ALLOCATION OF ALLOWANCES GENERAL OVERVIEW

Training course on ETS and carbon markets using the CarbonSim simulation tool

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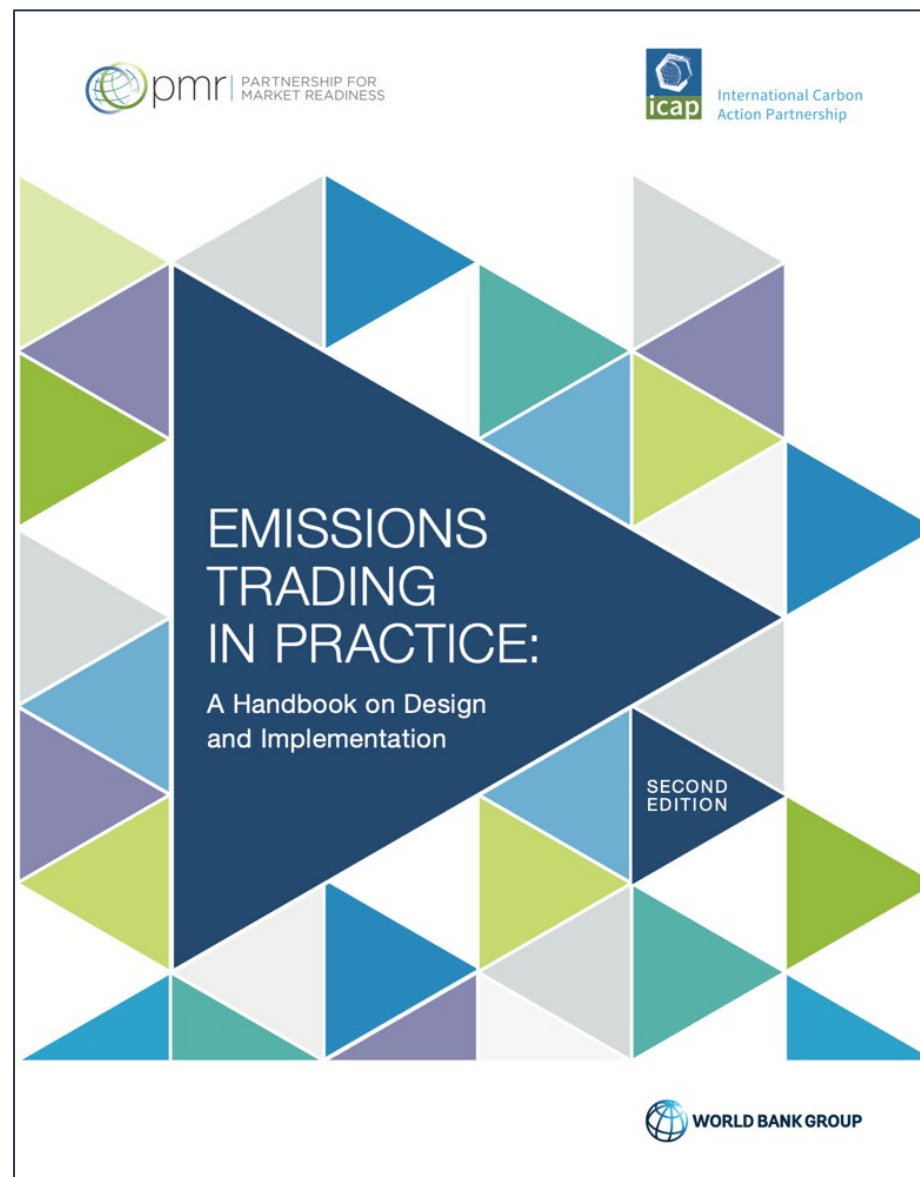
Background Reading

ICAP/PMR Handbook
Emissions Trading in Practice
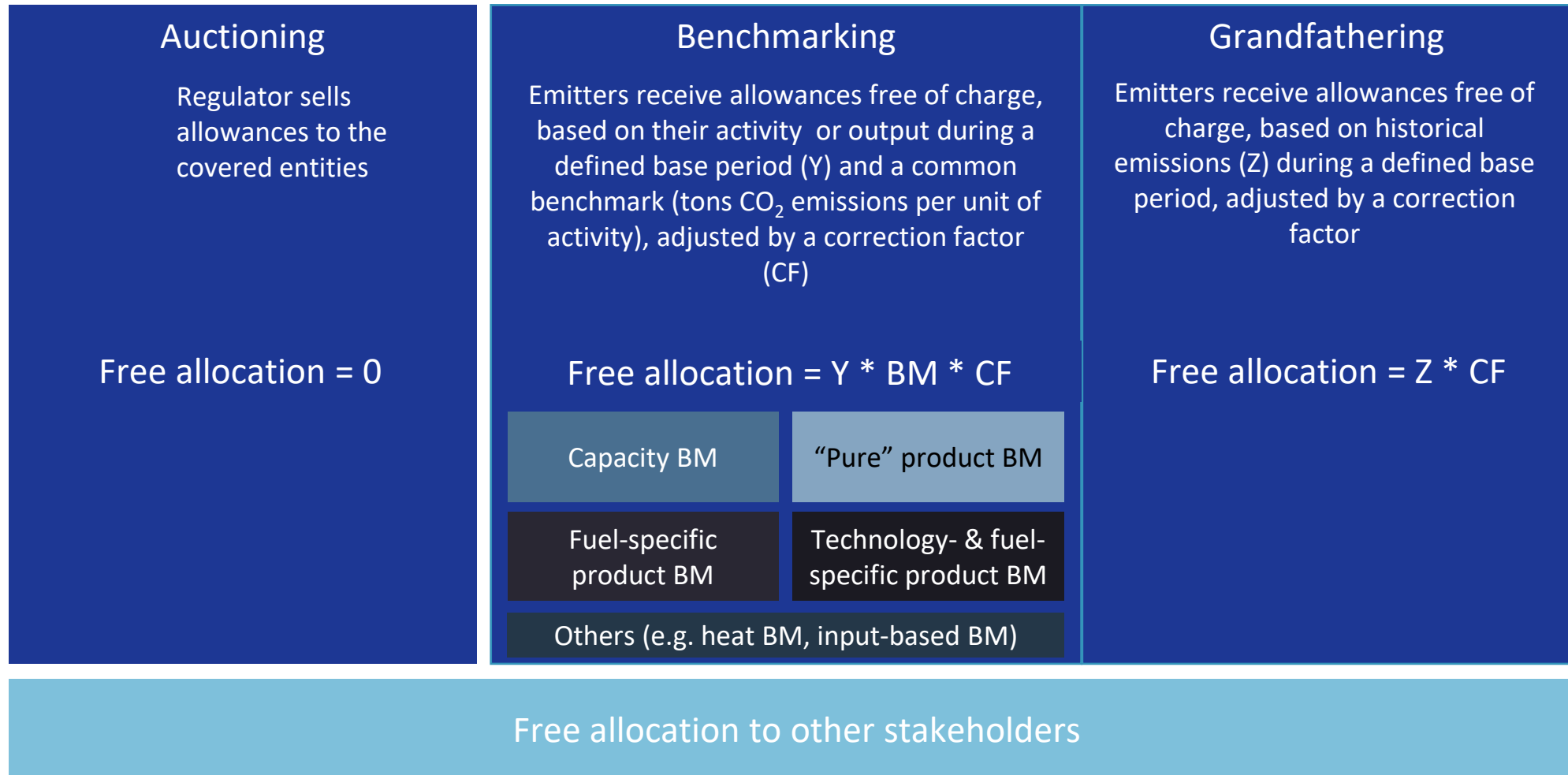2nd ed. (2021)

Chapter 5: "Distribute allowances" (pp. 97-122)

Available at:
https://icapcarbonaction.com/system/files/document/ets-handbook-2020_finalweb.pdf

The main methods of allocation

Auctioning

Regulator sells allowances to the covered entities

Free 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 CO_2 emissions per unit of activity), adjusted by a correction factor (CF)

Free allocation = Y * BM * 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

Free allocation = Z * CF

Free allocation to other stakeholders
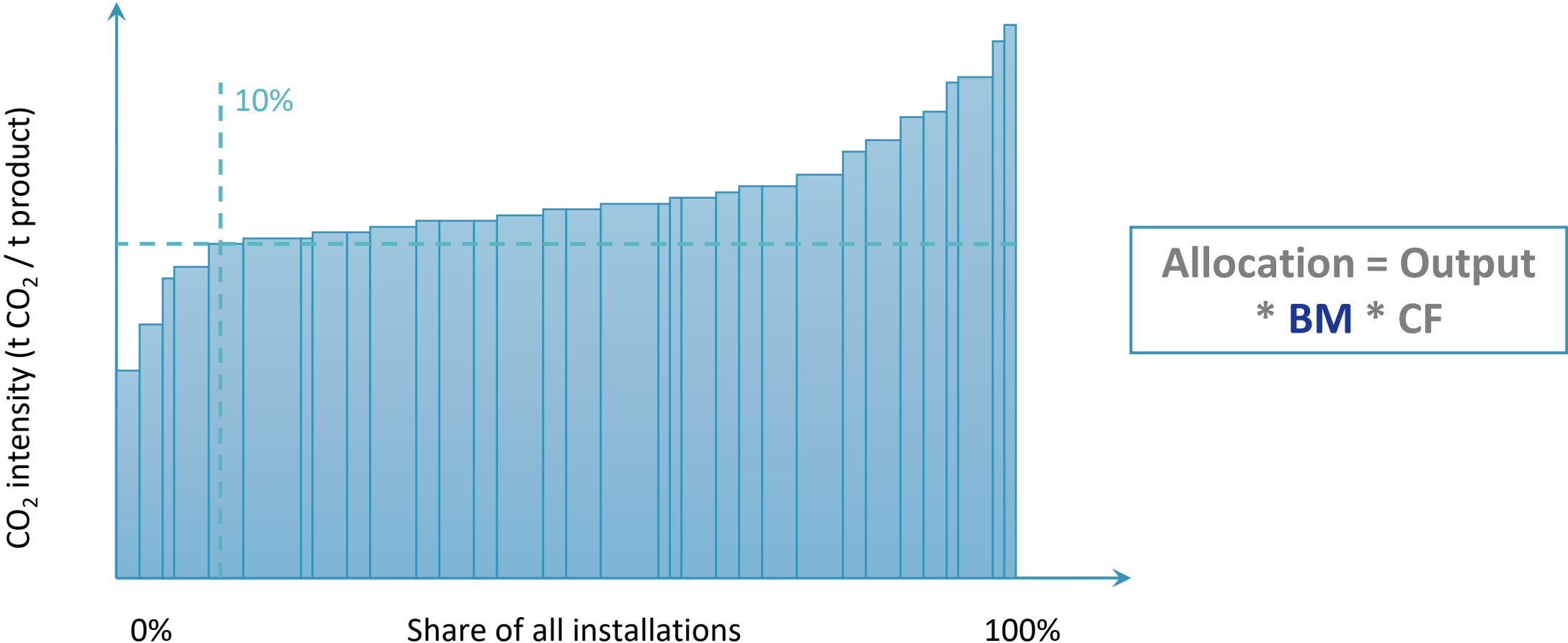
Allowance distribution through auctioning

- Different **auction designs** are available
  - Single-round vs. multiple-round
  - Sealed bid vs. open bid
  - Uniform price vs. pay-as-bid, etc.
- **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?

CO$_2$ intensity (t CO$_2$ / t product)

10%

0% Share of all installations 100%

Allocation = Output
* **BM** * CF

Benchmarking: How to determine the output?

Allocation = **Output** * BM * CF

- **Output** (units of output produced):
  - **Historical output** during a given base period
  - **Standardized output** based on capacity and standard capacity utilization
  - **Projected output** (for new entrants)
  - Annual **output of the previous year**: dynamic or output-based allocation ("updating")

Benchmarking: What should it be based on?

Allocation = Output
        * **BM** * CF

- Benchmark (tons of CO_2/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.
  - **Proxies**: e.g. heat benchmark, fuel benchmark
- Product-based benchmark is least distorting: but how to define a "product"?

Grandfathering

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

- Seems simple at first – but the difficulties rest in the details:

  - **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

- **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.

THANK YOU!

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