

How are emission reductions in carbon offset projects calculated?

How should an institution calculate its carbon offset demand?

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About myclimate

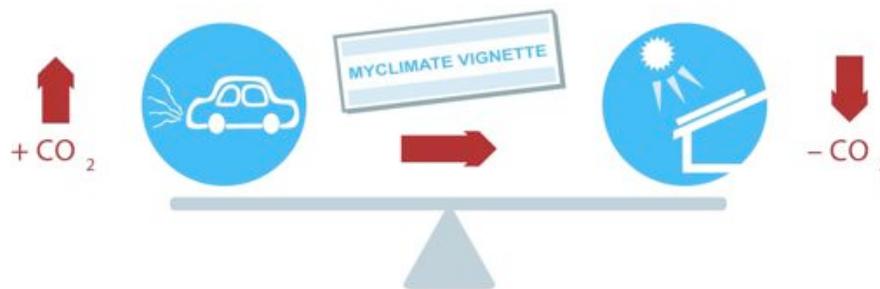
Carbon solutions



Capacity building

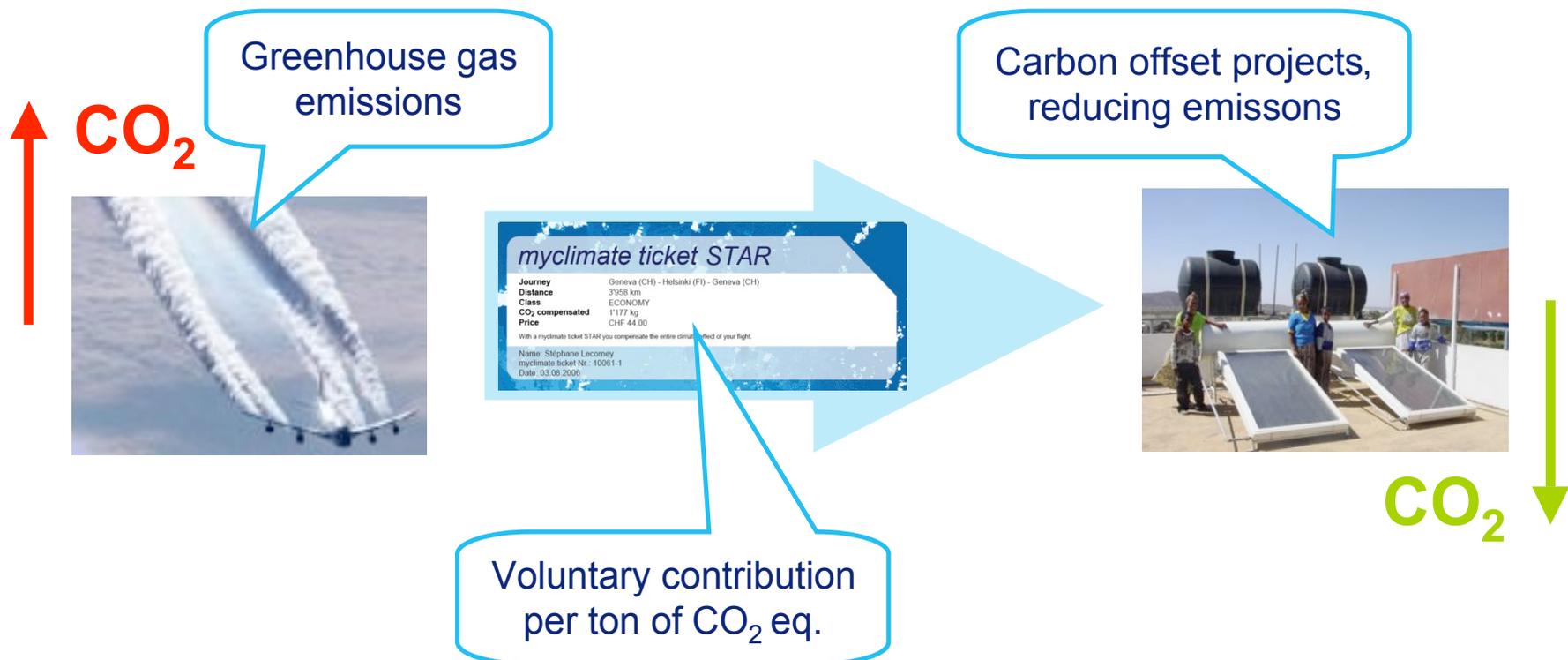


Offsetting of carbon emissions



Introduction: offsetting greenhouse gas emissions

- Offsetting is the concept of paying for emission reductions to take place elsewhere instead of reducing one's own emissions.



Introduction: offsetting greenhouse gas emissions

Some benefits of offsetting...

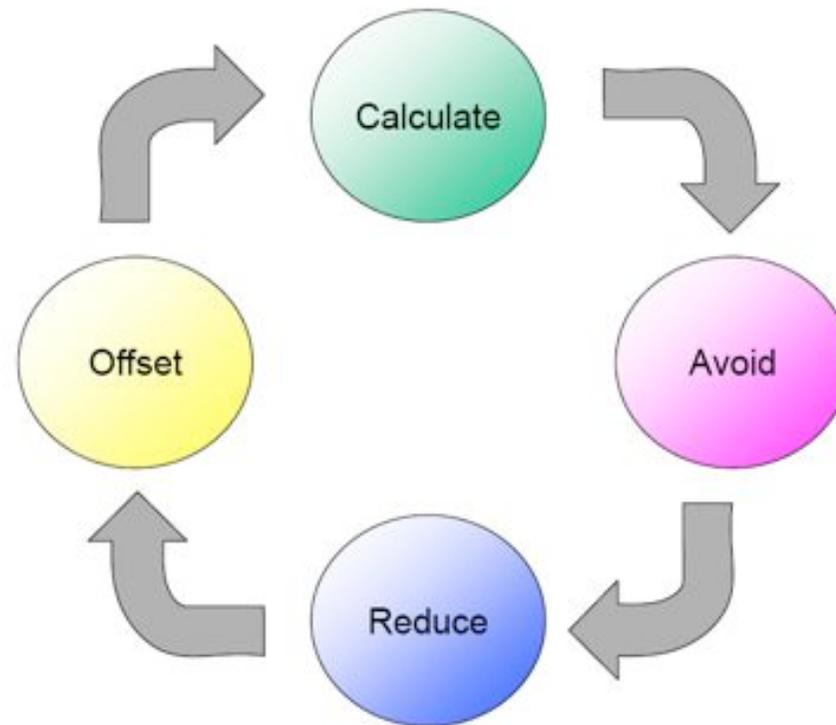
- Economically efficient way to establish GHG reductions.
- Enhances technologies that are not competitive yet.
- Provides a mean of raising awareness for the challenge climate change (relatively "mass compatible").

Introduction: offsetting greenhouse gas emissions ... **some disadvantages**

- Risk of doing offsetting instead of realizing feasible options to directly avoid/reduce GHG emissions.
- Offsetting can – by its nature – only be part of the solution: no „standalone application“.

Introduction: offsetting greenhouse gas emissions

Offsetting: part of a solution strategy



How are emission reductions in carbon offset projects calculated?

- The standard: Clean Development Mechanism (CDM). Methodologies for different types of projects.
- Gold Standard: not concerning calculation.
- There is a variety of carbon offset projects (e.g. renewable energy, energy conservation, methane capture or forestry).

Virtually all carbon offset projects in the field of renewable energy or GHG capture follow the CDM guidelines concerning the *calculation*.

How are emission reductions in carbon offset projects calculated?

- The difference between the GHG emissions of *two scenarios* (baseline / project) has to be determined over a certain time period.
- Leakage by project is considered.
- No embodied emissions are considered.
- Calculation itself does not assess the *additionality*, which is a very important characteristic of a carbon offset project.

How are ER's in carbon offset projects calculated? Example Malavalli (1)

- 4.5 MW Biomass (low density crop residues) based power generation unit of Malavalli Power Plant.
- Baseline: southern grid of the India has been chosen for baseline analysis by selecting “The weighted average emissions” for baseline calculation.”



How are ER's in carbon offset projects calculated?

Example Malavalli (2)

- Two sources of leakage have been considered:
Leakage from transportation of biomass / Leakage from diversion of biomass from other uses to the project.

How should an institution calculate its carbon offset demand?

- What is the demand?
- What other issues are there besides calculation, from the point of view of the client?

How to calculate the carbon offset demand?

Some motivations of institutions to seek offsets

- **Complementarity:** a measure within environmental or carbon management strategy.
- **Marketing aspect:** communication of engagement.
- **Internal capacity building:** getting to know the CO₂ market.

How to calculate the carbon offset demand?

What do companies want to offset? (1)

- A “product”
- An “event”
- A “particular activity”
- A „company“



How to calculate the carbon offset demand?

What do companies want to offset? (2)

Category	Product
Examples	Flowers, organically grown in Ecuador, sold in Germany (Blumen Rosinski). Print products (several printing plants). Organic smoothies (Traktor Getränke).
Calculation aspects	Inventory along life cycle of product Background data: ecoinvent Indicator: GWP 100a
Statement	“Climate neutral flowers”
Communication	Labelled on the product

How to calculate the carbon offset demand?

What do companies want to offset? (3)

Category	Particular activity
Examples	Business flights of a company. Operation of the car fleet of a company.
Calculation aspects	Direct emissions. Indirect emissions of electricity use. Background data: ecoinvent. Special case flights: default multiplier of 2
Statement	-
Communication	e.g. in annual report / sustainability report

How to calculate the carbon offset demand?

What do companies want to offset? (4)

Category	Event
Examples	UN Global Compact Leaders Summit Red Bull Air Race 2007
Calculation aspects	Direct emissions of transport of participants and event material. Indirect emissions of electricity use. Optionally: consumable material. Background data: ecoinvent. Indicator: GWP 100a
Statement	“Climate neutral event”, with description.
Communication	e.g. in participants information material, advertising.

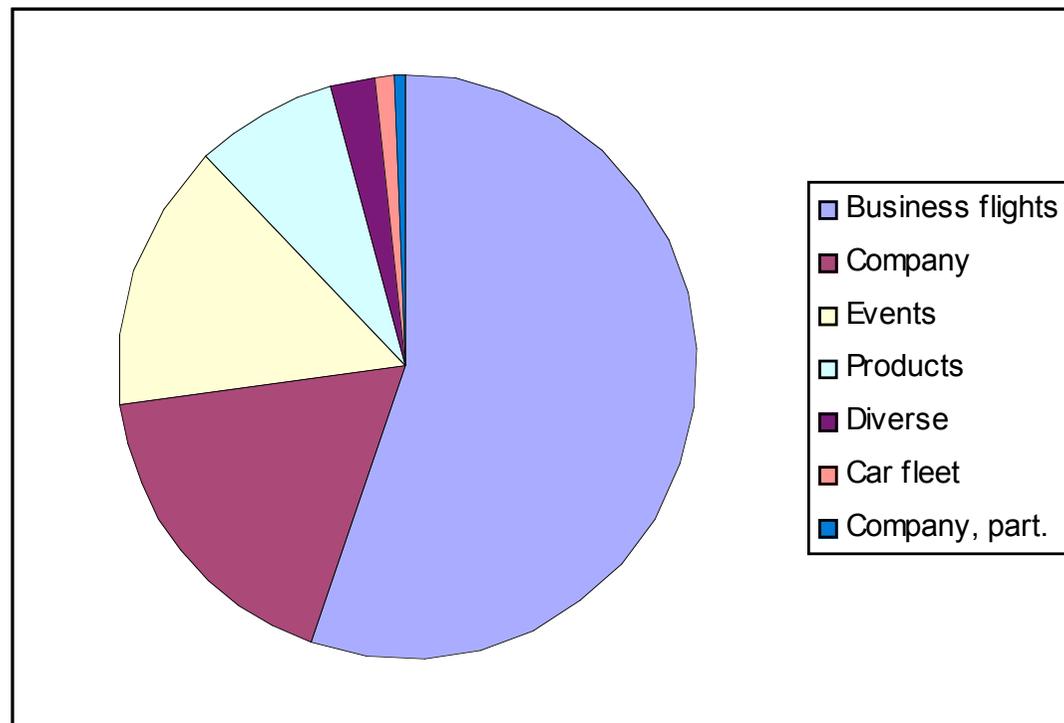
How to calculate the carbon offset demand?

What do companies want to offset? (5)

Category	Company (most are service providers)
Examples	Diverse
Calculation aspects	<p>Direct emissions from heating and transport (goods/business travels/commuter traffic). Indirect emissions of electricity use. Optionally: consumable materials. Background data: ecoinvent. Indicator: GWP 100a</p>
Statement	“Climate neutral company/organisation”
Communication	e.g. in annual report / sustainability report

How to calculate the carbon offset demand? What do companies want to offset? (6)

- Proportions of offsets at different categories (business clients, myclimate, 2007):



How to calculate the carbon offset demand?

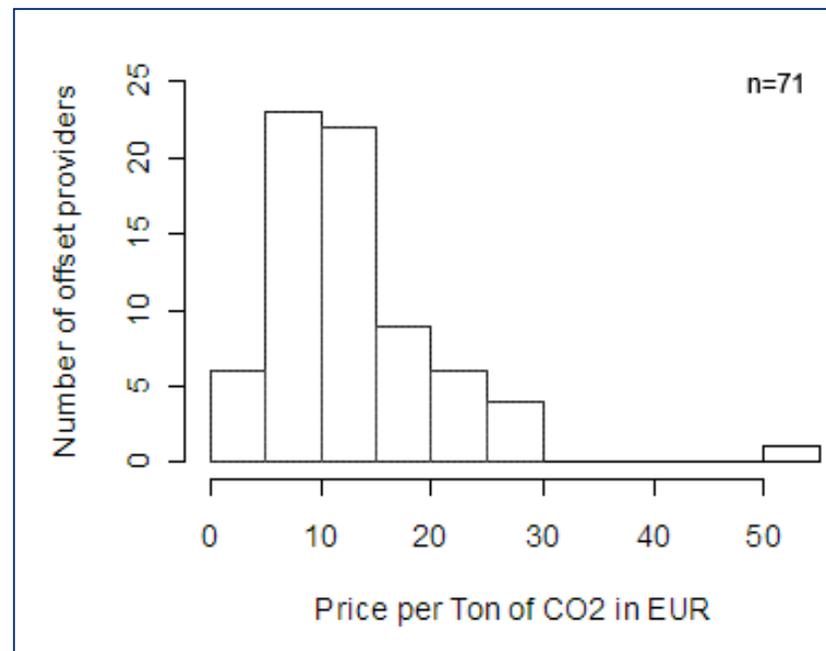
Other issues besides calculation

- Price of the carbon offset credits.
- Quality of the carbon offset credits.
- Small projects: trade off between costs of calculation and costs of carbon offset credits.

How to calculate the carbon offset demand?

Other issues besides calculation

- Variety of the prices of offset providers active in the voluntary carbon market:



Source: carboncatalog.org / own.

How to calculate the carbon offset demand?

Conclusions for calculations (1)

Common to all categories of offsetting demands:

- Concerning the purpose of offsetting, a calculation is ***not decision-oriented*** and ***not comparative***.
- Over-compensation is not a bad thing => combine assumptions with conservative uncertainty factors.

How to calculate the carbon offset demand?

Conclusions for calculations (2)

Differentiation between categories necessary:

- Product-oriented offsetting needs a life cycle approach.
- Offsetting of categories that focuses at direct emissions may use either methods for inventories, but:
- Emission factors should be compared (ecoinvent, GHG protocol, ...).

How to calculate the carbon offset demand?

Are there standards? (1)

DEFRA code of best practice:

- “The best practice requirements ensure only robust verified offsets are sold, emissions are calculated correctly and clear and transparent information is provided to the consumers.”
- “Acceptable methodological approaches are GHG Protocol, ISO 14064, [...]”
- No embodied emissions respected. Explicitly not yet for offsetting products.
- Suitable for categories like particular activities, companies.

How to calculate the carbon offset demand? **Are there standards? (2)**

Klimapro (Empa/Ecos):

- Standard concerning offsetting requirements of **products**.
- Stakeholder dialogue. See later presentation.

Thank you for your attention