arrhenius INSTITUT FÜR ENERGIE- UND KLIMAPOLITIK
INSTITUTE FOR ENERGY AND CLIMATE POLICY

When is carbon neutral company carbon neutral (and when is it not)?

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Warming up…

- If I switch of the light in this room, do I
  - reduce the formation of CO2 emissions from fossil fuel combustion?
  - contribute to the reduction of global greenhouse gas emissions?

Overview

- Background
- Climate change and emission reductions
- Instruments in international climate policy
- Carbon Footprints
- Carbon offsets and carbon neutrality

Background

arrhenius INSTITUT FÜR ENERGIE- UND KLIMAPOLITIK
INSTITUTE FOR ENERGY AND CLIMATE POLICY

Hamburg based, private think tank that offers independent expertise for decision makers in politics, administrations and the private sector

Focus

- Liberalised power markets
- Emissions trading and trade in green certificates
- Renewable energies
- Carbon capture and storage (CCS)
- Decentralised energy systems

*) *Svante Arrhenius: Swedish physicist and chemist (1859 -1927); first to realise the role of carbon dioxide for the climate and to propose anthropogenic climate change already in 1895*

greenmiles

Greenmiles GmbH, Hamburg based carbon offset provider:

Focus

- Contribution to emission reductions through high-quality emission reduction projects [Active climate protection]
- Awareness raising and information on climate change and emission reductions respectively [Climate-Training]
- Support of implementation of climate strategies in companies and other organisations [Climate-Consulting]
- Development of innovative products and concepts for climate protection [Climate-Marketing]

Climate change and emission reductions

- “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system “ (Art. 2 UNFCCC) requires considerable reductions of GHG emissions

Table 1: Characteristics of greenhouse gas stabilisation scenarios (UNFCCC 2007)

Category	CO_2 equivalent concentration (ppm)	Global mean temperature increase*) (°C)	Change in global CO_2 emissions in 2050 (% of 2000 emissions)	Allowed emissions by Annex I Parties in 2050 (% change from 1990 emissions)
I	445-490	2,0 - 2,4	-85 to -50	-80 bis -95
III	535-590	2,8 - 3,2	-30 to +5	-40 bis -90
IV	590-710	3,2 - 4,0	+10 to +60	-30 bis -80

*) above pre-industrial at equilibrium using ‘best estimate’ climate sensitivity

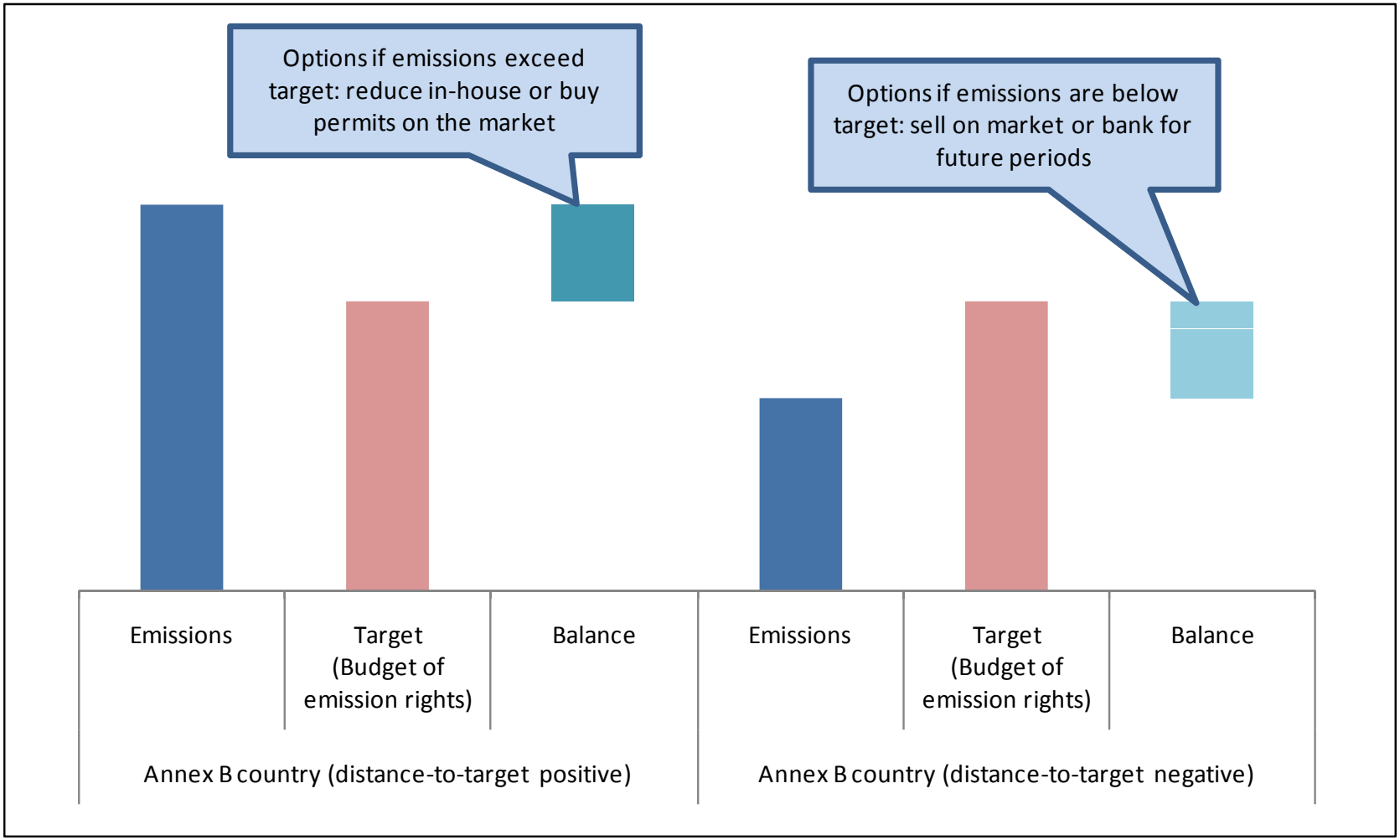
Instruments in international climate policy

- Common but differentiated responsibility
- Kyoto Protocol: Annex-B countries (with absolute emission targets, e.g. EU member states) vs. non-Annex B countries (no emission targets)
- Flexible mechanisms
  Rationale: reduce compliance costs (as abatement costs differ among countries/ sources)
  - Emissions trading (cap & trade)
  - Project based mechanisms

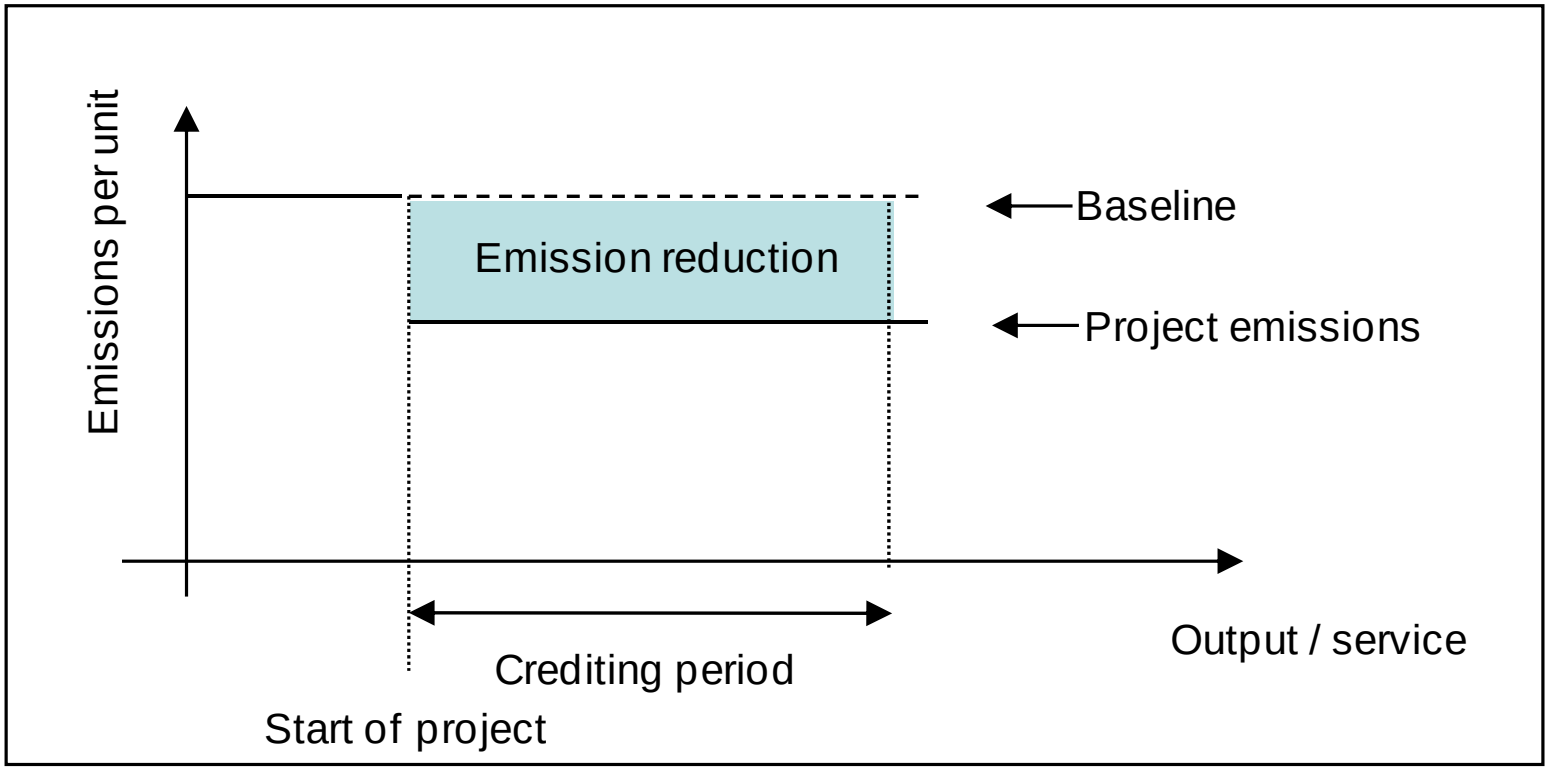
- Unregulated sector (=carbon credits not eligible under public schemes) exit

Instruments in international climate policy

Options for Annex B parties of the Kyoto Protocol with regard to emission targets and trading



Determination of emission reductions for project based mechanisms



Instruments in international climate policy

Emission rights and instruments applicable for carbon offsets

	Regulated systems	Unregulated systems
Emission trading "Cap & Trade"	AAU (IET) EUA (EU-ETS)	*Company level (e.g. former BP or Shell schemes)*
Project-based mechanisms	CER (CDM) ERU (JI)	**VER**[*)] *(VER+ (VER+), VCU (VCS) etc.)*
	Gold Standard	

"VER"*) Can be implemented in both Annex B and non-Annex B countries to the Kyoto Protocol.

*) VER (Verified Emission Reduction) is used as a collective term for all private standards for project-based mechanisms in unregulated systems

VER quality is disputed

"…Voluntary Emissions Reduction credits (VERs) may also be allowed at a future point, subject to a satisfactory level of assurance becoming available about their quality, and especially additionality." (DEFRA, 2009, p. 2)

Carbon Footprints (companies)

Important source: Greenhouse Gas Protocol, WRI & WBCSD 2004

Steps

1. Setting organisational boundaries
2. Setting operational boundaries
3. Calculation of emissions (example see table)

		Area		
		Mobility	**Energy**	**Production & Products**
direct emissions	**Scope 1**	Vehicle fleet, aircrafts (petrol, diesel, NG) (1)	Oil, NG, coal etc. (own production / use) (2)	Direct emissions during production (e.g. cement, pulp & paper) (3)
indirect emission	**Scope 2**	Vehicle fleet, aircrafts (hydrogen or electric cars) (4)	Power, heat, steam, cold etc. (external procurement) (5)	——— (6)
indirect emission	**Scope 3**	Business trips etc. (air, train, taxi etc.) (7)	——— (8)	Other sources (9) *- Procurement (e. g. paper)* *- Sales (e. g. after sales activities)*

Based on Bode et al. 2007

Carbon footprints: (green) power consumption

Partly contradicting guidelines

- **"***Choosing electricity emission factors*
  To quantify scope 2 emissions, the GHG Protocol Corporate Standard recommends that companies obtain source/supplier specific emission factors for the electricity purchased. If these are not available, regional or grid emission factors should be used."
  (GHG Protocol, revised version, 2004; remember RE Directive (GO)

- *"There is no different factor for electricity purchased on a renewable energy tariff. This is because electricity suppliers already have a legal obligation to supply a certain amount of electricity from renewable sources – contributing to the UK grid average factor – and existing evidence suggests that we cannot quantify any additional carbon savings from renewable energy tariffs."*
  (The Government"s Quality Assurance Scheme for Carbon Offsetting, DEFRA 2009)

(for more one green power see Bode 2009)

Carbon footprint - products

- Different guideline exist, e.g.:
- ISO 14040 8 (→ Working group)
- PAS 2050 (UK)
- WRI & SBCSD (→ Working group based on GHG Protocol experience)

- Setting of system boundary of crucial importance, especially if used to make products comparable…
- Similar rules for treatment of emissions from joint production necessary
- …

Carbon offsets and carbon neutrality

- First priority: reduce your carbon emissions internally
  (→ requires carbon strategy)
- Second step: consider offsetting of remaining emissions

- But how? - given the large variety of options
- Depends inter alia on
  - Your budget (e.g. only emissions from transportation etc.)
  - what you want to communicate

Carbon offsets and carbon neutrality

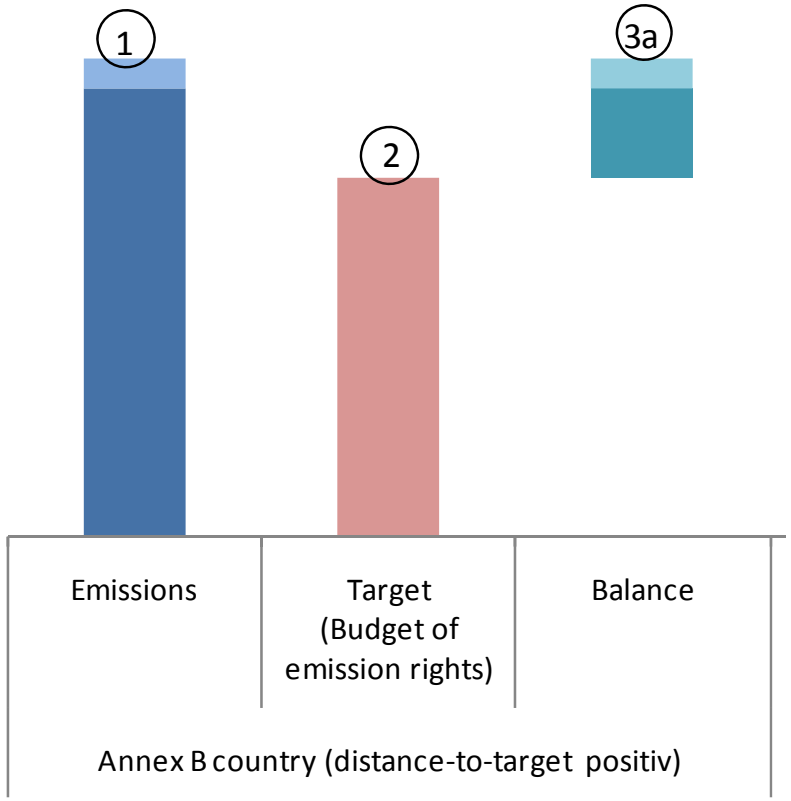
Case study (to make the point):

- In early February, the auction of 35,541 VERs from an energy saving project in New Zealand was announced by an auction platform.
- Energy saving light bulbs are sold at a reduced price that is subsidised by the revenue from the sale of the VERs
  - "Background is that both electricity utilities and lighting appliance outlets have strong disincentives to market Ecobulbs at low prices and that consumers generally do not buy expensive Ecobulbs, even if they would amortize over the live-span. " (From the project sheet)
  - No doubt: CO2 emissions are reduced due to reduced combustions of fossil-fuel in this project

- New Zealand is an Annex B country and ratified the Protocol in 2002.
- Can you become carbon neutral by purchasing these VERs?
- (Note: a lot of companies prefer projects "in the vicinity" of the customer)

Carbon offsets and carbon neutrality

Effect of a **VER** project in Annex B countries on emissions and emission rights

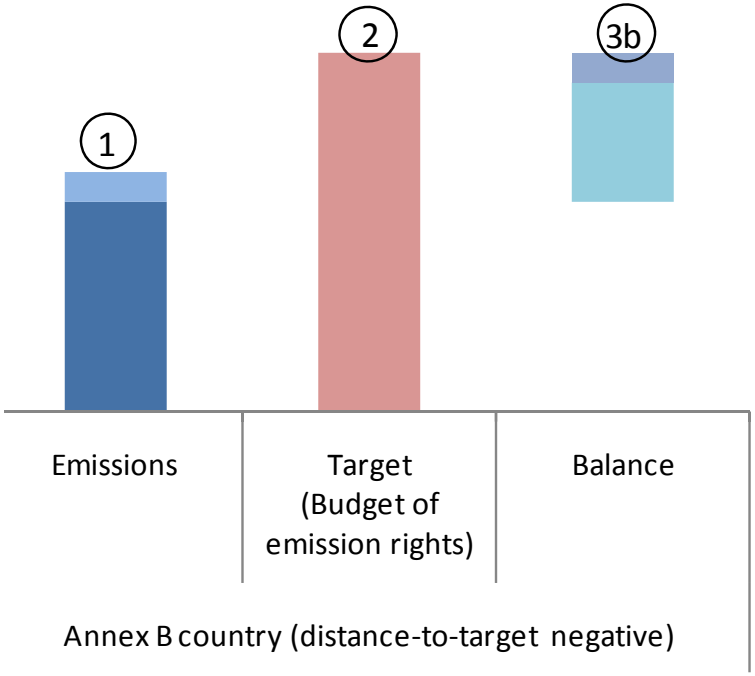


1) Emissions are reduced due to project
2) Emission target remains constant
3a) Balance, i.e. need for action in host country reduced

- Support of VER project reduces distance to target (only).
- If target more than lip services, no additional effect on global GHG emissions (even if project is additional)

Carbon offsets and carbon neutrality

Effect of a **VER** project in Annex B countries on emissions and emission rights

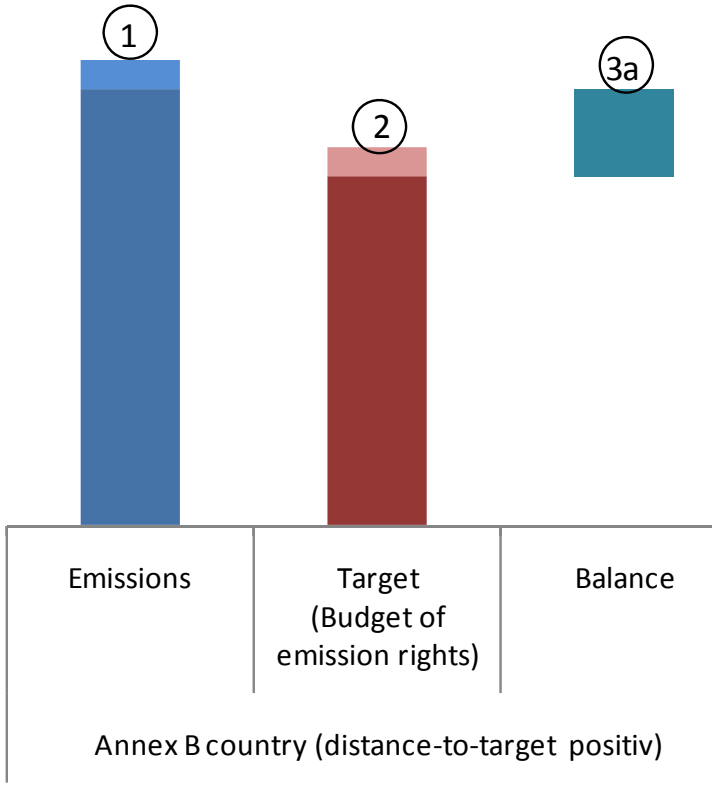


1) Emissions are reduced due to project
2) Emission target remains constant

3b) Additional surplus emission rights generated

Carbon offsets and carbon neutrality

Effect of a **JI** project in Annex B countries on emissions and emission rights

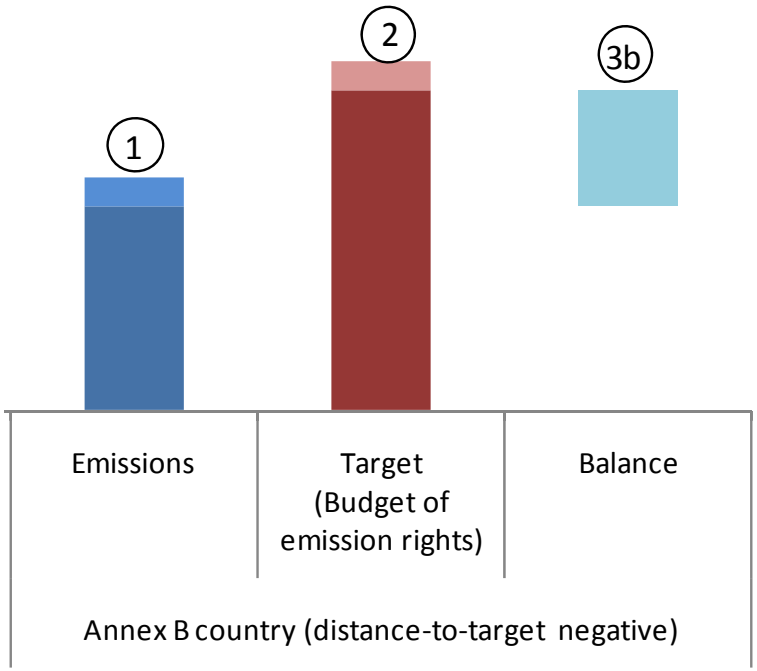


- Additional net reduction of global GHG emissions

1) Emissions are reduced due to project
2) Emission target of host country reduced due to issuance of ERUs to buying company
3a) Balance, i.e. need for action in host country unchanged

Carbon offsets and carbon neutrality

Effect of a **JI** project in Annex B countries on emissions and emission rights



1) Emissions are reduced due to project
2) Emission target of host country reduced due to issuance of ERUs to buying company

3b) Number of surplus emission rights unchanged

Conclusion

Carbon neutrality?

Through emission reduction projects that do not result in emission rights under the Kyoto Protocol if hosted in Annex B countries (VERs*)

results in

Reduction of the ”individual“ carbon footprint **WITHOUT** direct contribution the reduction of global GHG emissions.

WEAK carbon neutrality?

Through emission reduction projects that allow for a delivery of emissions rights under the Protocol if hosted in Annex B countries or of CERs or VERs*)
in countries without emission targets

results in

Reduction of the ”individual“ carbon footprint **INCLUDING** a direct contribution to the reduction of global GHG emissions.

STRONG carbon neutrality?

*) special requirements must be met (e.g. passing of additionality test, consistent inventory)

Warming down…

- If I switch of the light in this room, do I
  - reduce the formation of CO2 emissions from fossil fuel combustion?
    - Yes (and I will thus reduce the footprint of the specific conference)
  - contribute to the reduction of global greenhouse gas emissions?
    - No (assuming that the Czech Republic is eager to meet its Kyoto target)

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Questions?

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