

Allocation in phase 3 of EU ETS

Case study: heat distribution network

2 May 2011

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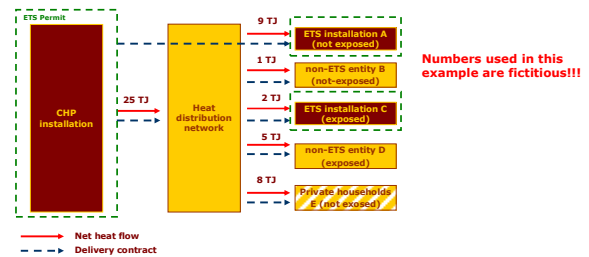
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General information of installation concerned

- Is the installation eligible for free allocation? **Yes**
- Is the installation an electricity generator pursuant Art. 3(u)? **Yes**
- What is the chosen baseline period? **2005-2008**
- Did the installation operate at least one day in each calendar year in the baseline period? **Yes**
- Significant changes in capacity? **No**

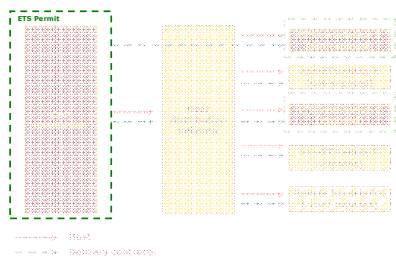
Heat distribution network

Supplying ETS consumers, non-ETS consumers, private households and other consumers



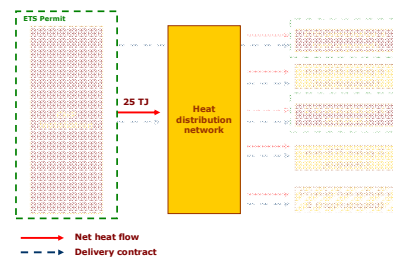
Heat distribution network

Supplying ETS consumers, non-ETS consumers, private households and other consumers



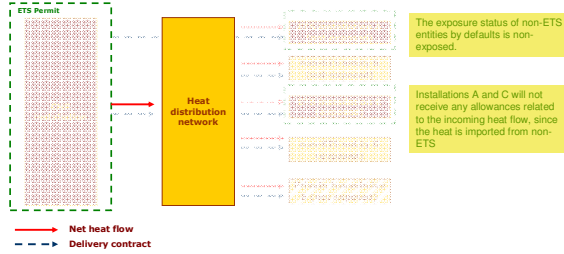
Identify relevant technical connections

Assume installation would not know what happens behind network



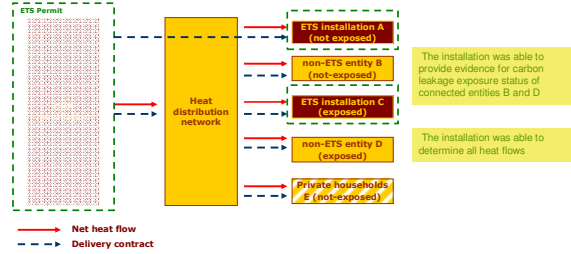
Define sub-installations

1 Heat benchmark sub-installation – not exposed



Identify relevant technical connections

Assume installation would know what happens behind network

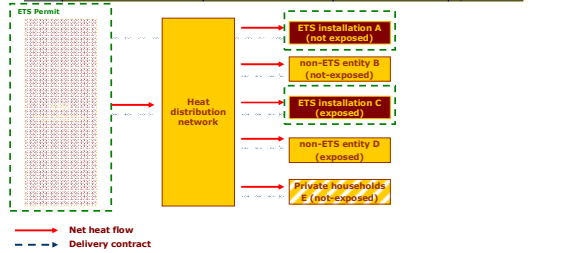


The installation was able to provide evidence for carbon leakage exposure status of connected entities B and D

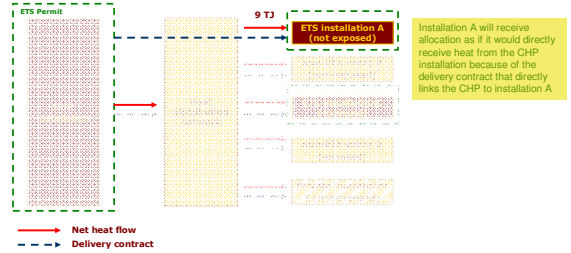
The installation was able to determine all heat flows

Identify relevant technical connections

No.	Name of installation or entity	Type of entity	Type of connection	Flow direction
1	Heat distribution network	Heat distribution network	Measurable heat	Export
2	ETS installation A (not exposed)	Heat distribution network	Measurable heat	Export
3	non-ETS entity B (not exposed)	Heat distribution network	Measurable heat	Export
4	ETS installation C (exposed)	Heat distribution network	Measurable heat	Export
5	non-ETS entity D (exposed)	Heat distribution network	Measurable heat	Export
6	Private households E (not exposed)	Heat distribution network	Measurable heat	Export



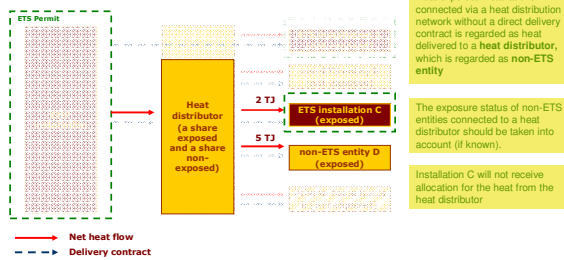
No sub-installations for heat export to A, since this is regarded as direct heat export to an ETS installation



Installation A will receive allocation as if it would directly receive heat from the CHP installation because of the delivery contract that directly links the CHP to installation A

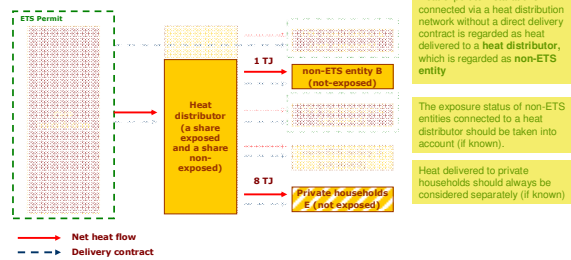
Define sub-installations

Heat benchmark sub-installation – exposed



Define sub-installations

Heat benchmark sub-installation – not exposed



Attribute all (other) emissions, fuel, and measurable heat to sub-installations

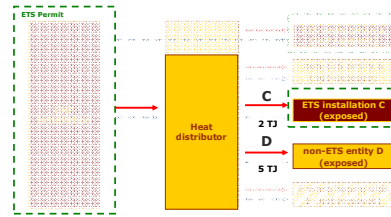
- Since there are only heat-benchmark sub-installations, the operator only needs to attribute measurable heat (see next slides)

To be able to check completeness and consistency (Art. 7.7), operators will:

- In the data collection template: provide a balance of measurable heat
- In the methodology report: describe the attribution to the different sub-installations

Determine historic activity levels

Heat benchmark sub-installation: exposed



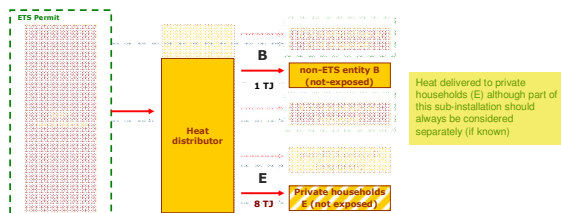
Activity level = Heat export to exposed non-ETS entities = Heat delivered to heat distributor and to exposed consumers (C + D + distribution losses)

Chosen baseline: 2005 – 2008 (No changes in operation; No significant changes in capacity; constant heat flows, assuming zero distribution losses); So:

HAL = median(2005 – 2008 annual activity levels) = 7 TJ

Determine historic activity levels

Heat benchmark sub-installation: non-exposed



Activity level = Export to not-exposed activities

Chosen baseline: 2005 - 2008 (No changes in operation; No significant changes in capacity; constant heat flows, assuming zero distribution losses); so:

HAL_{Heat to B} = median(2005 – 2008 annual activity levels) = 1 TJ

HAL_{To households} = median(2005 – 2008 annual activity levels) = 8 TJ

Determine preliminary total allocation

Not considering carbon leakage status

Heat benchmark sub-installation exposed:	$BM_H [EUA/TJ \text{ heat}] \times HAL_H [TJ \text{ heat}]$
Heat benchmark sub-installation non-exposed:	For heat to E: $BM_H [EUA/TJ \text{ heat}] \times HAL_H [TJ \text{ heat}]$ For households; maximum of • $BM_H [EUA/TJ \text{ heat}] \times HAL_{\text{Export to households}}$ • Emissions from heat for households x Household factor (100% in 2013 -> 30% in 2020)
Preliminary total allocation: (not considering CL-status)	Sum of the above

BM: Benchmark
HAL: Historical activity level
EUA: Allowances

Determine preliminary total allocation

Not considering carbon leakage status

Heat benchmark sub-installation exposed:	$62.3 \times 7 = 436.1$
Heat benchmark sub-installation non-exposed:	For heat to E: $62.3 \times 1 = 62.2$ For households; maximum of • $62.3 \times 8 = 498.4$ • Emissions from heat for households x Household factor (100% in 2013 -> 30% in 2010)
Preliminary total allocation: (not considering CL-status)	Sum of the above

Determine preliminary total allocation

Considering carbon leakage status

Heat benchmark sub-installation exposed:	$BM_H [EUA/TJ \text{ heat}] \times HAL_H [TJ \text{ heat}] \times CLEF$
Heat benchmark sub-installation non-exposed:	$(BM_H [EUA/TJ \text{ heat}] \times HAL_H [TJ \text{ heat}] + \text{Allocation to households}) \times CLEF$
Preliminary total allocation: (considering CL-status)	Sum of the above

BM: Benchmark
HAL: Historical activity level
EUA: Allowances
CLEF: Carbon leakage exposure factor
- For not-exposed sectors (80% in 2013, 30% in 2020)
- For exposed sectors (100% from 2013 to 2020)

Determine final total allocation (not in NIMs)

In this case the installation is an "electricity generator" (pursuant to Art 3(u)); so:

$$\text{Final allocation} = F_{\text{instal,prel}}(k) - 0.0174 \times F_{\text{instal,prel}}(2013) \times (k - 2013)$$

$F_{\text{instal,prel}}(k)$: Preliminary allocation considering CL-status in year k
0.0174 Linear reduction factor

In case the installation would **not** have been an "electricity generator", then:

$$\text{Final allocation} = F_{\text{instal,prel}}(k) \times \text{CSF}(k)$$

$F_{\text{instal,prel}}(k)$: Preliminary allocation considering CL-status in year k
CSF (k): Cross-sectoral correction factor in year k (if applicable)