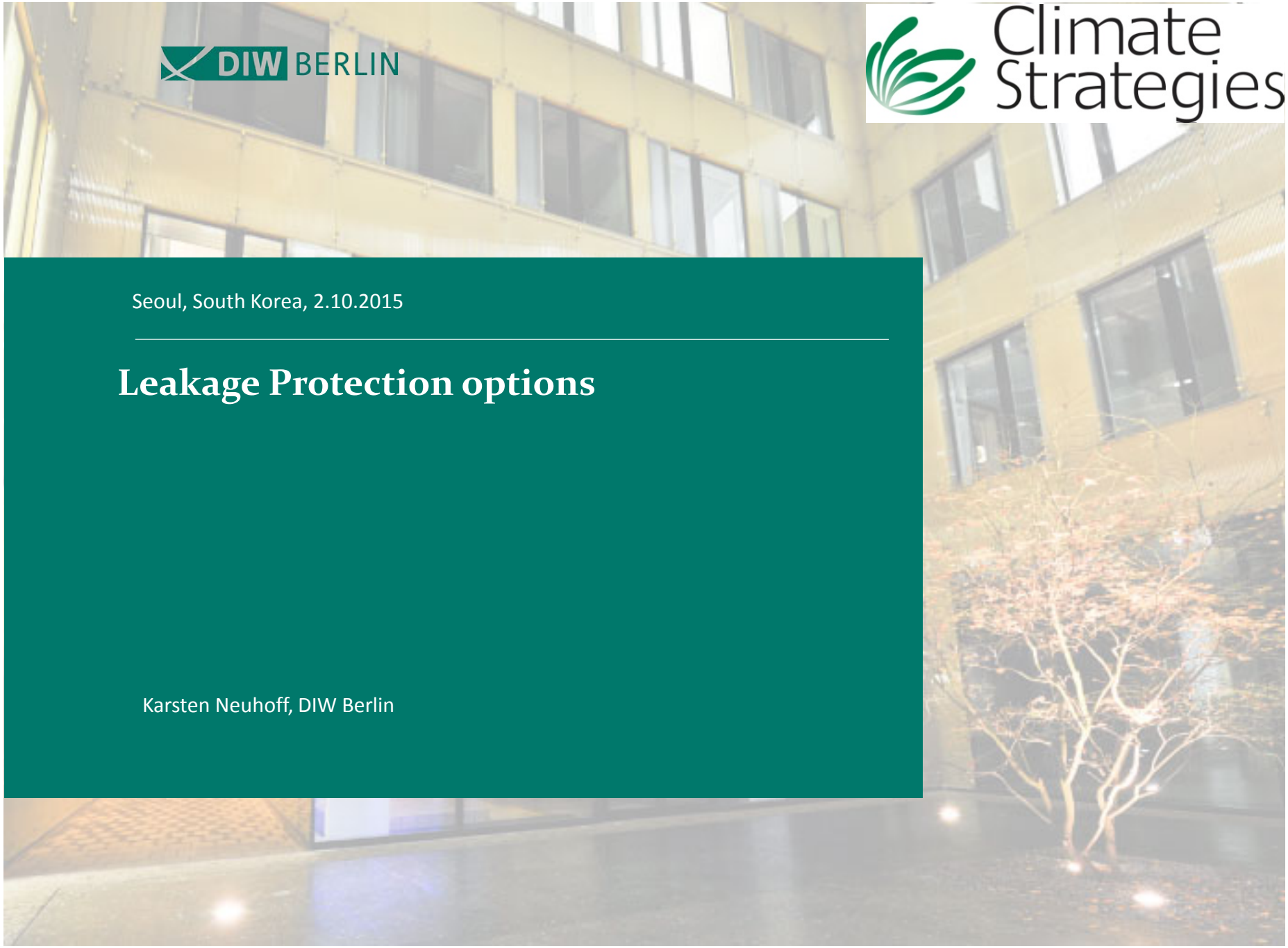

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Leakage Protection options

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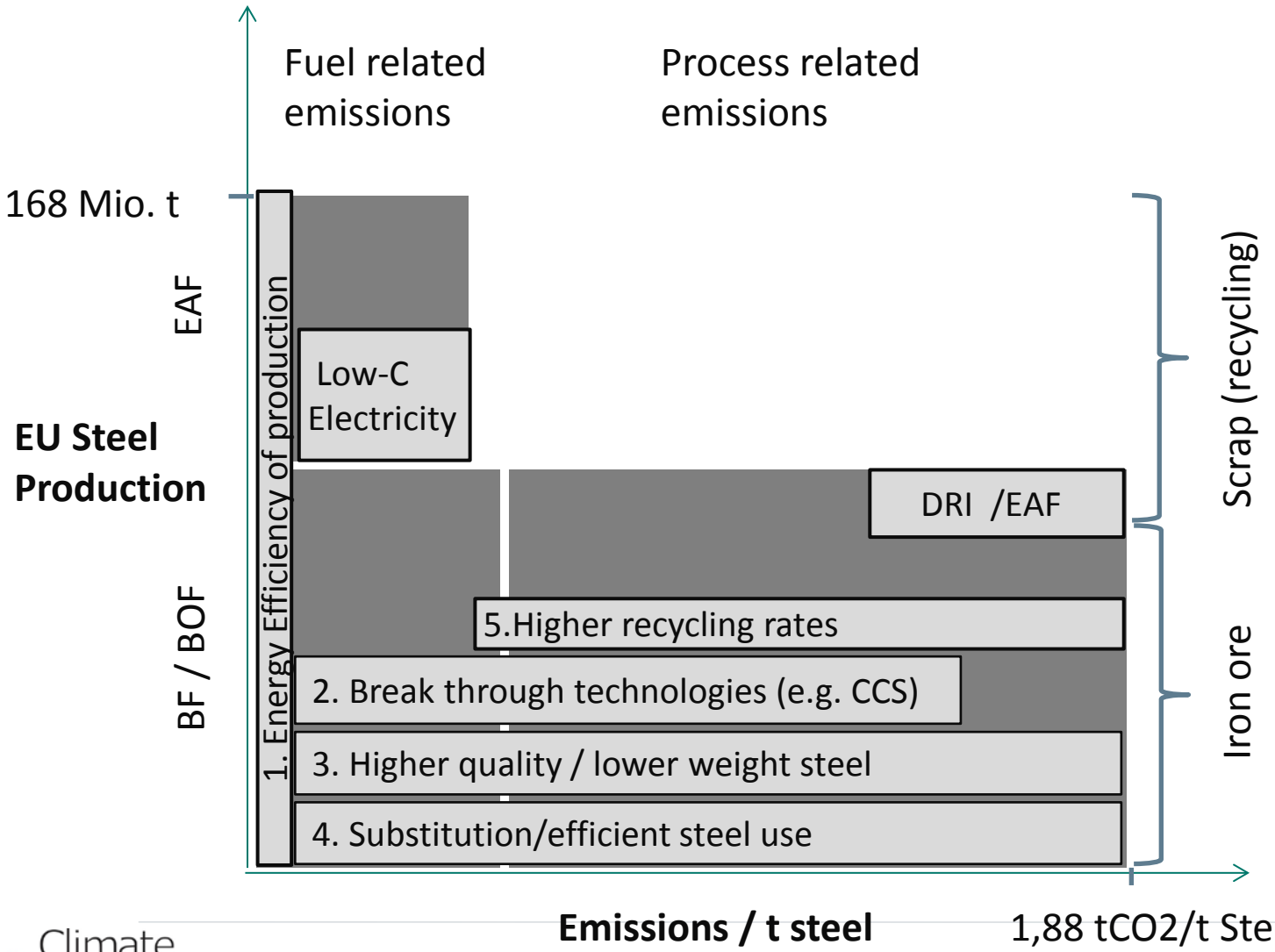
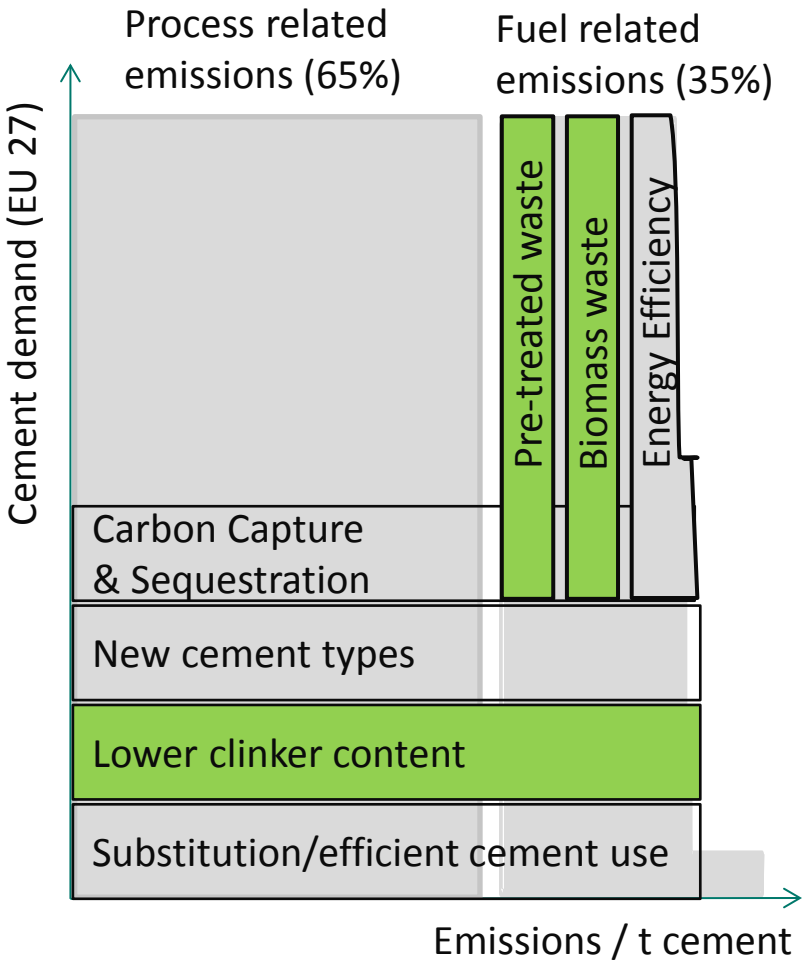
1 Example: CO2 abatement opportunities in steel

Illustration



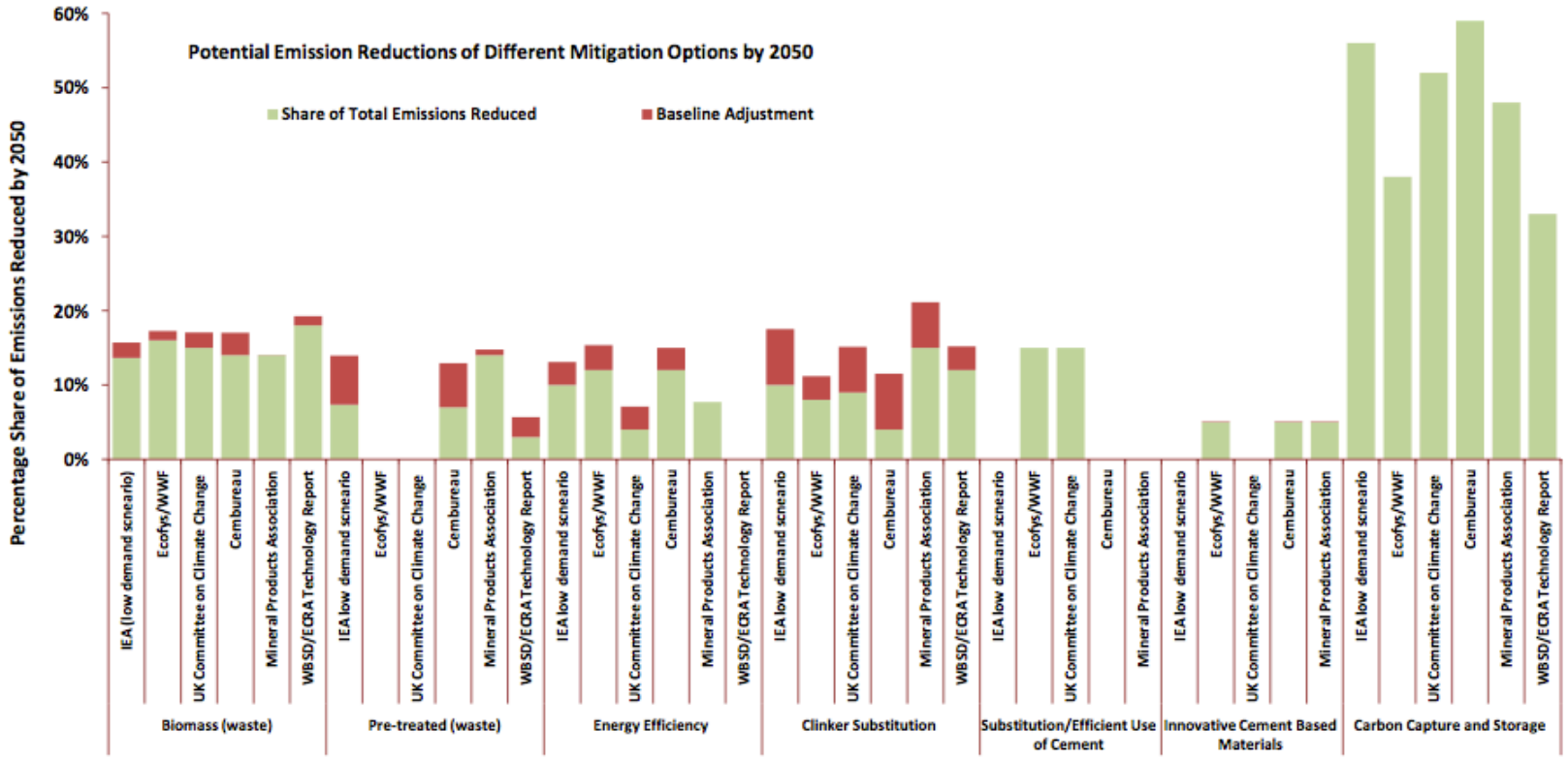
Source: Carbon Control and Competitiveness post 2020: The Steel Report, Climate Strategies

2 Modernisation and innovation opportunities: example cement



3 1990 to 2050 Roadmap emission reduction potential

Figure 3. The relative share of the major emission reduction levers to reach 80% CO2 emission reduction from 1990 to 2050



*Baseline Adjustments are based on the data collected from GNR database. Pre-treated waste have been calculated with the assumption that alternative fuel use mainly consists of biomass and pre-treated waste.

Source: Compilation of different cement sectoral roadmaps

- Roadmaps proposed by industry, GOs, NGOs and academia converge,
- Large majority of the 1990-2050 reduction potential still to be realized.

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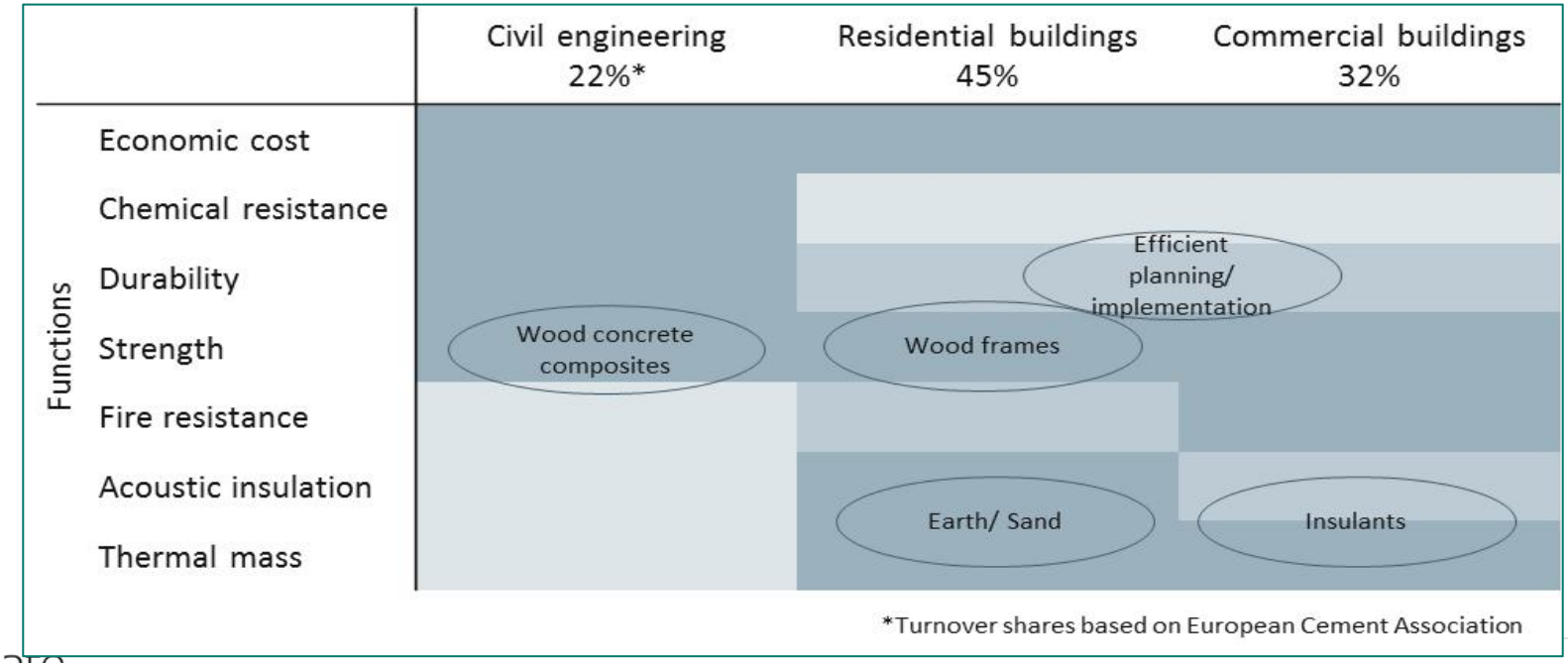
4 Low carbon cement and efficient use of cement

- Primary customer demands:
  1. Proven long-term product quality, adapted to application;
  2. Price.
- In the absence of CO2 cost pass through there is little market incentive for low CO2 construction materials.
- But the price signal alone is insufficient; other incentives are indispensible.

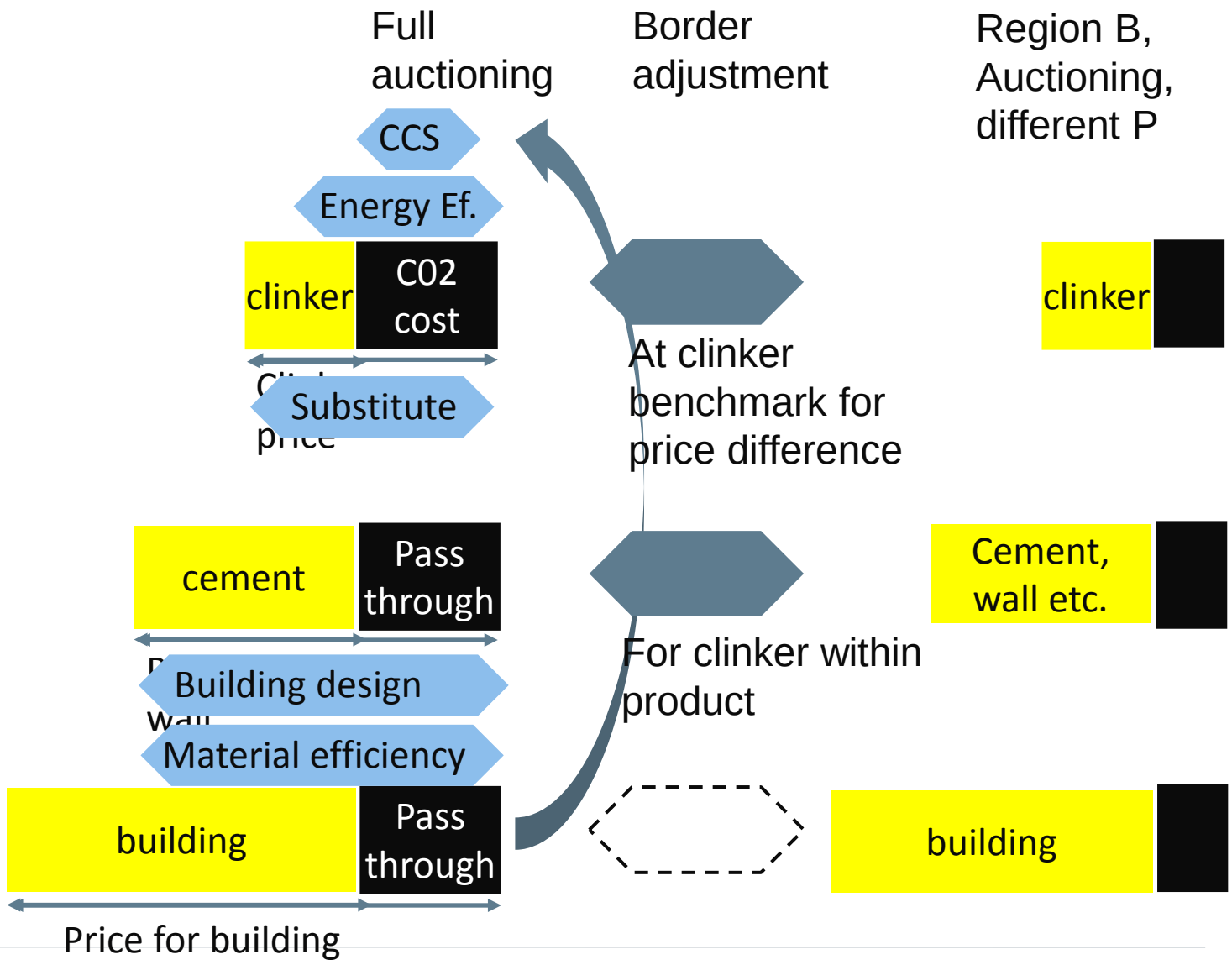


5 How can the carbon price work along the value chain?

Efficient clinker production, Bio-mass ..

Clinker substitution, Low-carbon cement, Efficient use (building practices, etc.),

Long term perspective for break-through technologies like CCS



Neuhoff, K., Keats, K. and Sato, M., 2006, Allocation, incentives and distortions: the impact of EU ETS emissions allowance allocations to the electricity sector, Climate Policy, 6 (1), p 73-91.

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6 How does free allocation for leakage protection impact effectiveness of carbon price?

		Auction	Free allocation			
		Global or BTA	Moving base line	Historic intensity dynamic	BM dynamic	BM dynamic + IOC
Efficient clinker production, Bio-mass ..	clinker	C02 cost	Opportu nity cost	Opportu nity cost	C02 cost	C02 cost
Clinker substitution, Low-carbon cement, Efficient use (building practices, etc.),	cement, wall etc.	Pass through	Pass through	No incentive	No incentive	Consum. charge
Long term perspective for break-through technologies like CCS	building	Pass through	Uncer ain	Cross-subsidy	Cross-subsidy	Consum. charge

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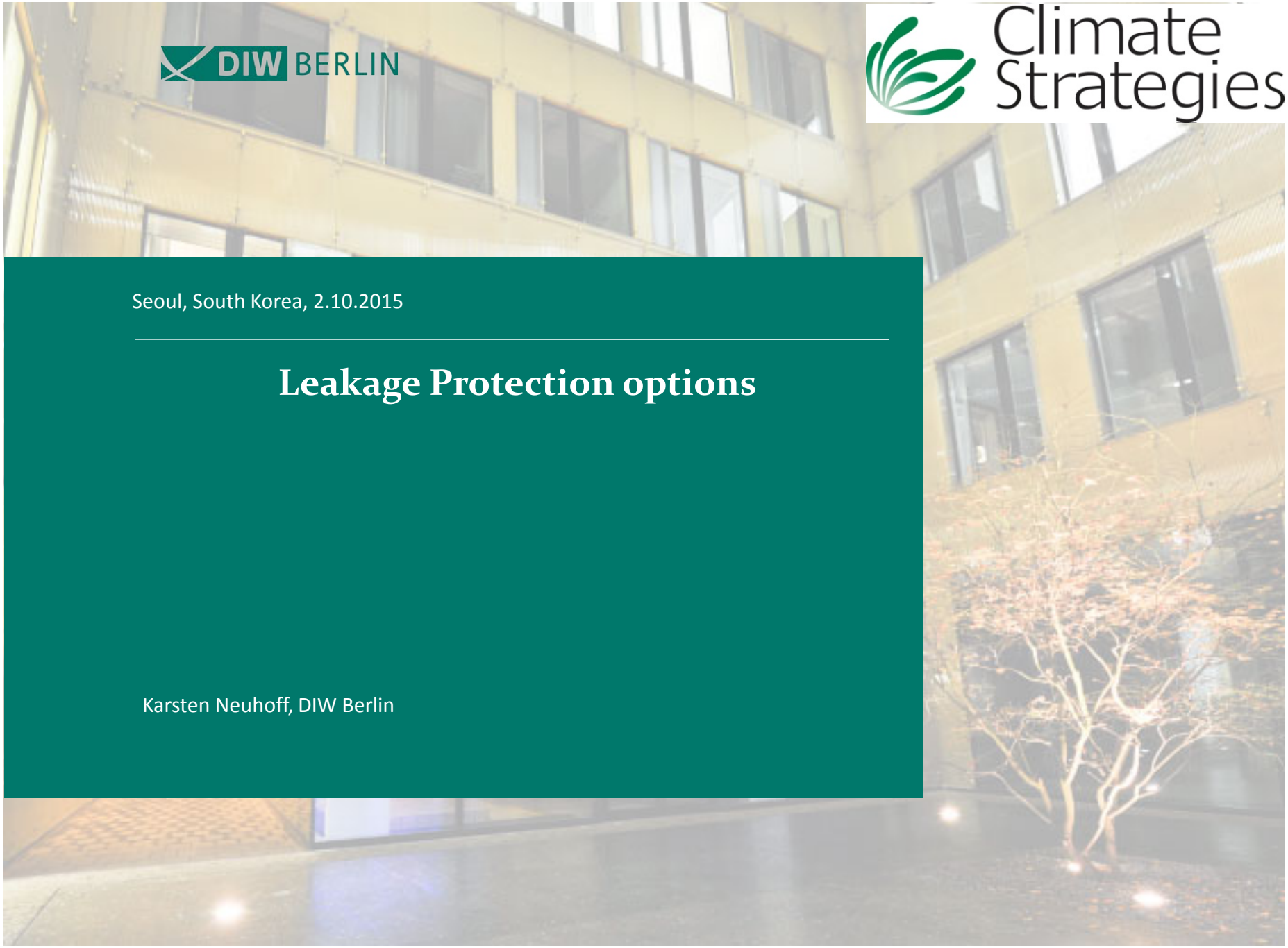

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2 Results from Steel Sector Study: Policy requirements for investment in modernization

	Strengthening ETS	Carbon price along value chain	Engagement of all actors	Funding of technology innovation
Unlocking efficiency potential	x			
Business case for break-through technologies like CCS	x	x		x
Higher value steel products and efficient use	x	x	x	x
Increasing recycling rates			x	

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Source: Carbon Control and Competitiveness post 2020: The Steel Report, Climate Strategies

1 Policy requirements for modernization and innovation

	Strengthening ETS	Carbon price along value chain	Engagement of all actors & regulation	Funding of technology innovation
Biomass and fossil waste	x		x	
Unlocking efficiency potential	x			
Clinker substitution	X	x	x	
Business case for break-through technologies like CCS	x	x		x
Low-carbon cement and efficient use (building practices, etc.)	x	x	X	x