Department of Energy & Climate Change

Climate Change Agreements: Draft Technical Guidance

Version 1.0

14/12/2012

Climate Change Agreements: Draft Technical Guidance

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Introduction

1. This document contains all of the detail referred to as 'technical guidance' in the final Rules and Agreements for the new CCA scheme. It has been structured to reflect the order in which the references are made within the Rules.
2. This document will be embedded within the Environment Agency's forthcoming CCA guidance manual. The manual will incorporate the technical guidance, alongside the interim guidance and the policy decisions set out in the government responses.
3. This will be published in one manual which will be a single point of reference for stakeholders in due course.

Clause 1.1	"Novem ratio target" has the meaning set out in the technical guidance

The meaning of a Novem ratio target

4. Novem is a method used to calculate a target and performance in situations where there are two or more products whose throughput is measured in different units (for example, litres and m^2) or which have significantly different energy intensities of manufacture. Target and performance at a Target Period are stated as a ratio of the target or actual energy consumed, respectively, to the reference energy (energy that would have been consumed in the base year for the same level of throughput and product mix). The Novem method corrects for any distortions created by a changing mix of throughput by generating one common output.
5. The standard formula and instructions for the calculation of a Novem ratio target will be outlined in DECC statutory guidance and the Environment Agency guidance manual. Rule 11.1.2 outlines the terms when a Novem ratio target can be varied.

Rule 3.1.2	An Operator must: notify the Administrator within 20 working days of any structural change or other change set out in the technical guidance which may give rise to a variation to the target in accordance with Rule 11

Structural or any other change

6. An operator must notify the administrator within 20 days of the following changes to the plant or processes at an eligible facility:

Structural change (changes to a significant energy consuming plant)

7. A structural change to a target unit may be deemed to have occurred when there is a major change to the plant at an eligible facility, a change in the extent of the eligible facility or a change in the amount of energy consumption in the eligible facility that is covered by a CCA target.
8. Replacement or replication of plant to increase capacity of the same, or similar, products is NOT a structural change.

A change in the extent of the eligible facility – 70% rule and 3/7th provision

9. As defined in Regulation 3 of the Climate Change Agreements (Eligible Facilities) Regulations 2012 (The Climate Change Agreements (Eligible Facilities) Regulations 2012) under the 70% rule, a whole site is an eligible facility only if at least 70% of the energy consumed (as primary energy) to the site is used in energy-intensive installations on the site. If less than 70% of the energy consumed by the site is used, the energy-intensive installations can include the energy-intensive installations and an additional 3/7th, provided the additional energy is sub-metered.
10. As per the rules target units will need to review the application of the 70% rule to each eligible facility to check that it continues to apply in the same way. For example, the addition of extra, ineligible, energy using activities on the site may mean the energy-intensive installations cease to use more than 70% of the energy consumed by the site. Alternatively, the addition of new sub-metering may allow an addition to the eligible facility as part of the 3/7th provision.

Data errors in base year discovered

11. If there are errors in the base year data (discovered at audit for example), the targets will have to be adjusted to reflect this in line with rule 6.3.

Change of EU Emissions Trading System (EU ETS) Status of a target unit

12. All of the energy use within an eligible facility which is covered by the EU ETS will continue to be eligible for a CCL discount. However, fuel consumed in EU ETS installations overlapping with the CCA eligible facility is excluded from CCA target setting and reporting. At a point in the future the EU ETS status (i.e. whether the installation is covered by the obligations set out in the EU ETS directive) of fuel consuming plant within the CCA eligible facility may change. If this happens it will likely be the result of a change in the combustion capacity at the site, but may not be limited to that. In this case, the eligible facility would need to provide new baseline data to reflect the change of the EU ETS status of the fuel combustion. The same percentage improvement with respect to the Base Year as in the original underlying agreement would be applied to the revised Base Year energy consumption.

Rule 6.2	The Administrator must determine whether the target has been met in accordance with the principles, methodologies and procedures set out in the technical guidance.

13. The target for a target unit for each target period is set out in the underlying agreement. The following equations set out how the target unit targets can be recalculated to equivalent energy and equivalent carbon for each type of target.

Absolute energy target

$$\begin{aligned} &Equivalent\ Energy \\ &\quad = Target\ Energy\ Consumption\ for\ Target\ Period \\ &\quad - Actual\ Energy\ Consumption\ for\ Target\ Period \end{aligned}$$

Relative energy target

$$\begin{aligned} &Equivalent\ Energy \\ &\quad = (Target\ Relative\ Energy\ Performance \\ &\quad - Actual\ Relative\ Energy\ Performance) \times Actual\ Throughput\ at\ Target\ Period \end{aligned}$$

Absolute carbon target

$$\begin{aligned} &Equivalent\ Carbon \\ &\quad = (Target\ Relative\ Carbon\ Performance \\ &\quad - Actual\ Relative\ Carbon\ Performance) \times Actual\ Throughput\ at\ Target\ Period \end{aligned}$$

$$Equivalent\ CO2 = Equivalent\ Carbon \times (44/12)$$

Relative carbon target

$$\begin{aligned} &Equivalent\ Carbon \\ &\quad = (Target\ Relative\ Carbon\ Performance \\ &\quad - Actual\ Relative\ Carbon\ Performance) \times Actual\ Throughput\ at\ Target\ Period \end{aligned}$$

$$Equivalent\ CO2 = Equivalent\ Carbon \times (44/12)$$

14. For the purpose of determining whether a target unit has met its target, the units of energy consumed by the facilities in the target unit, the units of carbon emissions attributed to those facilities and the output of those facilities, shall be calculated in accordance with paragraphs 15 and 16.

Calculation of units of energy consumed by an eligible facility

15. The energy consumed by each eligible facility in a target unit that must be reported is the energy consumed in the CCA eligible facility less any energy consumed within the CCA eligible facility that is consumed in plant covered by the EU ETS. The result is the energy consumed within the CCA eligible facility. It is the eligible facility's energy consumption which must be reported and in respect of which targets are set.

16. The number of units of energy consumed by the target facilities making up the target unit to which the underlying agreement applies shall be measured in either kilowatt-hours, Megawatt-hours, Gigajoules or Petajoules and calculated as follows.

Fossil fuels

17. The units of fossil fuels used shall be calculated on a gross calorific value basis. No correction shall be applied to account for the energy consumed in the extraction, processing and supply of the fossil fuels to an eligible facility.

General electricity imports

18. Where an eligible facility consumes electricity other than from a CHP plant or from a dedicated electricity generator (see below) the units of metered electricity consumed shall be multiplied by a factor of 2.6.

Combined Heat Power (CHP) (where all fuels are non-renewable)

19. Where the electricity or heat outputs from a CHP plant are consumed, the units of energy to report shall be calculated on the basis of the units of energy input to the CHP plant, not the units of electricity or heat consumed.

20. Where an eligible facility has a CHP plant (or is served by a CHP plant operated by a 3rd party operator) and all of the energy from the CHP plant is consumed within the eligible facility, the eligible facility shall be treated as consuming all of the units of energy input to the CHP and no allocation of those units is required.

21. Where an eligible facility has a CHP plant and some of the electricity or heat outputs from the CHP plant are exported from the eligible facility, or where the eligible facility imports electricity or heat generated by a CHP plant that is not part of the eligible facility, the energy input to the CHP shall be allocated to each consumer of the heat or the electricity as follows:

    1) First allocate the energy inputs to the CHP to the electricity and heat outputs using the following formulae:

$$Heat\ Energy = \frac{Fuel\ Input}{(2 \times Electricity\ Output) + Heat\ Output} \times Heat\ Output$$

$$Electricity\ Energy = \frac{2 \times Fuel\ Input}{(2 \times Electricity\ Output) + Heat\ Output} \times Electricity\ Output$$

Where;

- **Heat Energy** is the input energy allocated to the heat outputs of the CHP plant.
- **Electricity Energy** is the input energy allocated to the electricity outputs of the plant.
- **Fuel Input** is the total fuel supplied to the CHP plant, expressed in energy terms, using the Gross Calorific Value of the input fuels. For CHP schemes certified under the Combined Heat and Power Quality Assurance (CHPQA) programme it is the Total Fuel Input (TPI), as defined by the CHPQA Standard, 2009.
- **Heat Output** is the quantity of heat produced by the CHP plant, expressed in energy terms. For CHP schemes certified under the Combined Heat and Power Quality Assurance (CHPQA) programme it is the Qualifying Heat Output (QHO), as defined by the CHPQA Standard, 2009.
- **Electricity Output** is the quantity of electricity generated by the CHP plant, expressed in energy terms. For CHP schemes certified under the Combined Heat and Power Quality Assurance (CHPQA) programme it is the Total Power Output (TPO), as defined by the CHPQA Standard, 2009

- Energy units should be consistent throughout (ideally kWh).

22. Where absorption cooling is used to produce a cooling supply, the heat input to the absorption chiller should be metered. If the heat input to the absorption chiller is not metered, then the cooling output should be metered and divided by the average coefficient of performance (COP) of the cooling system in order to estimate the heat consumed.

    2) Then apportion the energy input to each consumer of heat and electricity as follows:

    - Allocate the heat energy to each consumer of the heat in proportion to the quantity of heat from the CHP plant that each consumes.

    - Allocate the electricity energy to each consumer of the electricity in proportion to the quantity of electricity from the CHP plant that each consumes.

    If heat is distributed to a number of users, this is expressed:

$$Heat\ Output = Heat_1 + Heat_2 + Heat_3 + \cdots Heat_n$$

    If electricity is distributed to a number of electricity consumers, this is expressed:

$$Electricity\ Output = Electricity_1 + Electricity_2 + Electricity_3 + \cdots Electricity_n$$

    The energy inputs to the CHP plant are assigned to consumer, n, according to the formulae:

$$Heat\ Energy_n = \left(\frac{Heat_n}{Heat\ Output}\right) \times Heat\ Energy$$

$$Electricity\ Energy_n = \left(\frac{Electricity_n}{Electricity\ Output}\right) \times Electricity\ Energy$$

23. If some of the CHP generated electricity is exported to the public supply (i.e. the grid), and not directly to a known consumer, a credit will be allocated to each heat consumer in respect of all or part of this electricity exported to the grid.

24. The electricity exported to the grid in respect of which a credit will be allocated is the Good Quality CHP electricity (as defined by the CHPQA Standard, January 2009) exported to the grid. The Good Quality CHP electricity exported to the grid is given by:

$$Good\ Quality\ CHP\ Electricity\ Exported\ to\ the\ Grid = QPO - QPO\ Consumed\ by\ Known\ Consumers$$

    Where;

    - QPO is the Qualifying Power Output (as defined by the CHPQA Standard, January 2009)

    - QPO consumed by known consumers is the CHP electricity on which the climate change levy is not paid

25. The credit allocated to each heat consumer is calculated as follows:

    i. Multiply the Good Quality CHP electricity exported to the grid by 2.6

ii. Subtract from (i) the energy apportioned to the Good Quality CHP electricity exported to the grid, calculated as in (2) above. This gives the primary energy that has been saved as a result of the grid exported CHP electricity displacing conventional grid electricity generated at a power station.

iii. Divide this saving among each of the consumers of heat from the CHP on a pro-rata basis according to the quantity of heat each uses.

iv. Subtract the pro-rata saving from each of the Heat Energy figures calculated as in (2) above, to get a revised Heat Energy figure.

26. Thus, if QPO were exported to public supply instead of being supplier to consumer m, then the revised Heat Energy figures would be as follows:

$$Revised\ Heat\ Energy_{1} = Heat\ Energy_{1} - \left((Exported\ QPO \times 2.6 - Electricity\ Energy_{m}) \times \frac{Heat_{1}}{Heat\ Output} \right)$$

$$Revised\ Heat\ Energy_{2} = Heat\ Energy_{2} - \left((Exported\ QPO \times 2.6 - Electricity\ Energy_{m}) \times \frac{Heat_{2}}{Heat\ Output} \right)$$

$$Revised\ Heat\ Energy_{3} = Heat\ Energy_{3} - \left((Exported\ QPO \times 2.6 - Electricity\ Energy_{m}) \times \frac{Heat_{3}}{Heat\ Output} \right)$$

27. In cases where there is export of CHP generated electricity to the grid, consumer 1 would report total primary energy consumption, as a result of the use of CHP generated electricity and heat, as Revised Heat $Energy_1$ plus Electricity $Energy_1$.

28. In certain cases, when calculating credits for grid exported QPO, one of the following two results may occur:

- If the fuel allocated to a heat user minus the credit for exported QPO results in an overall fuel figure of less than zero the user affected must set the overall fuel figure to zero.

- If the heat credit itself for exported QPO to a heat user is negative the user affected must set the credit for exported QPO to zero.

Steam

29. Imported or exported steam shall be accounted for by taking the enthalpy of the steam and dividing by the efficiency of the system that generates the steam and distributes it to the user's eligible facility boundary; in order to account for the total primary energy consumed (i.e. fuel combusted) to produce the steam that is consumed.

30. Account should be taken of steam pressure - for example, where sites import high-pressure steam and return it at a lower pressure.

Renewable energy and energy from waste

31. The energy content of all renewable and waste fuels combusted for the generation of heat, which is subsequently consumed within the CCA eligible facility, must be determined and reported. If the heat generating plant is within the eligible facility and some of the generated heat is exported, then the energy content of fuel associated with this exported heat is calculated on a pro-rata basis and is not reported by the eligible facility.

32. Where a qualifying renewable fuel is combusted, the heat will be zero rated for carbon. Qualifying renewable fuels are listed below (see qualifying renewable rates at **Table 1**).

33. When a non-renewable waste is combusted, the heat will not be zero rated for carbon.

34. Where the fuel combusted is not 100% renewable, i.e. it is a mixture of a renewable fuel(s) and conventional fossil fuels and/or non-renewable waste, then combustion of this fuel mix will be considered mixed fuel combustion. In this situation, the carbon factor calculated will be based on individual carbon factors for the constituent fuels, weighted by energy content. The proportion of the mixed fuel that is a qualifying renewable fuel will have a zero carbon factor attached to it.

CHP (where all the fuel input is renewable)

35. If the fuel input to the CHP is 100% renewable all of the electricity and heat outputs of the CHP will be considered renewable. This means that consumption of all of this electricity will be treated as if it were grid electricity. Consumption of CHP heat will lead to the reporting of primary energy consumption (in the form of some of the input fuels), but this energy consumption will be zero rated for carbon.

36. For a CHP where the fuel inputs are 100% renewable, the primary energy for CHP heat is calculated as follows:

37. Primary energy for CHP heat = Total Fuel Input to CHP – (Total Power Output from CHP*2.6)

38. If, Total Fuel Input to CHP < (Total Power Output from CHP *2.6), then primary energy for CHP heat is set to zero.

39. This means that the energy input to renewable CHP must be recorded in order that the primary energy for renewable CHP heat can be determined and reported.

CHP (where the fuel input is a mix of renewable and non-renewable)

40. If the fuel input to the CHP is not 100% renewable, then a proportion of the electricity output will be considered renewable and the balance as non-renewable. The proportion of the electricity output that is considered renewable will be the same as the proportion of the fuel input that is deemed renewable, on an energy content basis.

41. If the fuel input to the CHP is not 100% renewable, then a proportion of the heat output will be considered renewable and the balance as non-renewable. The proportion of the

heat output that is deemed renewable will be the same as the proportion of the fuel input that is deemed renewable, on an energy content basis.

42. The primary energy associated with electricity and heat outputs of the CHP deemed renewable will be determined as set out in the section above (CHP where all of the fuel input is renewable).

43. The primary energy associated with the electricity and heat outputs of the CHP deemed non-renewable will be determined as set out in the section above (Combined Heat and Power where all of the fuel inputs are non-renewable).

Qualifying renewable fuels

Table 1

Biomass (plants and parts of plants) • Straw • Hay and grass • Crops (e.g. Maize)	**Biomass wastes** • Waste wood. • Forestry residues. • Landfill gas. • Sewage sludge. • Biogas produced by digestion, fermentation or gasification of biomass. • Animal and fish oils, fats and tallow.
Biomass fraction of mixed materials • Biomass fraction of textile wastes. • Biomass fraction of composites containing wood • Biomass fraction of municipal and industrial wastes	**Fuels whose components and intermediate products have all been produced from biomass** • Bioethanol. • Biodiesel. • Biomethanol. • Biogas.

Fuel used as a chemical feedstock

44. Fuels used as a chemical feedstock and embodied in a chemical product shall not be counted as part of an eligible facility's energy use. However, fuels which are used as a reluctant shall be counted.

Electrolysis

45. All energy consumed for electrolysis shall be counted as part of an eligible facility's energy use.

Energy from exothermic reactions

46. Energy from exothermic reactions not involving fossil fuels shall not be counted as part of an eligible facility's energy use.

Calculation of carbon emissions from an eligible facility

47. The total number of units of carbon emitted from an eligible facility during a target period shall be calculated by multiplying the units of energy consumed of each fuel used in the eligible facility during the relevant target period, by the relevant carbon emission factor set out below for that fuel.

*Carbon emissions = Fuel * Carbon Emission Factor (kgC/kWh)*

Table 2

Electricity = 0.0546	Coal = 0.0794	Coke = 0.1170
Gas Oil = 0.0758	Heavy Fuel Oil = 0.0732	Petrol = 0.0643
LPG = 0.0585	Jet Kerosene = 0.0676	Ethane = 0.0545
Naphtha = 0.0646	Refinery Gas = 0.0671	Petroleum Coke = 0.0908
Natural Gas = 0.05105		

Process carbon emissions

- Carbon emissions from industrial processes shall not be counted as part of an eligible facility's carbon emissions unless they result from combustion or oxidation of fossil fuels.

- Carbon emissions from electrodes shall not be counted as part of an eligible facility's carbon emissions.

Calculation of output from an eligible facility

48. The calculation of an eligible facility's output for each target period shall be agreed with the Administrator and set out in the Underlying Agreement for the target unit.

Rule 6.3	An Operator must notify the Administrator on or before 31st January in the year following the end of a target period of any circumstances which may give rise to an adjustment to the target for the previous target period, as set out in the technical guidance.

Target adjustments for the previous target periods

49. An adjustment to the target should be agreed with the administrator on or before the 31st January, following the end of the target period to which the target applies in the following cases:

    i. An absolute target where the throughput decreases from the baseline throughput by more than 10%. There are 2 methods available to operators to adjust their targets in line with the fall in throughput. An operator will have the choice of either method, depending on the data available to them.

    - Method 1 shows the administrator's default position if no additional information is provided. This method will be applied automatically for target units with a throughput fall relative to the baseline of greater than 10%. The target will be adjusted directly proportionally to the reduction in throughput (i.e. by the percentage by which the actual target period throughput is lower than the reference throughput).

    - The agreements provide that a drop in throughput of less than 10% shall not result in a variation of the target. To avoid a 'cliff-edge' for those whose throughput has dropped by just over 10%, it will be acceptable for an energy allowance to be added back to the target obtained from the curve. The allowance is tapered such that a drop to 90% throughput gives the full 10% allowance and no allowance to those whose throughput has dropped by 20% or more.

    - Method 2 describes the procedure for calculating the amount of energy associated with the fall in throughput where the target unit can provide a statistically valid energy – throughput relationship. For Method 2 to be applied the target unit must justify that its use is statistically valid. This involves demonstrating that there is a correlation factor with an R-squared value of greater than [0.8] between energy consumed and throughput. If the R-squared value is less than [0.8], Method 2 cannot be used and the administrator will use the default Method 1 calculation to revise the target. The target adjustment takes account of base load energy use and is achieved by reducing the target by a percentage. This percentage is the extent to which the energy target, for the agreed level of throughput, is less than the energy that would have been consumed in the reference year for that same level of throughput. To determine the latter, the operator must establish an energy/throughput curve for the reference year.

    ii. An unexpected disruption in the supply of energy to the site or an **unexpected** failure in on-site dedicated electricity generation, which causes the target unit to fail its target.

    Data and other evidence will need to be provided to the administrator proving/ demonstrating the following:

    1) That the supply disruption actually took place and the duration of the disruption. This will include, but not be limited to:

    - Correspondence from the supplier proving that the disruption took place and the duration of the disruption

- In the case of a dedicated electricity generation plant located at the eligible facility, extracts from the throughput log showing that the disruption took place and the duration of the disruption.

2) That the supply disruption was unexpected and that the nature of energy supply contracts is such that the disruption could not have been anticipated. In the case of failure of electricity generation plant at the eligible facility, it will be necessary to prove that supplier recommended maintenance procedures and schedules had been followed and that the total period of down time was not over and above what would be required for routine maintenance over the target period. Information required will include, but not be limited to:

- Details of the contract between the eligible facility and the supplier
- Copies of equipment supplier recommended maintenance procedures and schedules
- Maintenance logs proving that recommended maintenance procedures and schedules have been followed.

3) The quantity and type of primary energy consumption that would normally have been required to support operations for the period of the supply failure and the quantity and type of primary energy consumption that was actually required to support operations during the period of the failure. The difference between the two will be taken as the additional energy (or carbon) incurred by the eligible facility as a result of the unexpected supply disruption. Information required to demonstrate this will include, but not be limited to:

- Quantity and type of primary energy consumption and throughput levels for a representative period of normal operation
- Quantity and type of primary energy consumption and throughput levels during the whole period of supply distribution.

50. The administrator's technical consultants will review this information and may request addition information, if deemed necessary.
51. An appropriate adjustment to the target unit's target will be made. This will only be for the target period under consideration.
52. The target unit will be placed on the audit list.

Rule 6.4	If an Operator makes a notification under Rule 6.3, the Administrator may adjust the previous target in accordance with the principles, methodologies and calculations set out in the technical guidance and must serve a notice on the Operator

Adjusting a target unit target in accordance with Rule 6.3

53. The administrator may vary the target using the calculations set out under rule 6.3 of the technical guidance.

Rule 7.8	For the purposes of calculating the buy-out fee under this Rule and for calculating the amount of any surplus, the Administrator must calculate the difference between the target for the target period and the actual performance achieved during the target period, where the target and the actual performance achieved are expressed in the same units, and convert any difference between the two into a quantity of carbon dioxide, expressed in units of tCO_2, using the principles, methodologies and calculations set out in the technical guidance.

Calculating a buy-out and surplus associated with target unit performance against target

Energy targets

54. For target units with targets expressed in energy terms, any under-performance or over-performance against target will be translated into an equivalent energy (e.g. kWh).

55. For absolute energy targets:

$$\begin{aligned} &Equivalent\ Energy \\ &\quad = Target\ Energy\ Consumption\ for\ Target\ Period \\ &\quad - Actual\ Energy\ Consumption\ for\ Target\ Period \end{aligned}$$

56. For relative energy targets (including Novem targets[1]):

$$\begin{aligned} &Equivalent\ Energy \\ &\quad = (Target\ Relative\ Energy\ Performance \\ &\quad - Actual\ Relative\ Energy\ Performance) \\ &\quad \times Actual\ Throughput\ at\ Target\ Period \end{aligned}$$

57. In the cases above, a positive value of equivalent energy indicates an over-performance against target and a negative equivalent energy represents an under-performance against target. The equivalent energy will be translated into an equivalent carbon by multiplying the equivalent energy by the target unit's average carbon emissions per unit energy (e.g. kgC/kWh) for the target period under consideration. The equivalent carbon will then be converted into an equivalent CO_2 by multiplying the equivalent carbon by the factor 44/12.

Carbon targets

58. For target units with targets expressed in carbon, any shortfall against target will be translated into an equivalent carbon which will be converted into an equivalent CO_2 by multiplying the equivalent carbon by the factor 44/12.

59. For absolute carbon targets:

[1] In the case of a target unit with a Novem target, the throughput is the actual reference energy for the target period in question

$$Equivalent\ Carbon = Target\ Carbon\ Emissions\ for\ Target\ Period - Actual\ Carbon\ Emissions\ at\ Target\ Period$$

$$Equivalent\ CO2 = Equivalent\ Carbon \times (44/12)$$

60. For relative carbon targets (including Novem targets[2]):

$$Equivalent\ Carbon = (Target\ Relative\ Carbon\ Performance - Actual\ Relative\ Carbon\ Performance) \times Actual\ Throughput\ at\ Target\ Period$$

$$Equivalent\ CO2 = Equivalent\ Carbon \times (44/12)$$

For both carbon and energy targets (above)

- Where the **equivalent CO_2 is positive**, this is available for the target unit to bank for future use.
- Where the **equivalent CO_2 is negative**, the target unit will have to pay a buy-out equal to: equivalent CO_2 (tonnes) x £12/tonne CO_2. Unless;
- Where the target unit in question **has a banked surplus** of CO_2 accumulated from a previous target period or target periods. If this is the case, then the buy-out due for the target period in question is: [equivalent CO_2 (tonnes) – banked surplus CO_2 (tonnes)] x £12/tonne CO_2
- If original **banked surplus CO_2 > equivalent CO_2**, then the buy-out due is zero for the target period in question and the new banked surplus is reduced to: Original banked surplus CO_2 (tonnes) – equivalent CO_2 (tonnes)

Rule 9	Variation by inclusion of additional facilities

Covering rules 9.2.3, 9.3.3 and 9.4.3

Inclusion and exclusion of facilities ("bubbling")

61. The eligible facilities within the target unit must have the following characteristics:
    - They must carry out eligible processes covered under the same umbrella agreement, for example, if the individual facilities were to report on their own they would report within the same sector
    - They must have the same operator

[2] In the case of a target unit with a Novem target, the throughput is the actual reference carbon for the target period in question

- If an operator is involved in a Multi operator Facility (MOF), for that MOF to be eligible to join a target unit that operator must also be the nominated operator for the MOF.

62. The **operator** is the legal person or organisation who has control over the operation of a regulated eligible facility. The following factors help decide if someone has sufficient control to be considered the operator.

63. Does the operator/proposed operator have the authority and ability to:

- Manage site operations through having day-to-day control of plant operations, including the manner and rate of operation
- Ensure that permit conditions are effectively complied with
- Decide who holds key staff positions and have incompetent staff removed
- Make investment and/or other financial decisions affecting the performance of the eligible facility
- Ensure that regulated activities are suitably controlled in an emergency.

Rule 9.6	The administrator may vary the target of a target unit to take account of the inclusion of additional facilities following the principles, methodologies and calculations set out in the technical guidance.

Varying a target unit target following inclusion of an eligible facility

64. As a result of the sale or purchase of sites, an operator may wish to include additional facilities to their target unit or exclude facilities.

65. When excluding an eligible facility, if the site closure is an act of rationalisation (i.e. throughput from the closing site is transferred to one of the other sites in the target unit) then the original target for the target unit would normally be retained.

66. If there is a site closure for any other reason, the target would normally have to be recalculated.

67. Steps to be undertaken by the operator:

- Derive a new target for the target unit
- Apply a stringency test (if required)

68. For each target type the following information will be required to complete the stringency test:

Absolute targets

69. An absolute target is set for a target period at an assumed level of throughput for that target period. This can be expressed in either energy or carbon. To calculate a target you will need:

- The performance at the most recent target period, if relevant (for the stringency test)
- When including an additional eligible facility, the combined target for a target period is given by adding the target energy/carbon value for each target unit
- The performance at the most recent target period for the target unit is given by the sum of the energy/carbon performance for each target unit
- The stringency test then checks whether the performance at the most recent target period was better than the calculated target unit target for that period. If this is the case all subsequent target period targets are made more stringent by multiplying them by the ratio of the performance to the target
- The process excluding an eligible facility is the reverse of the process to including an additional eligible facility.
- The spreadsheet in Appendix A will assist with this calculation.

Relative targets

70. A relative target is based on energy consumption or carbon emissions (per unit throughput).

71. To calculate a target you will need:
    - Throughputs for the base year and the most recent target period
    - The target specific energy/carbon consumption (SEC/SCC) for each target period and the performance at the most recent target period (including the most recent)
    - When including an additional eligible facility the combined target for a target period is then given by:

(BY throughput target unit1 x SEC target unit1 + BY throughput target unit2 x SEC target unit2)/(BY throughput target unit1 + BY throughput target unit2)

- The performance of the target unit at the most recent target period is calculated in the same way, using the actual throughputs and SECs for the target period
- The stringency test then checks whether If the performance at the most recent target period was better than the calculated target unit target for that period. If this is the case then all subsequent target period targets are made more stringent by multiplying them by the ratio of the performance to the target.
- The process of excluding an eligible facility is the reverse of the process to including an additional eligible facility.
- The spreadsheet in Appendix A will assist with this calculation.

Relative Novem targets

72. See Clause 1.1 for the definition of a Novem target. To calculate a target you will need:
    - The ratio targets for each target period

- The performance at the most recent target period as a ratio
- Base year energy/carbon for each eligible facility
- The combined target for a target period is then given by:

(BY energy target unit1 x ratio target unit1 + BY energy target unit2 x ratio target unit2)/(BY energy target unit1 + BY energy target unit2)

- The performance of the target unit at the most recent target period is calculated in the same way, using the base year energy/carbon and the actual ratios for the target period
- The stringency test then checks whether the performance at the most recent target period was better than the calculated target unit target for that period. If this is the case then all subsequent target period targets are made more stringent by multiplying them by the ratio of the performance to the target.
- The process of excluding an eligible facility is the reverse of the process including an additional eligible facility.
- The spreadsheet in Appendix A will assist with this calculation.

Rule 10.2	If; • a Sector Association or an Operator has notified the Administrator that it wishes to exclude an eligible facility under Rule 10.1; or • the Administrator has terminated an agreement so far as it relates to an individual eligible facility under Regulation 17(4), the Administrator may vary the target to take account of the exclusion or termination, and may request such information from the Sector Association or the Operator as it requires in order to determine the revised target.

73. There are certain conditions required to be met for a target unit should they wish to re-enter the scheme following a voluntary or enforced termination or a decertification. These will be outlined in Statutory Guidance. In principle, the overall approach will remain as in the current scheme.

Varying a target unit target following the removal of an eligible facility

74. If a target unit wishes to exclude a facility, it would need to undertake the same calculation process as outlined under rule 9.6 for the new target unit structure.

Rule 11.1	The Administrator may vary the target to take account of: 1) any structural changes or other changes to the target unit which the Operator must notify to the Administrator under Rule 3.1.2; 2) any errors in the data provided to the Administrator for the base year; or 3) in respect of a target unit which has a Novem ratio target, the removal of a product produced in the target period which was produced in the base year following the principles, methodologies and calculations set out in the technical guidance.

Varying a target unit for any structural change or other change

75. Rule 3.1.2 outlines the principles when a target unit target may require varying. In cases, 1 to 4, these would require the baseline data to be recalculated. The adjustment of the targets will be calculated using a pre-determined calculation methodology, as set out in the spreadsheet tool in Appendix B.

76. The administrator must be informed of all changes to a target unit. The types of variation that may result in target adjustments fall into the four categories outlined below (from Rule 3.1.2).

    1) a structural change
    2) a change in the extent of the eligible facility – 70% Rule and 3/7th provision
    3) Error in base year data discovered
    4) Change of EU ETS status of target unit

The approach

77. A spreadsheet is supplied in Appendix B for a target unit re-baseline calculator. A target unit will need to provide the following information (list not exhaustive) for the Base Year before and post the structural change:

- The type of target (i.e. relative, absolute)
- Throughput in base year (by fuel type)
- Throughput units
- Energy consumed within the Eligible Facility(s) in the Base Year
- EU ETS relevant energy values / percentage
- Targets for each target period.

Varying a target unit for a Novem target change

Novem product variations

Product addition

78. There will be no change in target unit target as a result of a new product being brought in line. The target SEC of the new product should be set so as to ensure that the original numerical value of the target unit ratio target is retained.

Product removal

79. There is a requirement for a target unit target to be revised if a product line is removed. In this instance, the Novem target unit target should be recalculated with the remaining products in that target unit and the baseline adjusted appropriately. Instructions for calculating this can be followed in statutory guidance issued by DECC for the standard Novem calculation.

Calculations

80. Note that for simplicity of explanation, in this section it is assumed that SEC is independent of throughput. In reality this will rarely be the case and depending on circumstance, overall throughput may, in fact, be a stronger influencing factor than product mix.

81. For each product or product group at an individual firm, let:

- SEC and throughput (e.g. throughput or number of components) in the base year be $\mathbf{SEC_0}$ and $\mathbf{t_0}$ respectively,
- Projected SEC (target SEC) and output in milestone year **n** be $\mathbf{SEC_n}$ and $\mathbf{t_0}$ respectively (in the New Scheme the projected output will be assumed to be t_0 in all cases).
- Actual SEC and output in year n be $\mathbf{SEC_N}$ and $\mathbf{t_N}$ respectively.

82. Therefore, projected and actual energy demands in year n are:

Table 3

	Base year	**Target for year n in agreement**	**Actual in year n**	**Revised target**
Single product energy use	$SEC_0 * t_0$	$SEC_n * t_0$	$SEC_N * t_N$	$SEC_n * t_N$
Company energy use by summing over all products	$\Sigma(SEC_0 * t_0)$	$\Sigma(SEC_n * t_0)$	$\Sigma(SEC_N * t_N)$	$\Sigma(SEC_n * t_N)$
Target ratio	1	$\frac{\Sigma(SEC_n * t_0)}{\Sigma(SEC_0 * t_0)}$	$\frac{\Sigma(SEC_N * t_N)}{\Sigma(SEC_0 * t_N)}$	$\frac{\Sigma(SEC_n * t_N)}{\Sigma(SEC_0 * t_N)}$

Overall SEC (if units are same)	$\frac{\Sigma(SEC_0 * t_0)}{\Sigma t_0}$	$\frac{\Sigma(SEC_n * t_0)}{\Sigma t_0}$	$\frac{\Sigma(SEC_N * t_N)}{\Sigma t_N}$	$\frac{\Sigma(SEC_n * t_N)}{\Sigma t_N}$

- $\Sigma(SEC_0 * t_0)$ is the actual total energy use in the base year.
- $\Sigma(SEC_n * t_0)$ is the target energy consumption for base year throughput at the target SECs. .
- $\Sigma(SEC_0 * t_N)$ is the reference energy at the actual throughput in the target period year n.
- $\Sigma(SEC_n * t_N)$ is the target energy at the actual throughput in the target period year n.
- $\Sigma(SEC_N * t_N)$ is the actual position in the target period n.

Hence, the target as established at the start of the agreement would be expressed as the ratio:

$$\frac{\text{calculated energy consumption at base year throughputs and target SECs}}{\text{calculated energy consumption at base year throughputs and base year SECs}}$$

At any target period year, the revised target would be expressed as the ratio:

$$\frac{\text{calculated energy consumption at actual throughputs and target SECs}}{\text{calculated energy consumption at actual throughputs and base year SECs}}$$

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12D/457