

ANALYSIS OF DIFFERENT DESIGNS FOR EMISSIONS TRADING SYSTEMS IN THE TRAFFIC SECTOR

Dr. Arthur Pelchen



BVEK SIDE-EVENT AT CARBON MARKETS INSIGHT 2008, 12TH MARCH 2008:

INCLUDING GROUND TRAFFIC IN THE EU ETS

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- » introduction
 - » factors influencing CO₂-emissions from the traffic sector
 - » defining reduction goals
 - » upstream-, midstream- and downstream systems
 - » method of allocation
 - » advantages and disadvantages
 - » administrative effort
 - » summary

INTRODUCTION

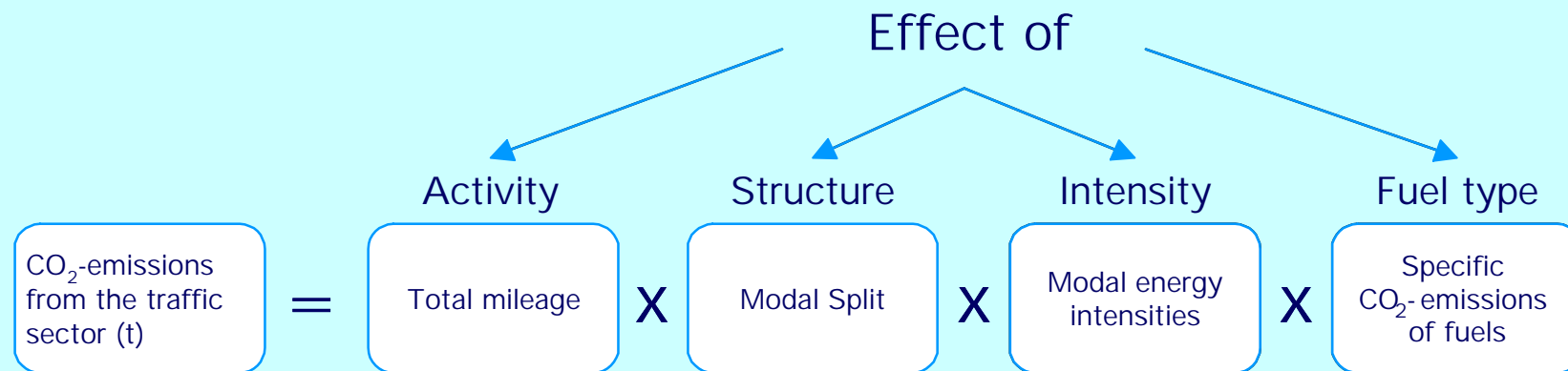


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- » several very comprehensive studies on the subject since the eighties
 - » at least for Germany the relevant questions are discussed and solved
 - » most of the solution certainly also valid for other EU-countries
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- » this presentation based on a study by PricewaterhouseCoopers for the council of sustainable development (RNE) in Germany from 2002

INTRODUCTION



» Factors influencing CO₂-emissions from the traffic sector



Source: Own figure after Schipper and Marie-Lilliu (1999)

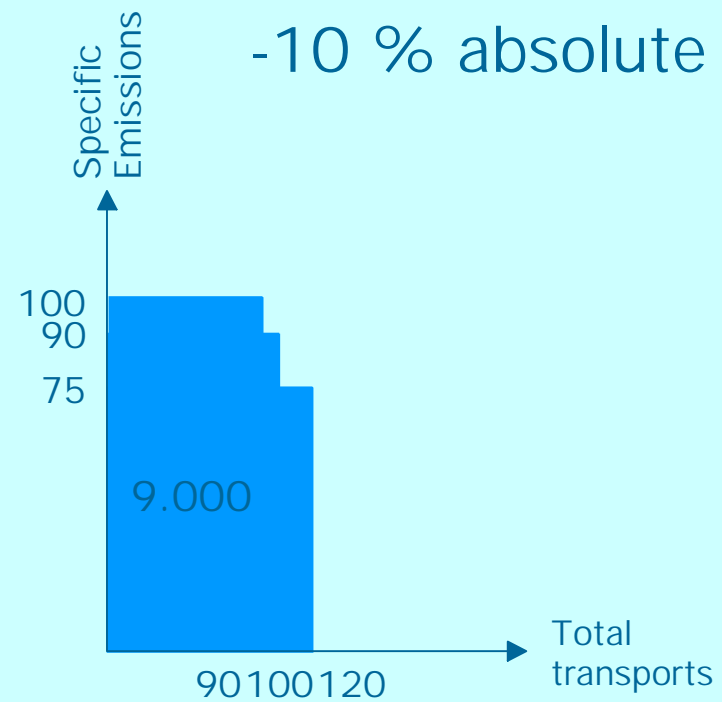
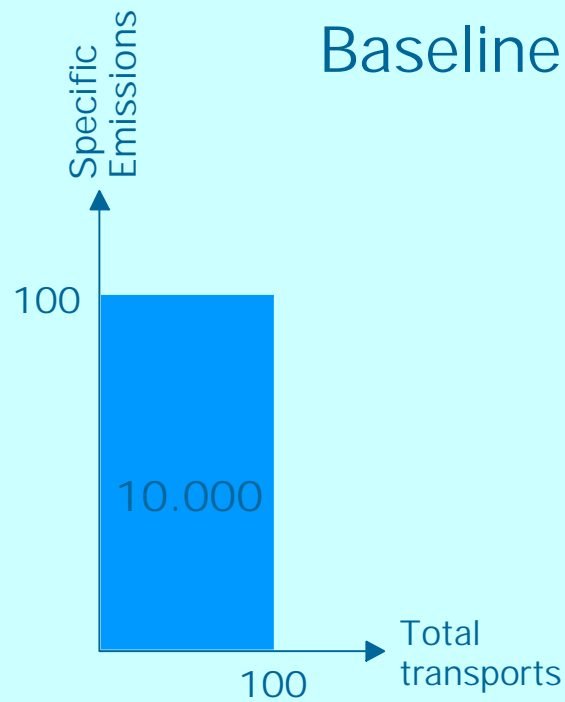
Changes 1973-93 (%)	Passenger transport	Cargo transport
Emissions	158	113
Activity effect	150	138
Structure effect	104	113
Intensity effect	100	88
Fuel type effect	99	99

DEFINING REDUCTION GOALS: ABSOLUTE ↔ SPECIFIC GOALS



- » **Absolute** goals in tons CO₂e
- » Kyoto Protocol contains absolute goals for Annex B countries
- » **Problem:**
Economic growth in traffic sector is potentially limited
- » **Specific** goals related to emissions per unit of product
(Expl.: g CO₂ / tkm, g CO₂ / Pkm, g CO₂ / km)
- » **Problem:**
Specific goals do not guarantee compliance with absolute goals from Kyoto Protocol

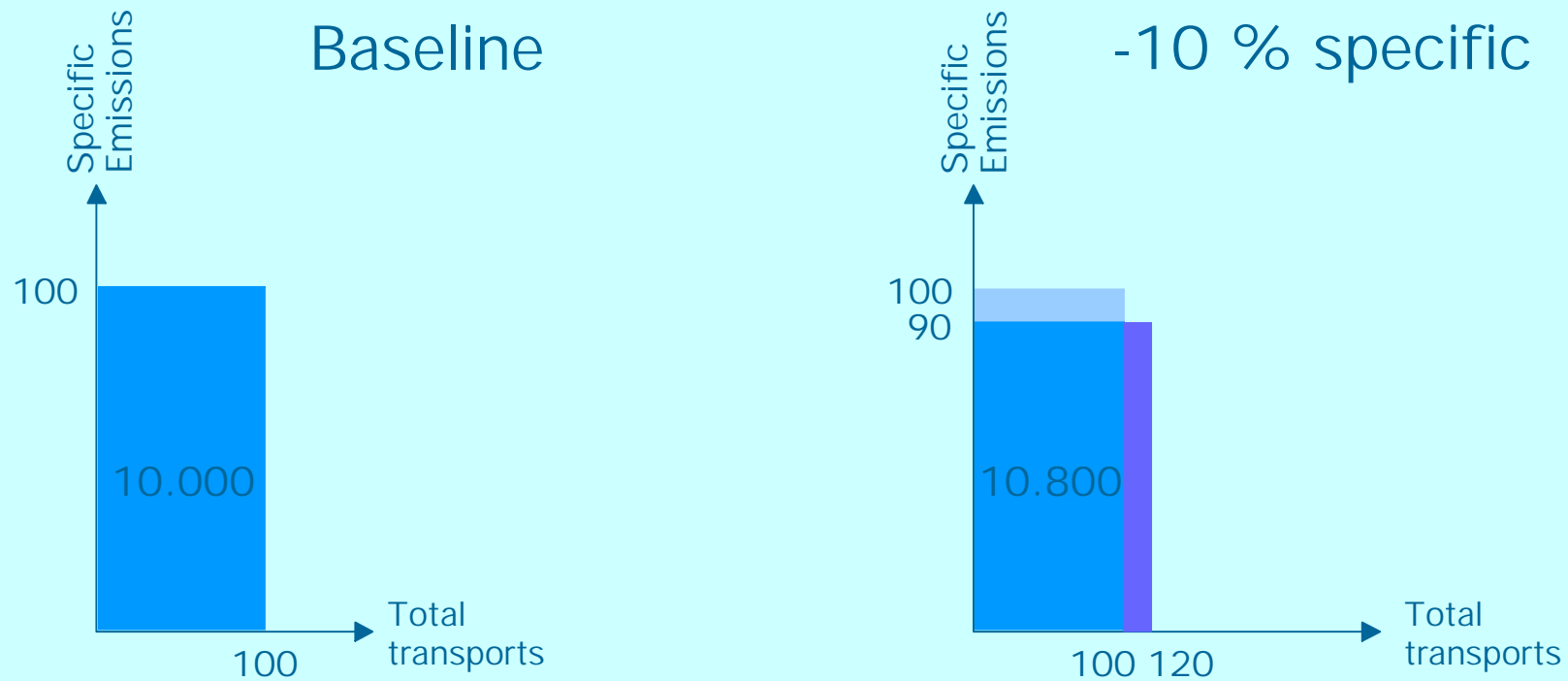
PROBLEM WITH SPECIFIC REDUCTION GOALS (I)



■ = Absolute emissions

■ = New absolute emissions

PROBLEM WITH SPECIFIC REDUCTION GOALS (II)

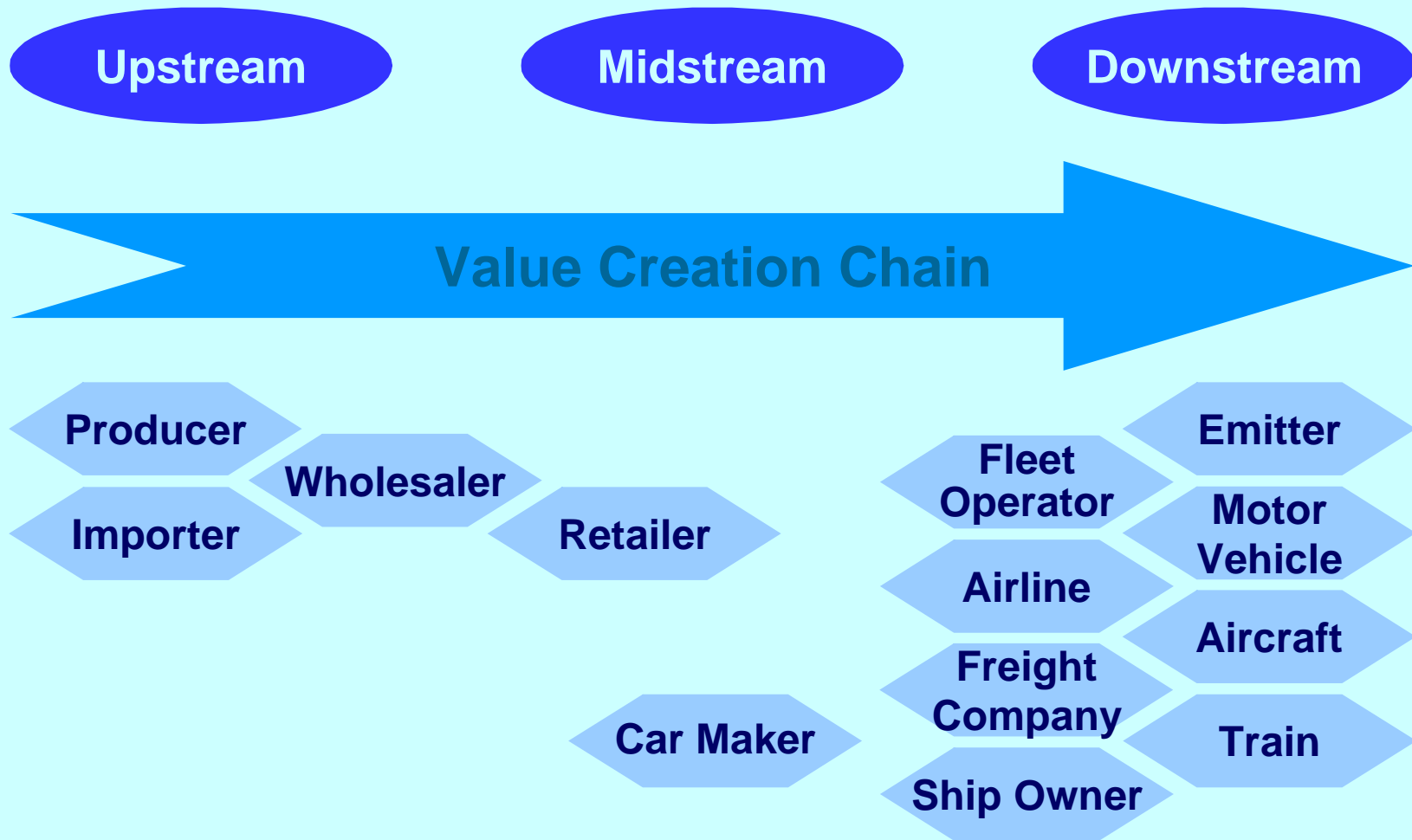


■ = Absolute emissions

■ = Reduction due to specific goal

■ = Increase due to increased transports

UPSTREAM-, MIDSTREAM- AND DOWNSTREAM SYSTEMS



- » first trade level (importer, producer) needs to hold the allowances
- » all CO₂-emissions related to energetic use of (fossil) fuels are covered
- » costs for allowances will be shifted from producer/importer to consumers via product prices for fuels
- » existing administrative systems (petroleum/energy tax and other fiscal systems) could be used
- » low administrative effort
- » incentive to reduce emissions similar to eco taxes
- » not compatible with the EU-Directive in force in the moment
- » applicable to partial markets, if differentiation of fuels is possible

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- » emitters need to hold the allowances
 - » administrative system needs to be designed with (very) high effort
 - » because of several 100 Mio. emitters nearly impossible
 - » in theory a design with debit cards would be conceivable
 - » modified approach for freight companies, building firms, express services etc. possible
 - » higher incentive to reduce emissions because of direct responsibility of emitter to hold allowances
 - » applicable to partial markets
 - » compatible with EU-Directive

MIDSTREAM



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- » retailers need to hold the allowances
 - » for example filling stations
 - » mineral oil companies are vertically integrated
 - » hence no additional benefit by midstream compared to upstream approach, but higher administrative effort due to a higher number of participants

- » special type of midstream approach
- » car manufacturers need to hold the allowances based on the average specific emissions of their newly registered motor vehicles
- » relevant data are already collected, relatively low administrative effort
- » strong incentive for car manufacturers to improve efficiency and to use fuels with lower carbon intensity
- » problem of specific goals
- » problem to connect to other emissions trading
- » theoretically realisable under the framework of ACEA-agreement
- » similarity with EU-plans on regulating emissions from motor vehicles
- » thinkable is also to make the car manufacturers responsible for the absolute emissions of their motor vehicles, but it is difficult to estimate total mileage of the motor vehicles sold

UP-, MID- AND DOWNSTREAM: SUMMARY



Criteria	Upstream	Downstream	Fleet emissions
Completeness of emissions capture	++	0	0
Accuracy of emissions capture	++	-	-
Impact on activity effect	+	++	0
Impact on structure effect	+	+	0
Impact on Intensity effect	--	0	++
Impact on Fuel type effect	+	+	++
Applicability to all intermodal carriers	++	-	-
Compliance with absolute Emission goals	++	-	--
Total evaluation	+	0	0
Scale: ++ = well suitable + = suitable 0 = neutral - = less suitable -- = not suitable			

METHOD OF ALLOCATION



- » allocation is not a specific problem of the ground traffic sector
- » three general approaches
 - » grandfathering
 - » auctioning
 - » benchmarking
- » partly resolved by proposal for revised EU-Directive on emissions trading
- » the proposal sets rules for allocation
- » in general proposes 100 % auctioning in sectors that can include allowance costs in their prices
- » mineral oil industry can raise fuel prices according to allowance costs

- » 100 % auctioning of allowances in the ground traffic sector

COMPARISON OF ADMINISTRATIVE EFFORT



Criteria	Upstream		Downstream		Fleet - emissions	Eco - tax
	Grand - fathering	Auctioning	Grand - fathering	Auctioning		
Number of concerned emitters	-	-	++	++	-	-
Effort for defining reduction goals	+	+	+	+	+	--
Effort for allocation	+	--	++	--	--	--
Effort to collect data for allocation	+	--	++	--	--	--
Effort for verification of baseline data	+	--	++	--	--	--
Effort for calculation of emissions	-	-	++	++	-	-
Effort for verification of emissions	-	-	++	++	-	-
Total	+	-	++	+	-	--
Scale:	++ = very high + = high - = low -- = none					

SUMMARY (I)



- » Traffic-dependent emissions can be reduced by increasing the fuel-efficiency of the means of transport, the use of less carbon-intensive fuels as well as a decreased transportation demand.
- » Under consideration of the national reduction obligations the reduction goals for individual emitters should be formulated as absolute emission goals.
- » The upstream approach allows for the complete capture of all energy-related emissions including the traffic sector, without causing noteworthy additional bureaucratic efforts.
- » A pure downstream approach is not feasible in the traffic sector because of the large number of sources to be included. In opposition a modified downstream approach is conceivable on those partial markets, on which large vehicle fleets are operated.
- » Regulating the average fleet emissions can serve as an addition to cap-and-trade systems, since it increases the incentive for the vehicle manufacturers, to develop and market less carbon-intensive and more fuel-efficient vehicles.

SUMMARY (II)



- » Allocating the emission rights in an auction is preferable compared to grandfathering, since an auction is to be handled with less bureaucratic effort and fewer problems for new market entries and early action.
- » The bureaucratic effort is higher for all emissions trading systems than for the eco-tax. Comparing the options of different emissions trading systems the upstream approach in combination with the auction comes off best.
- » To guarantee the necessary market liquidity an emissions trading system within the traffic sector should be connected to the existing European emissions trading market.
- » For an emissions trading system a combination of the upstream approach with the auction should be strived for in the long-term.

- » Main problems for including ground traffic in the EU-ETS are solved – hence its time to move!

**THANK YOU FOR
YOUR ATTENTION!**

**Dr. Arthur Pelchen
pelchen@et-expert.com**



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BACKUP



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ALLOCATION: GRANDFATHERING



- » free of charge allocation on the basis of historic CO₂-emissions
- » high acceptance with emitters
- » breach of polluter pays principle
- » problem of data availability
 - » for downstream only available for big emitters
 - » for upstream data are generally available
 - » data need to be verified
- » no fiscal income for governments
- » problems for new entrants and early action

AUCTIONING



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- » allowances are auctioned to the legal entities responsible for holding the allowances
 - » revenue can be used by government or recycled
 - » Auctioning delivers clear signal on marginal abatement costs
 - » due to costs for the emitters difficult to implement
 - » lower administrative effort than for grandfathering
 - » trouble-free inclusion of early action and new entrants

BENCHMARKING



- » free of charge allocation up to a given specific benchmark
- » additional allowances need to be bought on the market
- » surplus allowances can be traded
- » defining of benchmarks is difficult
- » problem of specific goals
- » trouble-free inclusion of early action and new entrants

ALLOCATION: SUMMARY



Criteria	Grandfathering	Auctioning	Benchmarking
Acceptance with emitters	++	--	-
Data requirements	--	++	-
Polluter pays principle	--	++	0
Allowing for new entrants	-	++	0
Allowing for early action	0	++	++
Total evaluation	-	+	0

Scale: ++ = well suitable + = suitable 0 = neutral - = less suitable -- = not suitable