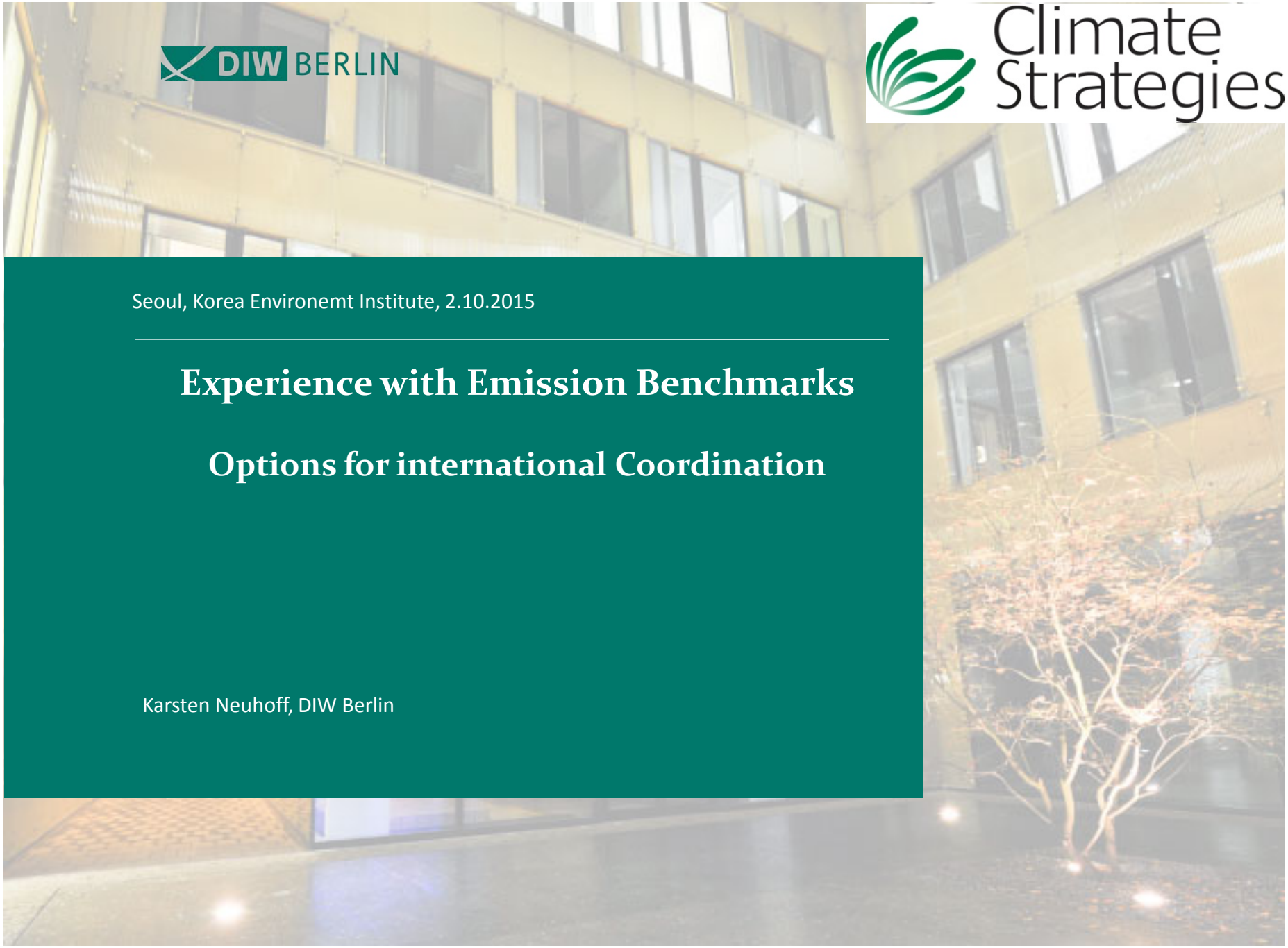


Seoul, Korea Environemt Institute, 2.10.2015

Experience with Emission Benchmarks

Options for international Coordination

Karsten Neuhoff, DIW Berlin

1 The evolving role of free allowance allocation

Compensate using historic emissions (intensity)

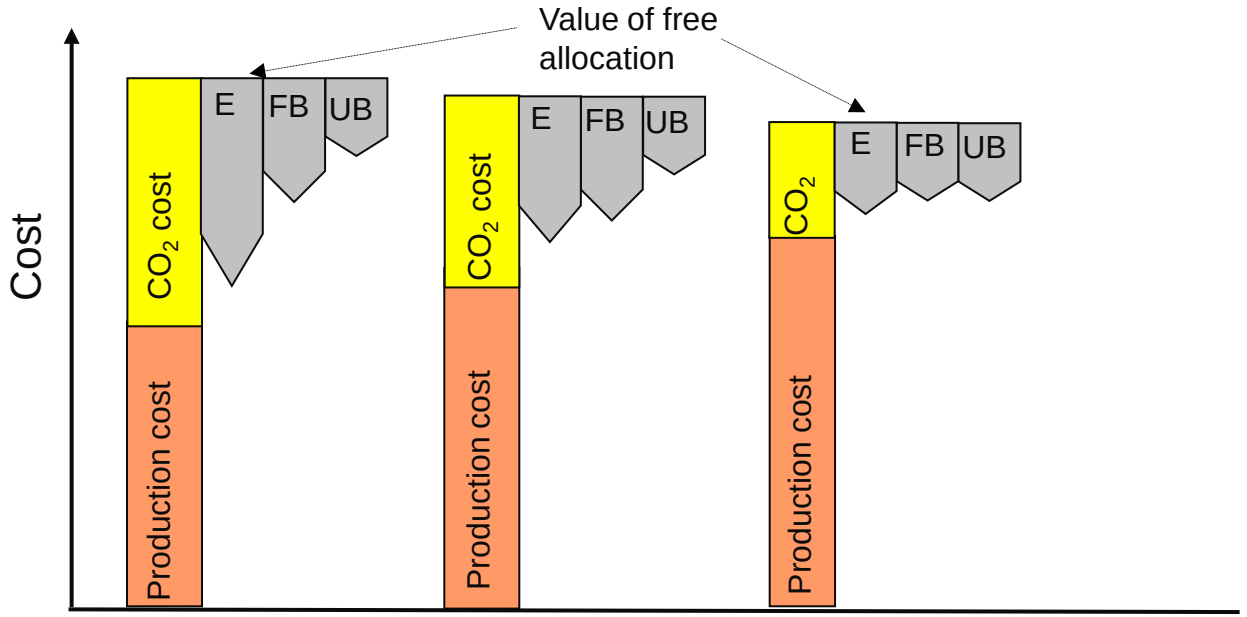
Leakage protection with less distortions

Global carbon price

Use Benchmarks:

Retain incentive for efficiency & early action

2 Initial motivations of moving to benchmarks



	Uniform benchmark (UB)	Fuel specific benchmark (FB)	Emission based (E)
Efficient production	√	√	
Choice of the best input	√		
Support early action	√	√	

Source: Climate Policy after Copenhagen / the role of Carbon pricing, Cambridge University Press, earlier version 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),

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Benchmarking: definition and design

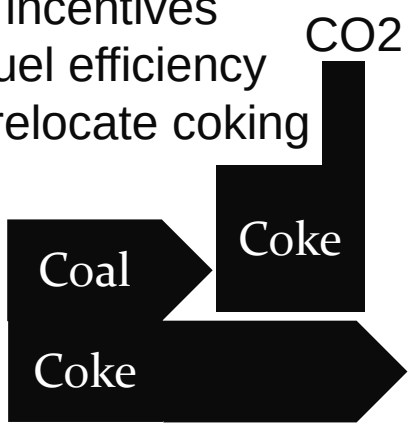
- Relevant benchmarks will drive change – whether the change means progress depends on 2 critical elements:

1. Clear definition of the purpose including the answer to very specific questions and options
2. A sound methodology that serves no other purpose than to implement the definition

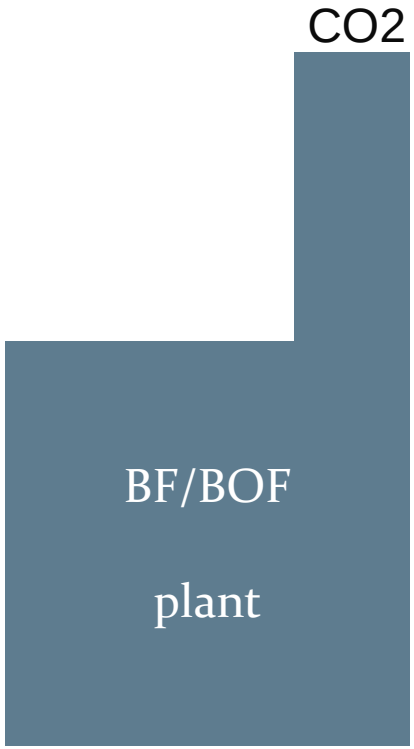
- Benchmarks are custom made and give answers only in the framework of their specific definition
  - key concerns are **perimeter/ scope** and **precision**

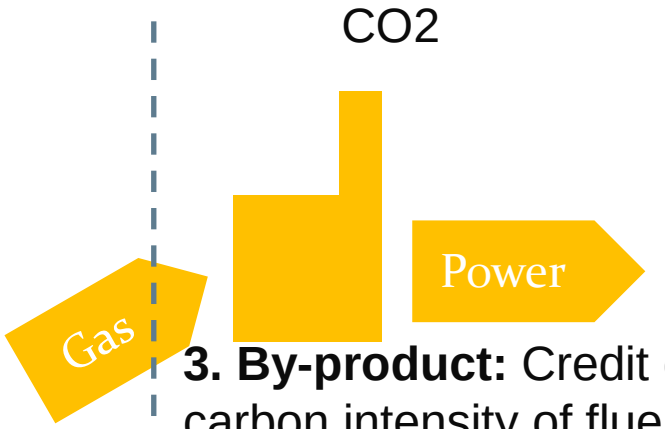
3 Perimeter and scope of benchmark – clarity for process

1. Intermediate products
Create incentives
- for fuel efficiency
- not relocate coking

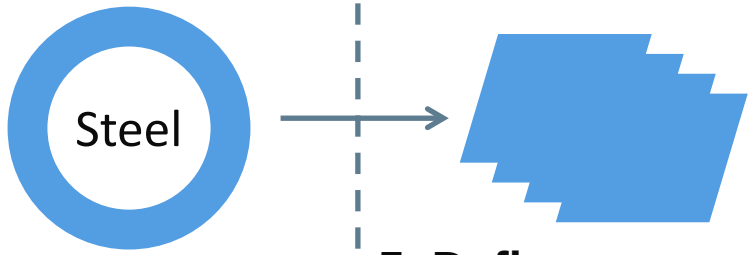


2. Scarce resources
Avoid only shifting scrap use to ETS regions

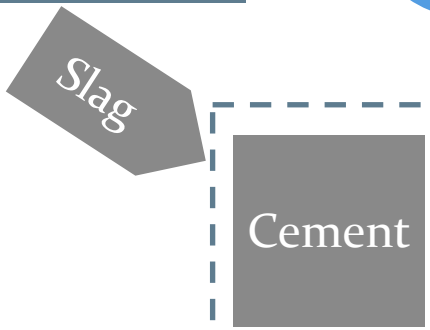




3. By-product: Credit extra carbon intensity of flue gas



5. Define scope



4. By-product:
Competing with clinker for cement

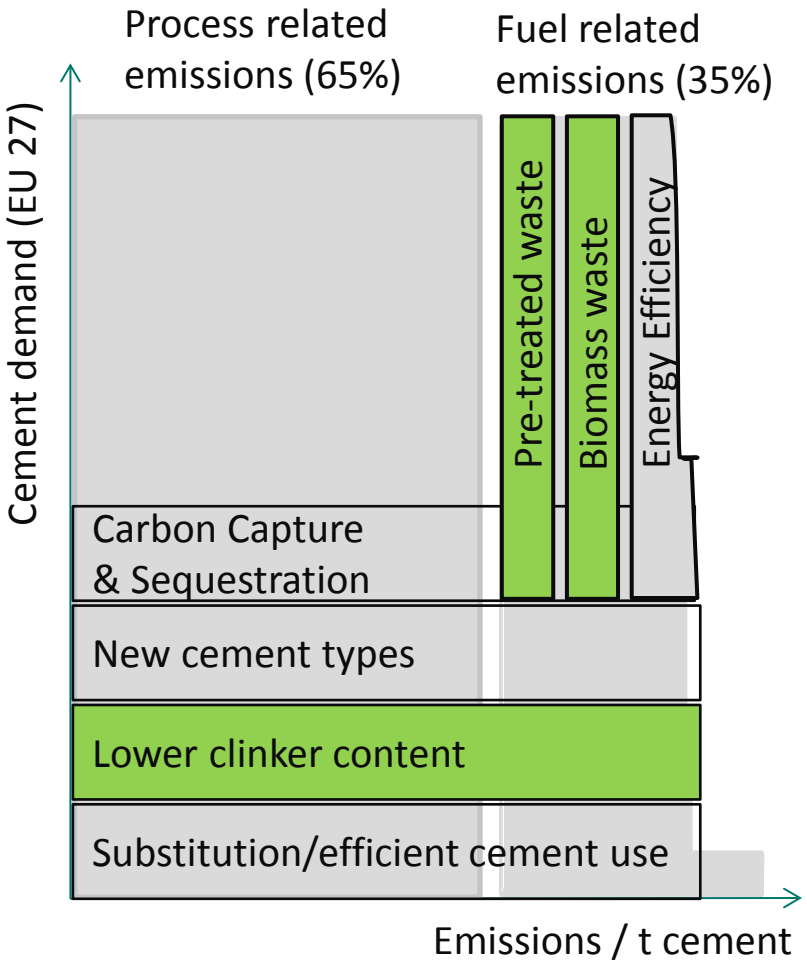
4 The evolving role of benchmarks

Use Benchmarks:

Retain incentive for efficiency & early action

- Experience
- Methodologies
- Data requirements
- Process emissions
- BM to guide corporate decisions

5 Modernisation and innovation opportunities: example cement

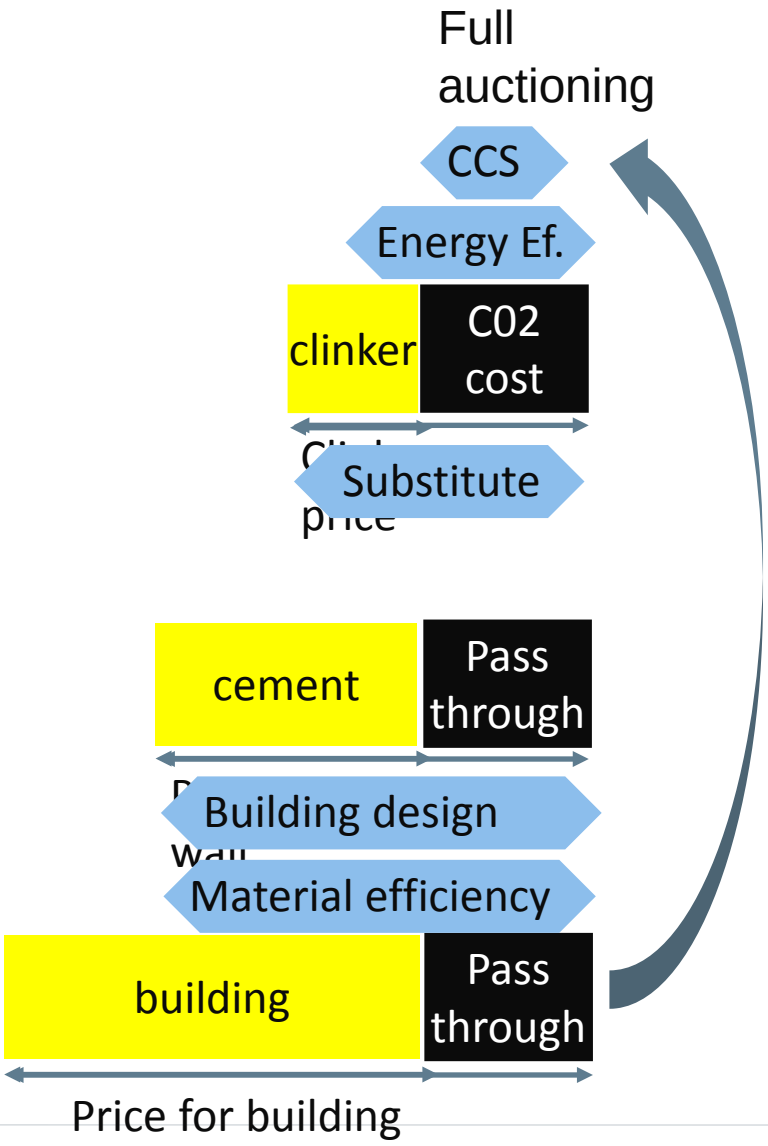


6 How can the carbon price work along the value chain?

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.

7 The evolving role of benchmarks

Use Benchmarks:

Retain incentive for efficiency & early action

- Experience
- Methodologies
- Data requirements
- Process emissions
- BM to guide corporate decisions

Share Benchmarks:

Secure incentives for innovation

- Updating over time
- Options for international cooperation

International cooperation

- Achieving international agreement on methods systems is extremely difficult
  - Regional differences in practices can have impact on performance – little willingness to accept penalizing system
  - Most regions have already established methods of evaluation – major resistance to change over to another system
- Developing standards is painstaking and inconclusive:
  - ISO14404 pleases Japan not acceptable for Europe
  - CEN TC 264 is already crippled due to internal EU quarrels but still not acceptable outside EU
- Problem: if everyone is allowed to design his own benchmark emphasizing his strong points downplaying the weak points many can be best in class in their own system (cf EU energy benchmarks)
- Maybe need for independent high level authority whith responsibility to solve all issues and guarantees efficiency

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

		Auction	Free allocation		
		Global or BTA	Moving base line	BM dynamic	BM dynamic + IOC
Efficient clinker production, Bio-mass ..	clinker	C02 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	Consum. charge
Long term perspective for break-through technologies like CCS	building	Pass through	Uncer tain	Cross-subsidy	Consum. charge

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The evolving role of benchmarks

Use Benchmarks:

Retain incentive for efficiency & early action

- Experience
- Methodologies
- Data requirements
- Process emissions
- BM to guide corporate decisions

Share Benchmarks:

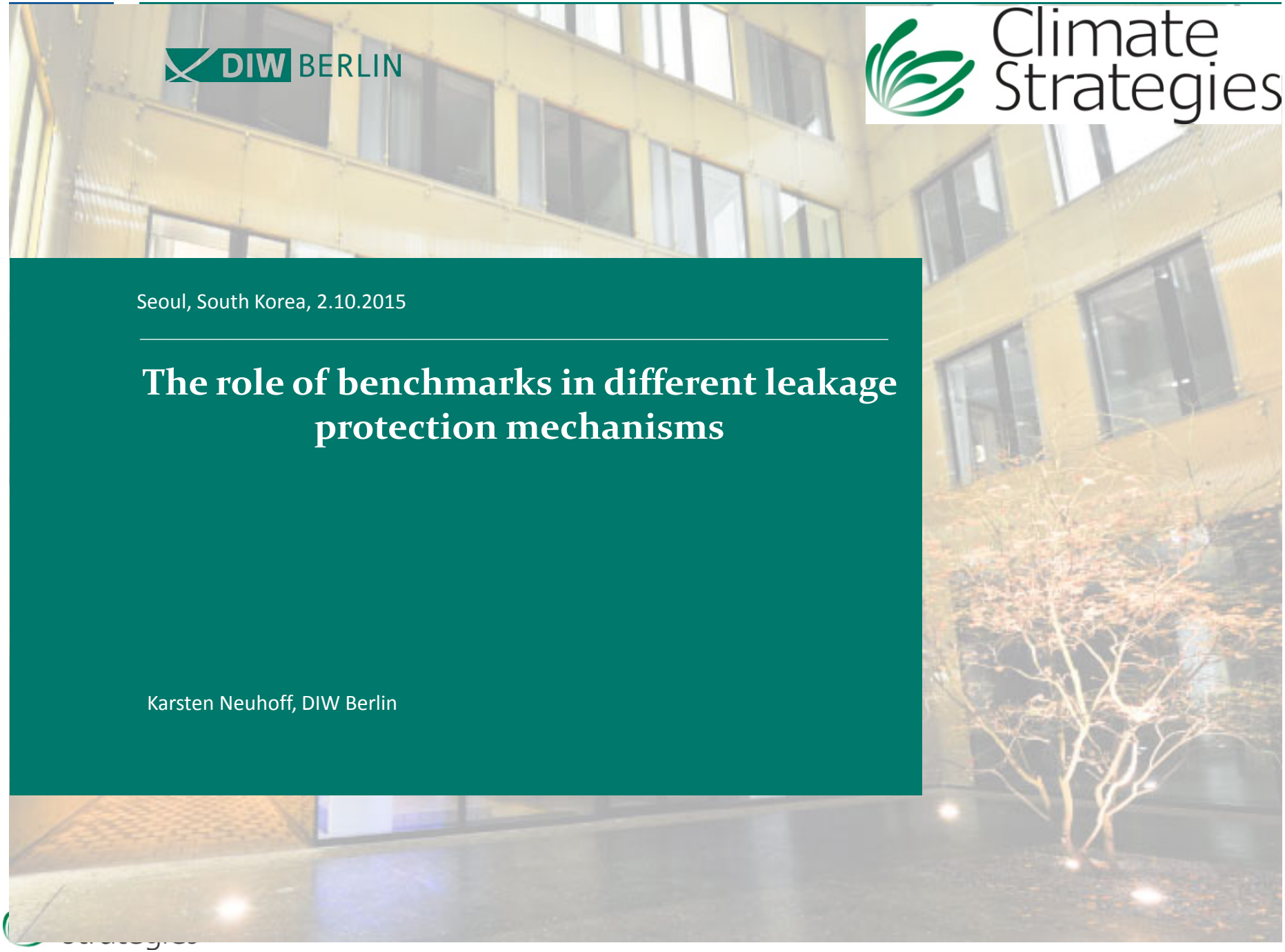
Secure incentives for innovation

- Updating over time
- Options for international cooperation

Extent to value chain:

For efficient use, Modern materials, Break through tec.

- Options for leakage protection
- BM design for consumption charge



Seoul, South Korea, 2.10.2015

The role of benchmarks in different leakage protection mechanisms

Karsten Neuhoff, DIW Berlin