 5\%$
 - Tier 4 $< \pm 2.5\%$
- Table also requires a justification for the selected tier



NEW

A6 – Management

- In general terms requires information on roles, responsibilities, procedures and management systems as per section 10 (MRG 2007)

Table A6.2 requires:

- the title and document reference of monitoring & reporting procedures
- Confirmation that a procedure is part of a certified EMS by selecting either “Yes” or “No” from drop down



NEW

A6.3 & A6.4 - for further info on management systems

B2 Further Information

- Please list any documents you submit with your completed monitoring plan in section B2
- This should include:
 - Evidence of uncertainty assessment (for ALL installations except those with <25 kt emissions)
 - Evidence for use of non-ISO17025 accredited labs

Web Addresses

Emissions trading pages on EA website:

- <http://www.environment-agency.gov.uk/emissionstrading>

Phase II Monitoring Plans:

- http://www.environment-agency.gov.uk/business/444217/590750/590838/1294204/1807575/?version=1&lang=_e


ETS2.2 spreadsheet:

- http://www.environment-agency.gov.uk/commonddata/103601/ets2_1334077.xls

Commission's Monitoring & Reporting Guidelines:

- http://ec.europa.eu/environment/climat/emission/mrg_en.htm?lang=_e

ETS2.2 Form/Guidance on the web

Address  http://www.environment-agency.gov.uk/business/444217/590750/590838/1294204/1807575/?lang=_e

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- » Apply for a permit
- » Forms and guidance
- » Phase 2 Monitoring Plans
- » Open Registry account
- » Allowance allocation
- » Frequently asked questions

Phase 2 Monitoring Plans

Following wide consultation, the European Commission have revised the and Reporting Guidelines (MRG) for Phase II.

The revision to the MRG introduces a number of changes to monitoring a requirements. As a consequence, all operators are required to submit a Monitoring Plan to the Environment Agency by 30 September 2007.

A "Notice Requiring Information", which formalises the above requirement sent to all permit contacts.

Please be aware that it is an offence to fail to comply with the requirement notice and the Agency will take the appropriate action against any operator fails to submit the required information by 30 September 2007.


The notice requires operators to submit their updated monitoring plan using revised monitoring plan template (form ETS2.2).

Please be aware that macros are used within the template form to aid completion. Whilst it is possible to complete the form with macros disabled, it is strongly recommended that macros are enabled. Guidance on completing the ETS2.2 form is included in the form itself.


The completed ETS2.2 form should be sent by 30 September 2007 to: etapps@environment-agency.gov.uk

[Note to installations temporarily excluded from EU ETS](#)

If you are an excluded installation returning to EU ETS in Phase II, your permit requires you to notify us 2 months before your return of any change

Address  http://www.environment-agency.gov.uk/business/444217/590750/590838/1294204/1295930/1295430/?version=1&lang=_e

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See also...

This page has the following theme:
Green business

We are not responsible for the content of other web sites.

Application for a permit

To apply for your permit you must send us the following forms:

- ETS1 Application form
- ETS2.2 Monitoring plan
- ETS4 Nominate your Registry Account Representative


Form ETS1

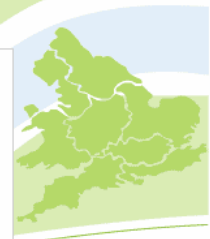
-  [ETS1 - Application for a Greenhouse Gas Emissions Trading Permit. Issue 3.3, April 2007 \(MS Excel, 444KB, 5 mins\)](#)
-  [Example application \(MS Excel, 581KB, 1min\)](#)
-  [Definition of an operator \(Acrobat, 12KB, 20secs\)](#)

You can find further information on the Defra website at

» [Emissions Trading Scheme - Defra](#)

Form ETS2.2

-  [ETS2.2 Monitoring and reporting template \(MS Excel, 398KB, 2mins\)](#)
-  [Guidance on how to complete the ETS2.2 monitoring and reporting plan template \(Acrobat, 386KB, 1.5mins\)](#)
-  [Guidance on uncertainty assessment MRG2 \(Acrobat, 229KB, 2 minutes\)](#)
-  [MRG main changes overall ETG \(Acrobat, 175KB, 1 minute\)](#)
-  [MRV DG Environmental Monitoring Reporting FAQs \(Acrobat, 147KB, 2 minutes\)](#)



CCA Opt Outs – MRG 2007

- Condition 17 requires CCA opt outs to notify any operational changes during Phase I
- Any changes that change the monitoring plan must be included in the ETS2.2 form
- CCA opt outs returning to the scheme are required to have an active Registry account with authorised Primary Account Representative (PAR) and Secondary Account Representative (SAR)

Setting Up A Registry Account

- On line application for “Operator Holding Account”
<http://emissionsregistry.gov.uk>
- Submit evidence requirements within 14 days:
 - Letter of authority nominating the PAR & SAR
 - Certified copy of Certificate of Incorporation
 - Proof of exchange listing (where applicable)
 - Certified proof of name for PAR & SAR
 - Certified proof of residential address
 - Signed witness statement for each representative stating name, address, DOB, nationality, country of residence

Registry Requirements

Send evidence by recorded delivery to:

EUETS Registry Administrator
Environment Agency
Richard Fairclough House
Knutsford Road
Warrington
Cheshire
WA4 1HG

Send any queries to:

etregistryhelp@environment-agency.gov.uk

Requirements

- Once authorised, account representatives will be given:
 - Username
 - Password
 - Information on how to collect the digital certificate
- Allowances

Registry Regulations

Operators are required to:

- Propose their annual emissions by 31st March
- Have verified their annual emissions by 31st March
- Surrender allowances equal to their verified annual emissions by 30th April

- Failure to comply could result in a Civil Penalty
- For Phase II, the civil penalty is €100/tCO₂