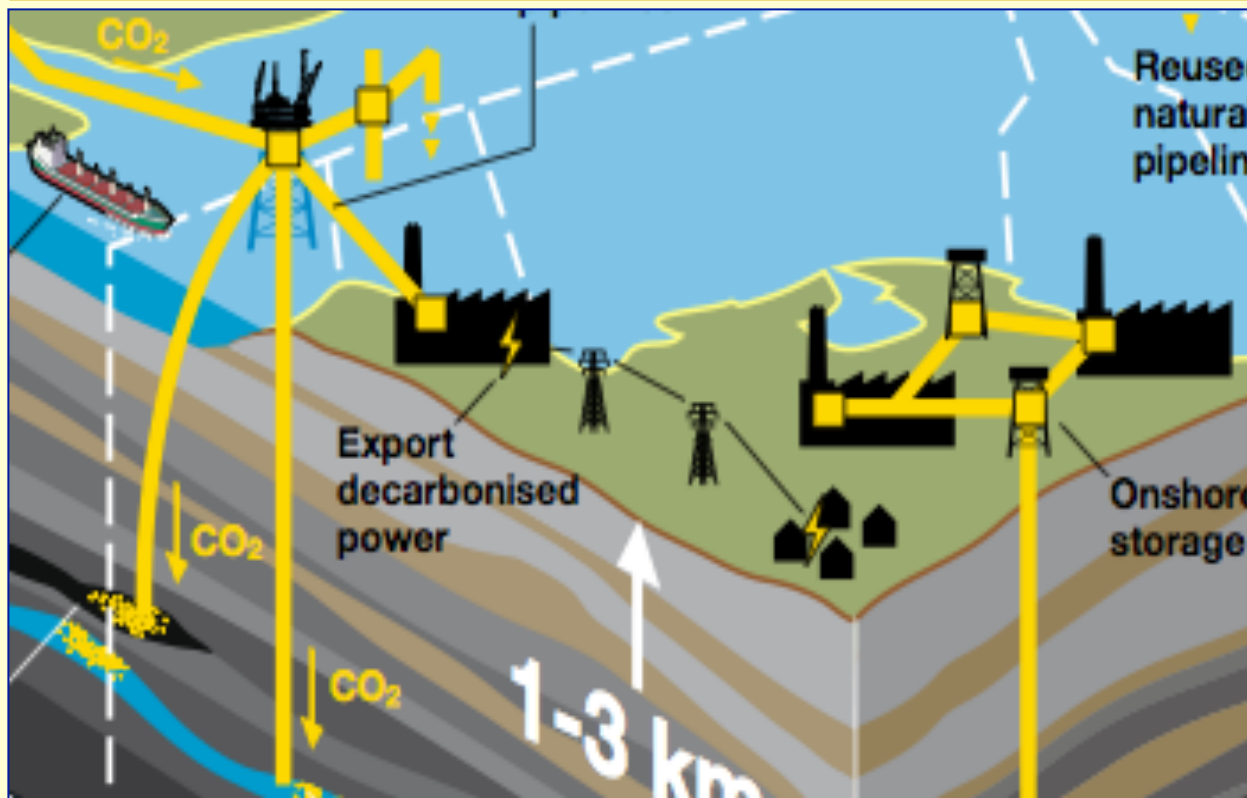
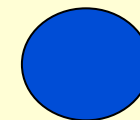


Making EU ETS work for CCS



Jos Cozijnsen, Consulting Attorney
Making CCS Work, Rotterdam, Nov 12, 2014



Core Business Jos Cozijnsen, MMA

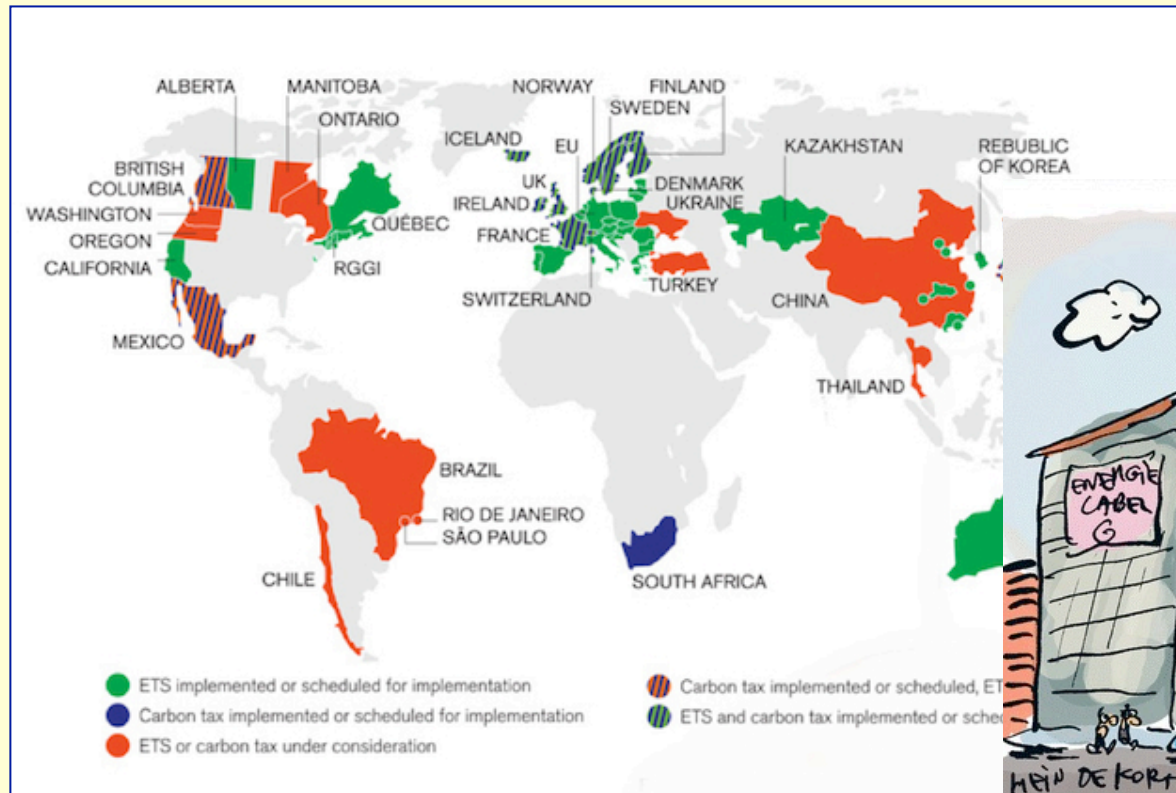
emissierechten.nl

de website over emissie-handel
milieuzorg & marktkansen

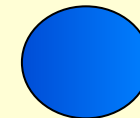
- Legal Advice
- Strategic Advice
- Websites, Columns & Seminars
- Market analysis
- Firms, NGOs, Authorities
- NL, EU, International
- CO2-capture and storage, agriculture, deforestation REDD, domestic off-set projects

Content

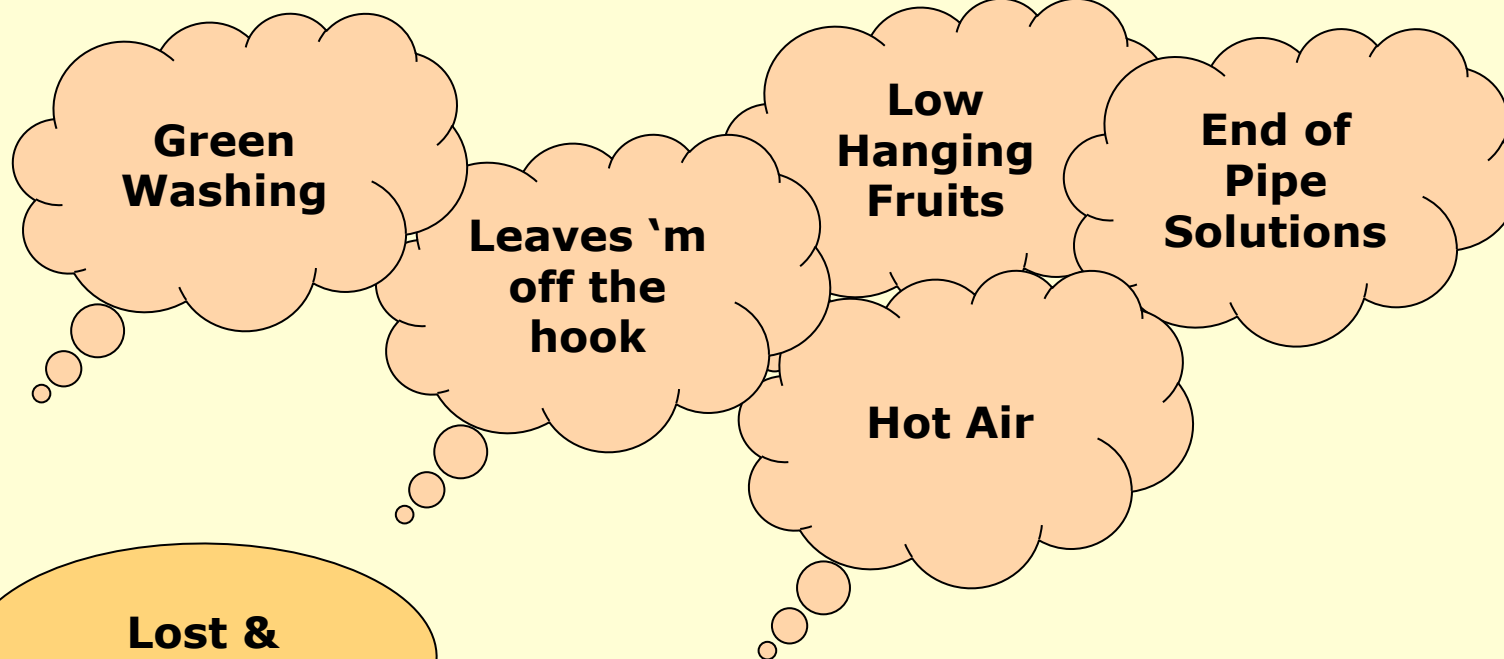
1. Is CCS Ready for the EU ETS
2. Is the EU ETS ready for CCS?



Cap and Trade: Mythe?



Ambition



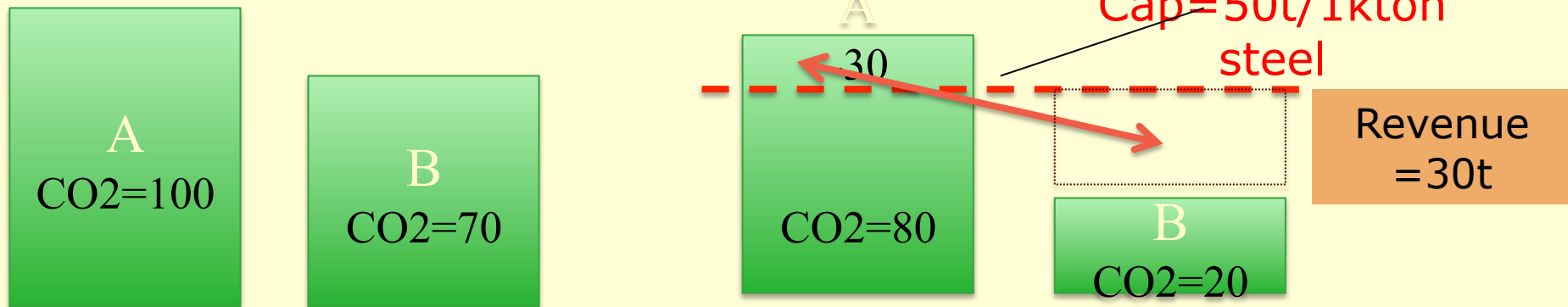
System



EU CO₂-trade #101

'ex-ante' cap and trade

Before ETS: 170 ton CO₂
Both Steel factories →

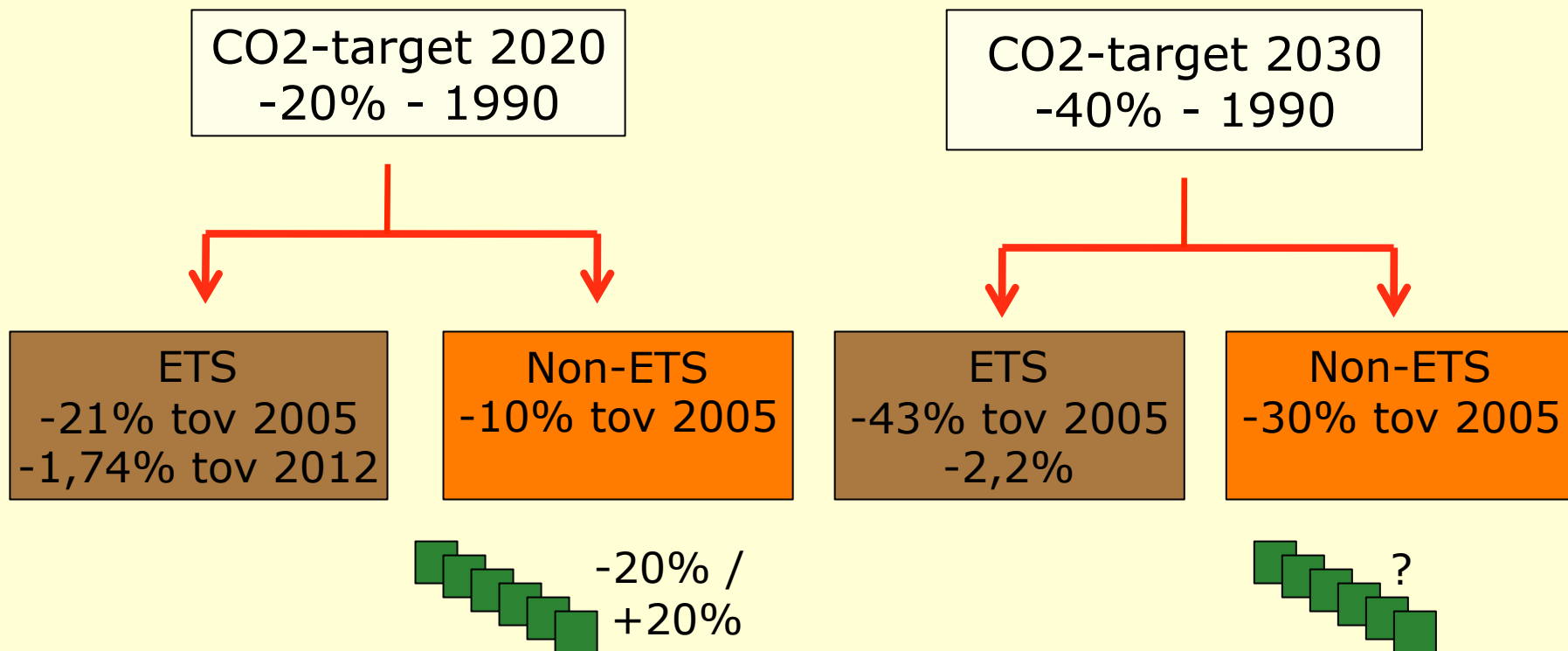


Via Cap and Trade, cost can be contained
Surplus can be traded or banked

Fewer
Cos

Income

EU Cap+Trade and CO2-targets



But EU ETS Prospects Changed



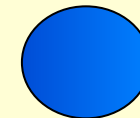
- CO2 from THE driver for innovation to co-benefit, part of business case
- CO2 price expectation from €50-60 in 2030 to € 30-40
- NER300: No EU CCS Pilots
- No CDM Pilots in the South
- Global Climate Agreement 2015:
 - more country participation first, than over-achievement and ambition
 - Expanding global market in fragments



EU ETS is ready for CCS

- Storage Facility gets CCS Permit;
- Complete chain is under EU ETS, monitoring, verification, surrender allowances for emissions
- No Allowances for CCS
- Power avoids CO2 Allowance Cost
- Industry saves CO2 Allowances
- NER300/400 for CCS Pilots

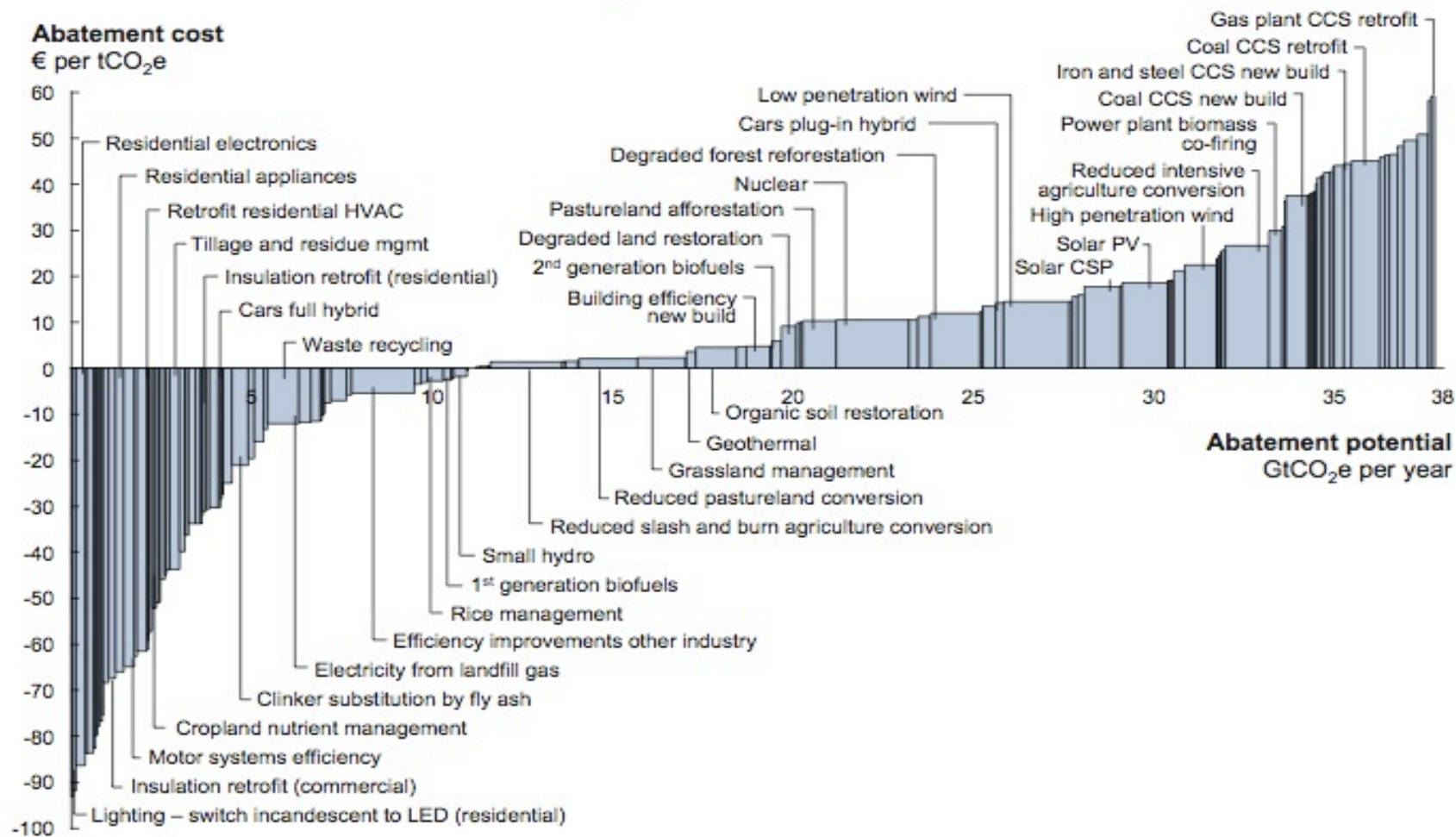
CO2-price



- Early: price perspective on basis of marginal cost to meet Kyoto: €20 in 2012
- Later: perspective what's needed for long term
 - Coal/Gas switch: € 25
 - CO2-storage € 40-60
- Fundamentals: Demand/Supply, Forwards, Hedging, Banking
- But: Low liquidity, cold winter: €33 Euro
- High oilprice: high gas price → upwards CO2 price → saving → downwards CO2 and price
- Low oil price → low growth → no savings → high CO2 price?
- Surplus: over allocation in pilot phase: €9-0,10
- Now: crisis (low demand), no forward look

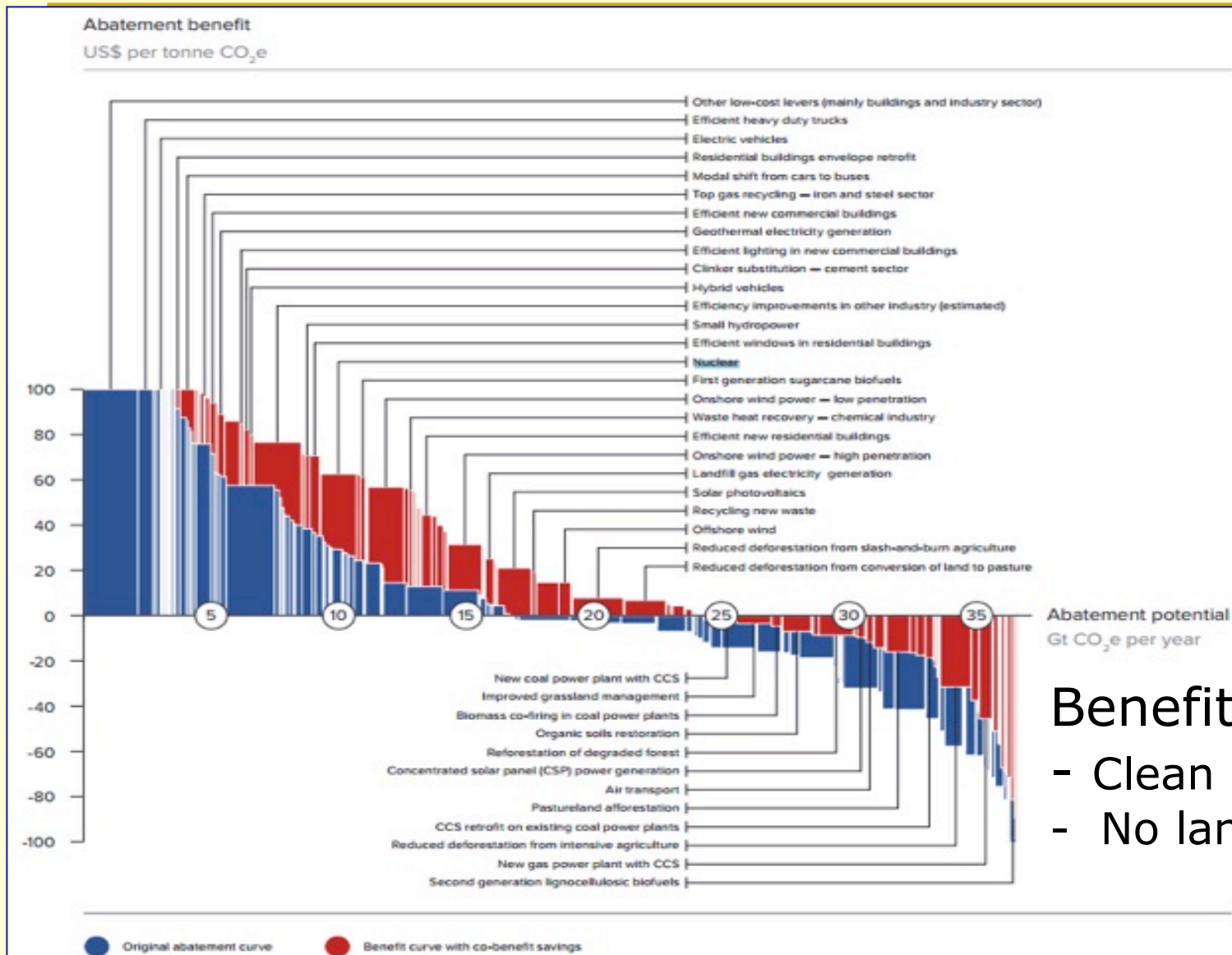
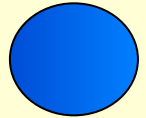
Global MAC 2030

Global GHG abatement cost curve beyond business-as-usual – 2030



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €60 per tCO₂e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.
Source: Global GHG Abatement Cost Curve v2.0

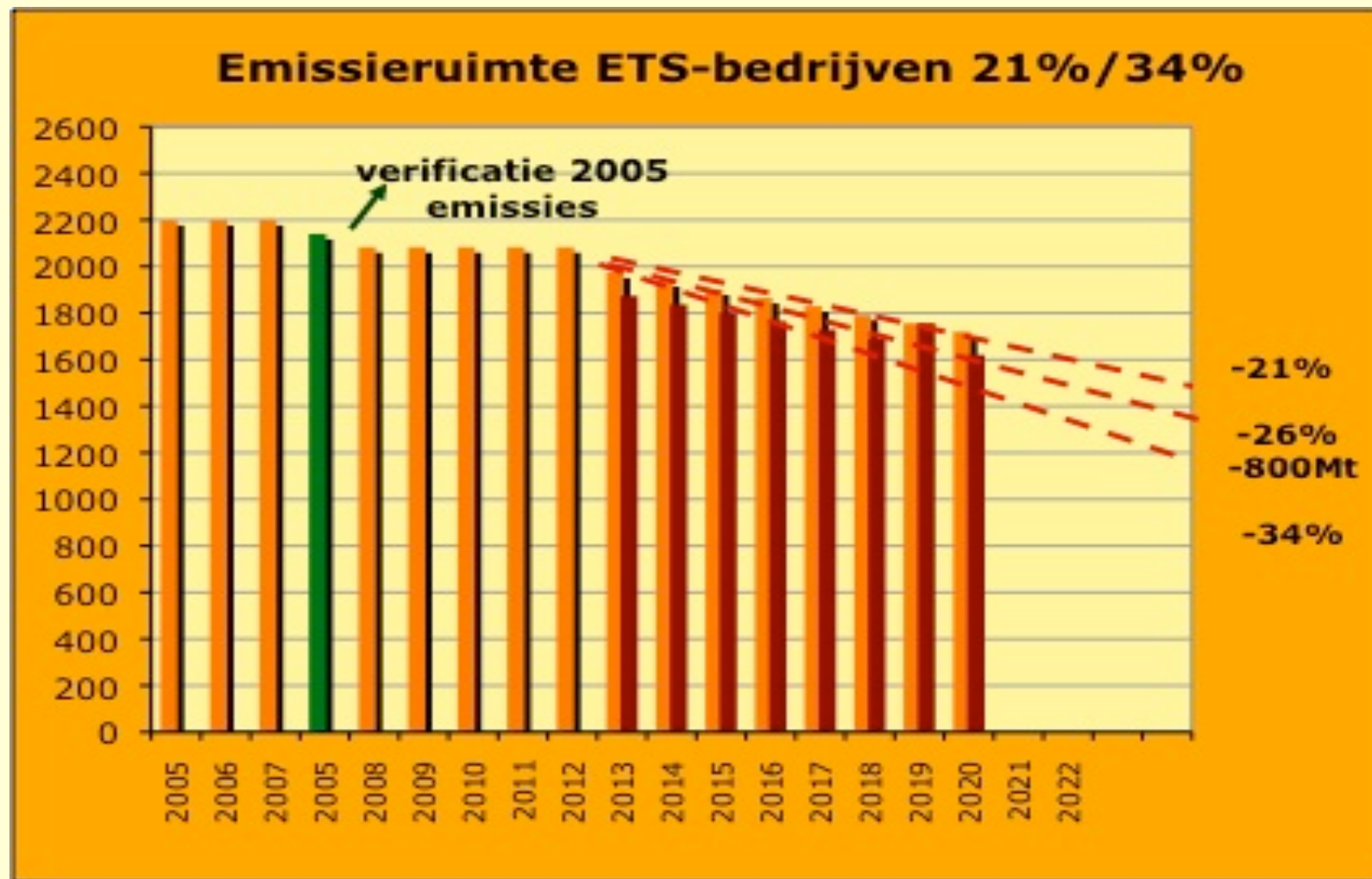
MAC with Benefits



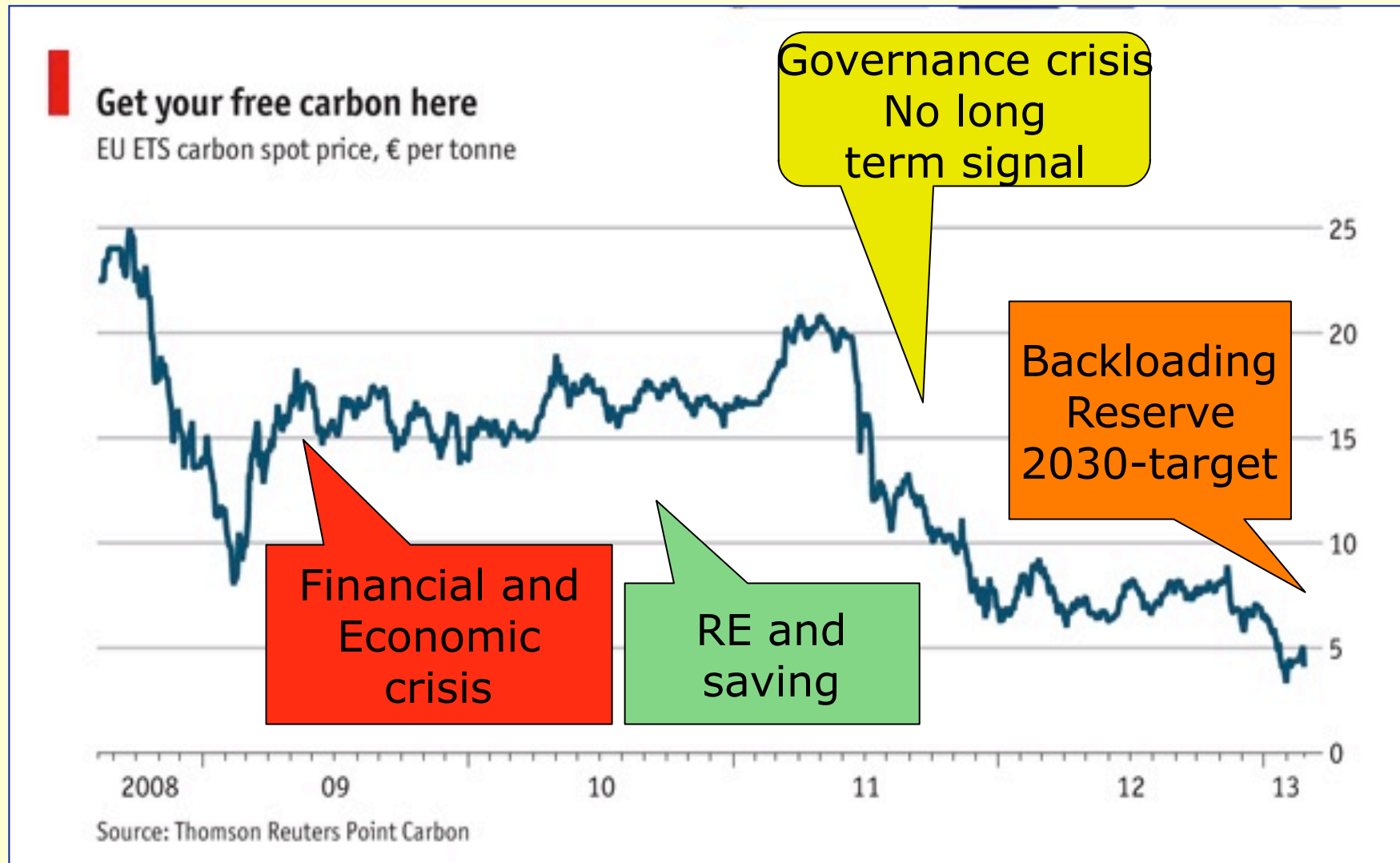
Benefits:

- Clean air
- No land subsidence

Shortage: fundamentals



CO2-price 2008-2013



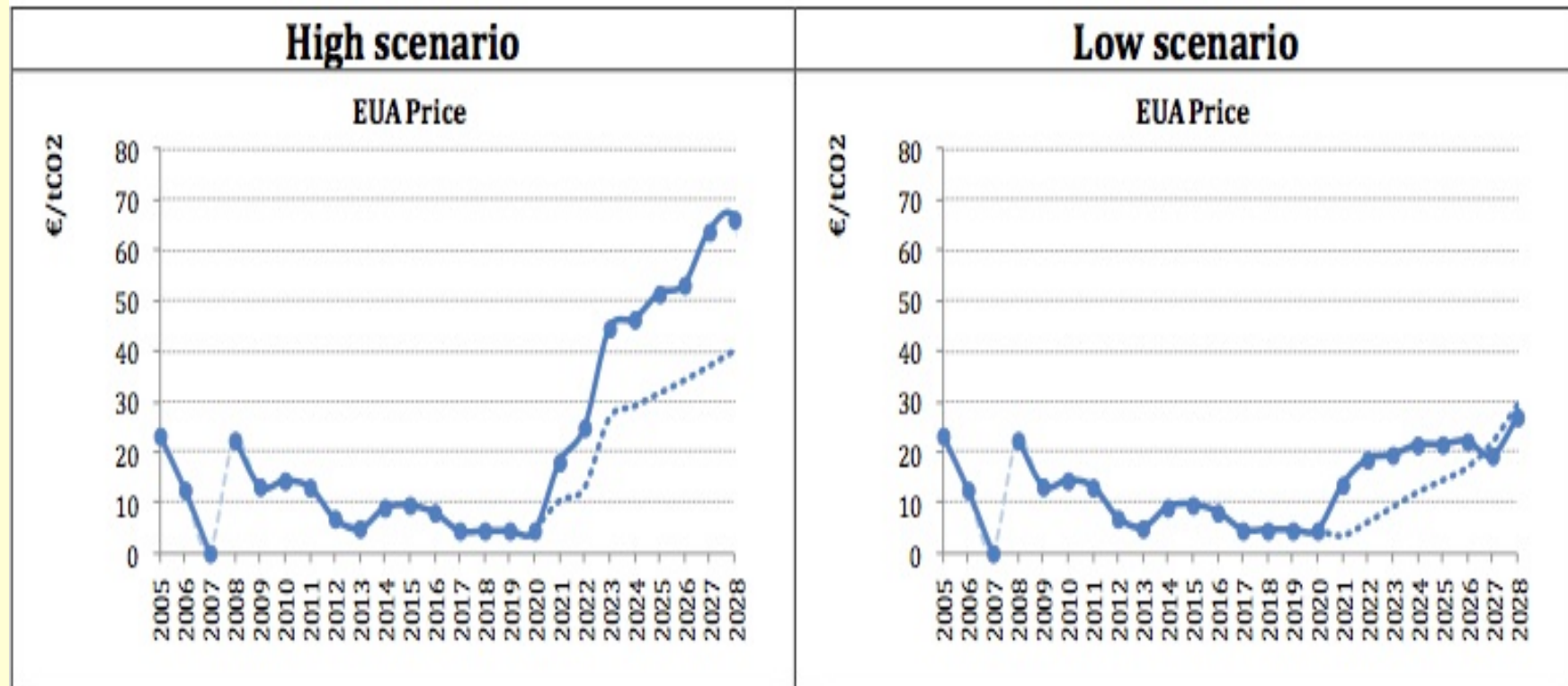
CO2-price vs Stocks



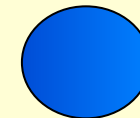
Strengthening ETS

CO2-price projection 2028

- Backloading and Carbon Market Reserve
- High (much banking): € 40-65; Low: € 28-30

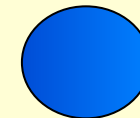


Strengthening ETS



- ETS ready for long term target, stable price signal prevents future price peaks;
- Cost reasonable: €20 in 2020 / €40 in 2030
High Quality Offsets in EU (buildings, SMEs, transport agr, forest) in South (RE, REDD etc)
- Carbon Leakage, protects firms if it is real: after 2015 Climate Agreement, comparable efforts; no leakage protection anymore
- Most sectors can pass through the cost & limit cost
- Market Stability Reserve: for surplus after 2015 plus include Offloaded allowances

CO2 Price, Nov 11, 2014

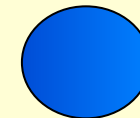


Get CCS Ready for EU ETS



- Optimize: Priority to Industry-based CCS (waste heat) and off-shore EOR
- Separate power from industry in ETS: CCS support leads to lower CO2 Price
- Expanding CCS with Biobased CO2 as source: double benefit: avoid CO2 and and store CO2 netral CO2
- Value co-benefits of CCS: clean air, no soil

CCS Use

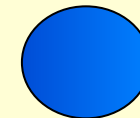


		CO ₂ Storage	
		Permanent	Not Permanent
CO ₂ Feedstock	Captured high concentration CO ₂	EOR ECBM EGS Bauxite residue	Urea Polymers Renewable methanol Formic acid
	Dilute CO ₂ flue gas	ECBM Mineral carbonation Concrete curing Algae cultivation	Algae cultivation



Carbon Market Strategy

- Future revenues for selling carbon allowances can be secured by future selling over the exchange (ECX/EEX)
 - Transferred and paid in future
 - 3 Mton: 2015-2030: € 1bln @ €20/ton av
 - In liability reserve: lowers risk cost
- Future saved allowances as collateral and future cost reduction can improve finance/credit situation



Thanks

Jos Cozijnsen

Jos_cozijnsen@planet.nl

jc@emissierechten.nl

www.emissierechten.nl

@timbales