

Allocating Allowances in an ETS

Overview of the General Options

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Allocation



Who should reap the benefits?

By establishing an ETS, the government creates a new asset with an economic value: the right to use the atmosphere as a sink for carbon emissions.

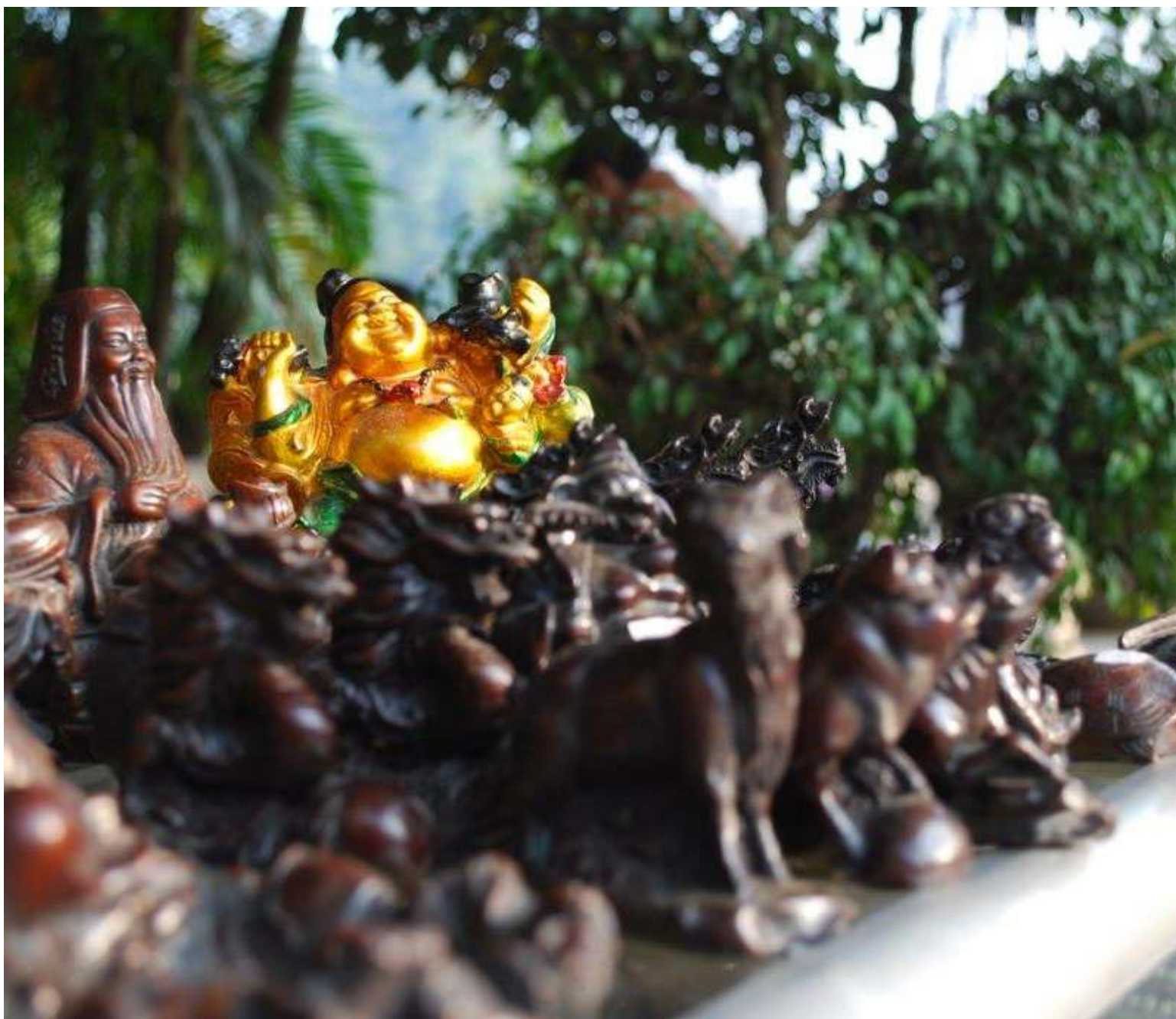
To whom should this value belong? Who should reap the benefits?



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Allocation methods



The main methods of allocation

Auctioning

Regulators sell allowances to the covered entities

$$\text{Allocation} = 0$$

Benchmarking

Emitters receive allowances free of charge, based on their activity or output during a defined base period (Y) and a common benchmark (tons CO₂ emissions per unit of activity), adjusted by a correction factor (CF)

$$\text{Allocation} = Y * \text{BM} * \text{CF}$$

Capacity BM

“Pure” product BM

Fuel-specific product BM

Technology- & fuel-specific product BM

Others (e.g. heat BM, input-based BM)

Grandfathering

Emitters receive allowances free of charge, based on historical emissions (Z) during a defined base period, adjusted by a correction factor

$$\text{Allocation} = Z * \text{CF}$$

Free allocation to other stakeholders

Auctioning

(free) Allocation = 0

Different designs are possible

- ▶ Single-round vs. multiple-round
- ▶ Sealed bid vs. open bid
- ▶ Uniform price vs. pay-as-bid, etc. ...
- ▶ ... but in practice: plain vanilla wins!

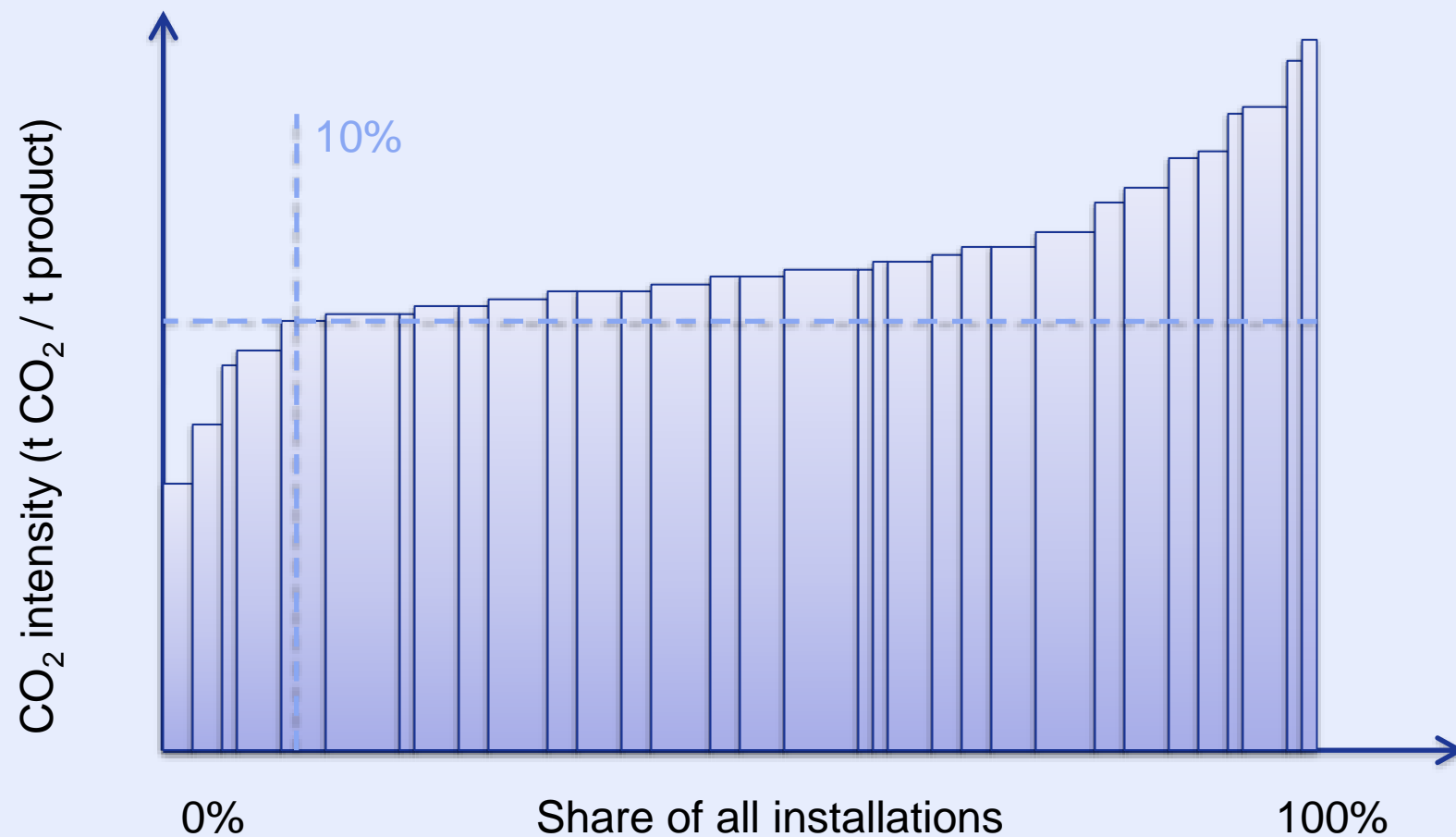
Market oversight: safeguard against collusion

Price controls possible (floor / auction reserve price)

Frequency and auction amounts chosen so that the secondary market is disturbed as little as possible

Benchmarking: How to set the benchmark?

$$\text{Allocation} = \text{Output} * \text{BM} * \text{CF}$$



Benchmarking: How to determine the output?

$$\text{Allocation} = \text{Output} * \text{BM} * \text{CF}$$

Output (units of output produced):

- ▶ **Historical output** during a given base period
- ▶ **Standardised output** based on capacity and standard capacity utilisation
- ▶ **Projected output** (for new entrants)
- ▶ Annual **output of the previous year**:
dynamic or output-based allocation ("updating")

Benchmarking: What should it be based on?

$$\text{Allocation} = \text{Output} * \text{BM} * \text{CF}$$

Benchmark (tons of CO₂ / unit of output) can be based on:

- ▶ **Capacity**
(i.e. theoretical output rather than actual output)
- ▶ **Production** (tons of cement, MWh of electricity)
- ▶ Production, **but differentiated** for ... (technology, fuel, quality of raw materials, plant size or age, climatic circumstances etc. etc.)
- ▶ **Proxies**: e.g. heat benchmark, fuel benchmark

Product-based benchmark is least distorting: but how do you define the “product”?

Grandfathering

$$\text{Allocation} = \text{Emissions}_{\text{base year}} * \text{CF}$$

Seems simple at first – but the devil is in the detail:

- ▶ **Data need** – collecting *historical* installation-level emissions data
- ▶ **Time consistency** problem / perverse incentives if the base period is known in advance (firms realise that higher emissions during the base period will lead to more allocation in the future)
- ▶ How to address **early action**?
- ▶ Unplanned **outages** during the base period?
- ▶ What about **new entrants**?



Choosing the right allocation method – considerations:

Cost incidence: who will eventually pay the carbon cost? Are firms able to pass on the carbon price? Is there a risk of creating windfall profits?

Competitiveness: is the sector exposed to international competition? Is there a risk of “carbon leakage”, and will free allocation reduce this risk?

Compensation for stranded assets: Does the carbon price devalue past investments? Should firms be compensated for this devaluation?

Buying support: allocation a necessary evil to get stakeholders on board?

Practical considerations: data need, administrative effort (both for designing and applying the rules), risk of fraud or perverse incentives, etc.

How do the different methods compare?

How do allocation methods compare in terms of

- Their overall fairness;
- The acceptability for covered companies;
- The administrative effort required for their implementation?



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Thanks! Any more Questions?

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Buzz Group: New entrants

New entrants are new installations that enter the market. How should they be treated in terms of free allocation? Should they receive the same free allocation as existing installations? Do you see a reason why they should *not* be treated in the same way?



Rules for the buzz groups: we will send you into a random group of 3-4 people. Select one person who moderates, and one to document your findings. When you're done, send us your answer via Mentimeter (code 6796 0963). You have **5 minutes!**

Buzz Group: Allocation in an upstream system

Many sectors – such as road transport – can only be covered in an upstream ETS, in which compliance rests with fuel producers / importers / distributors. How should allocation be handled in such a system?



Rules for the buzz groups: we will send you into a random group of 3-4 people. Select one person who moderates, and one to document your findings. When you're done, send us your answer via Mentimeter (code 6796 0963). You have **5 minutes!**