Taking Stock: Emission Trading andCost Effective Emission Reduction The European and German case

by

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Emissions Trading in China and Europe

Taking Stock, Thinking Ahead, Looking Beyond

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Facts and History

- Europe's and Germany's energy systems are traditionally based on fossil fuel – especially on coal
- Europe and Germany is poor of resources and there is a high dependence on imports of raw material and energy → possible threats to resource and energy security → huge transfer of welfare from Europe and Germany to energy exporters
- Economic backbone: Engineering and International Trade
- Strong dependence on exports

Framework for Policy architecture

- High awareness of the population respectively the societies on Environment and Climate
- Economy and society traditionally focussing on technology and technological development
- Economy oriented on export – concerned about international competitiveness
- Traditional instruments in place like command and control. Taxes and charges as well as subsidies

Overarching needs

- Keeping economic growth and jobs
- Protecting Environment and Climate
- Innovation and creativity – technological development
- Cost effectiveness and cost efficiency
- Creation of synergies between existing P&M‘s and the new ETS (comprehensive strategy)
- Thinking on future generations and future needs

History of the Implementation

History

- The discussion on „carbon pricing“ in Europe – the internalisation of external environmental effects - started early - in the late seventies respectively In the early eighties
- In Germany we focussed our interest on emissions trading 1982/1983 with the aim to create a new clean air policy
- At the beginning there has been a discussion as well on taxes/charges and emissions trading
- The decision to base the Climate Change policy on emissions trading has been taken at the end of the eigties and the beginning of the nineties

The Trading Periods - reflecting the experiences

Emissions Trading Phase	Time Frame	Structure and responsibility	Jugdement
First Phase	2005 - 2007	one European Directive but 25 National Allocation Plans (NAP‘s) – which means: 25 National ETS reflecting	national interestPilot Phase – weak implementation to convince all actors
Second Phase	2008 - 2012	one European Directive but 25 National Allocation Plans (NAP‘s) – again 25 National ETS reflecting national interests	Making the ETS much stronger – more auctioning for the non carbon leakage sectors
Third Phase	2013 - 2020	Transition to a real European Instrument – 100% auctioning for the power sector – benchmarking for carbon leakage industy	Making ETS mor effective - keeping efficiency – being aware of carbon leakage
Fourth Phase	2021 - 2030	European instrument – balancing supply and demand – more flexibility –keeping carbon leakage rules	Reducing the overliquidity –using MSR – keeping carbon leakage rules

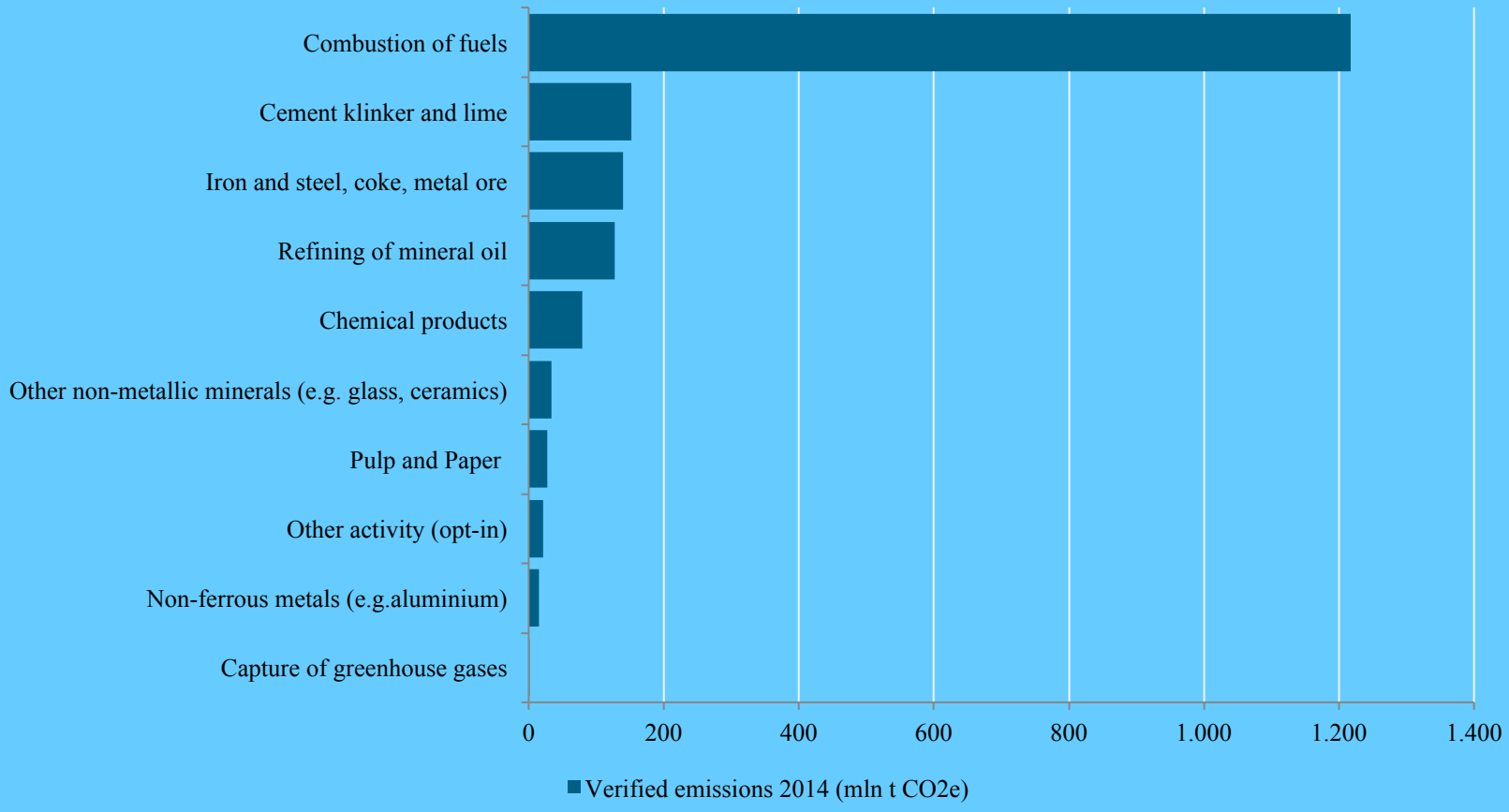
Overview First to Third Trading Period in the EU and in Germany

	No. of installations	Cap Ø* [Mt CO_2-eq/a]	Scope
1st TP			
EU	~10,600	2,299	energy generation, refineries, iron and steel, mineral-processing industries, pulp and paper
Germany	~1,700	499	
2nd TP			
EU	~11,600	2,083	+ steel-processing, mineral-smelting, propylene, ethylene and carbon black; aviation (from 2012 on)
Germany	~1,700	444	
3rd TP			
EU	~12,000	1,950	+ processing of non-ferrous metals, production of aluminium (+PFC), adipic and nitric acid (+N_2O), ammonia
Germany	~1,900	-	

* Without aviation.

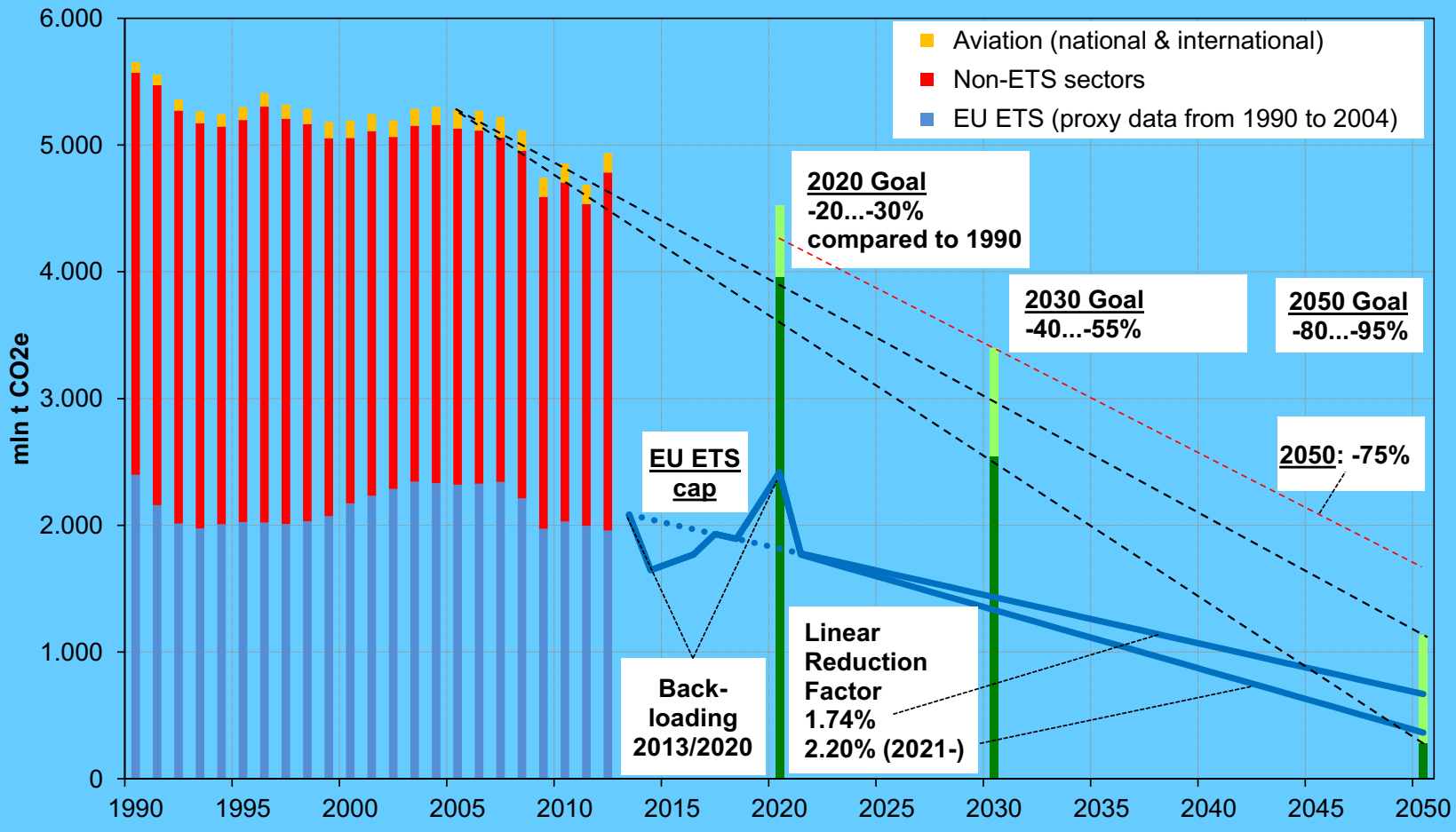
Source: EEA, Trends and Projections 2008, 2009, 2013; DEHSt

Activities and sectors in stationary EU ETS



Source: EEA

ETS and Decarbonisation



Lessons learnt

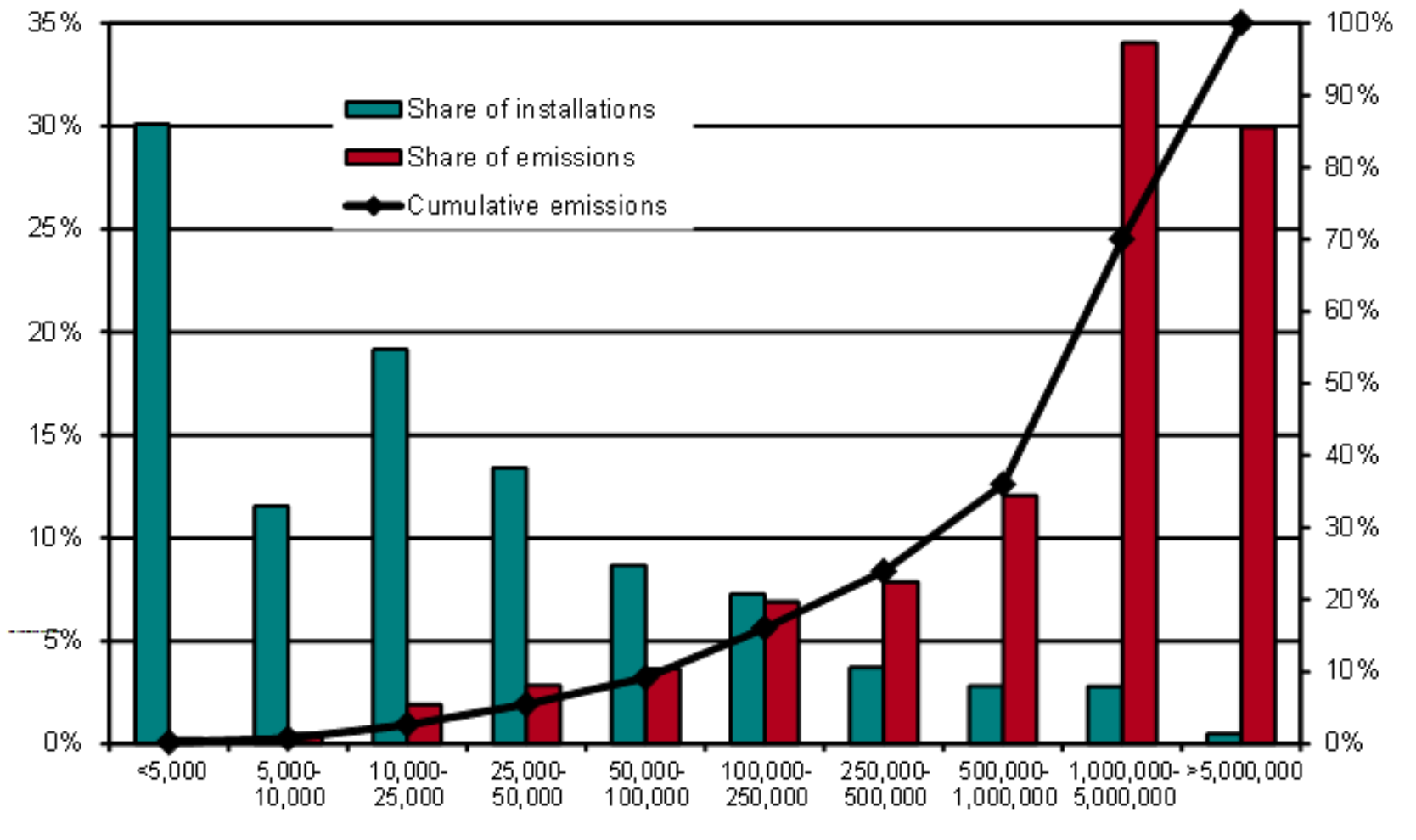
Lessons learnt I

- The implementation of a unknown instrument like Emissions Trading needs a long time
- The process should start with a (weak) Pilot Phase to convince actors how the system can be used and how to manage it
- Valid data is key – „a ton must be a ton!“
- In absence of a worldwide level playing field energy and trade intensive industry must be protected from carbon leakage
- Specific rules for regions and or countries like European Member States are against a broad carbon market
- A choise by operators between alternative rules should be avoided because that would lead to a correction factor and a linear reduction of the free allocation

Lessons learnt II

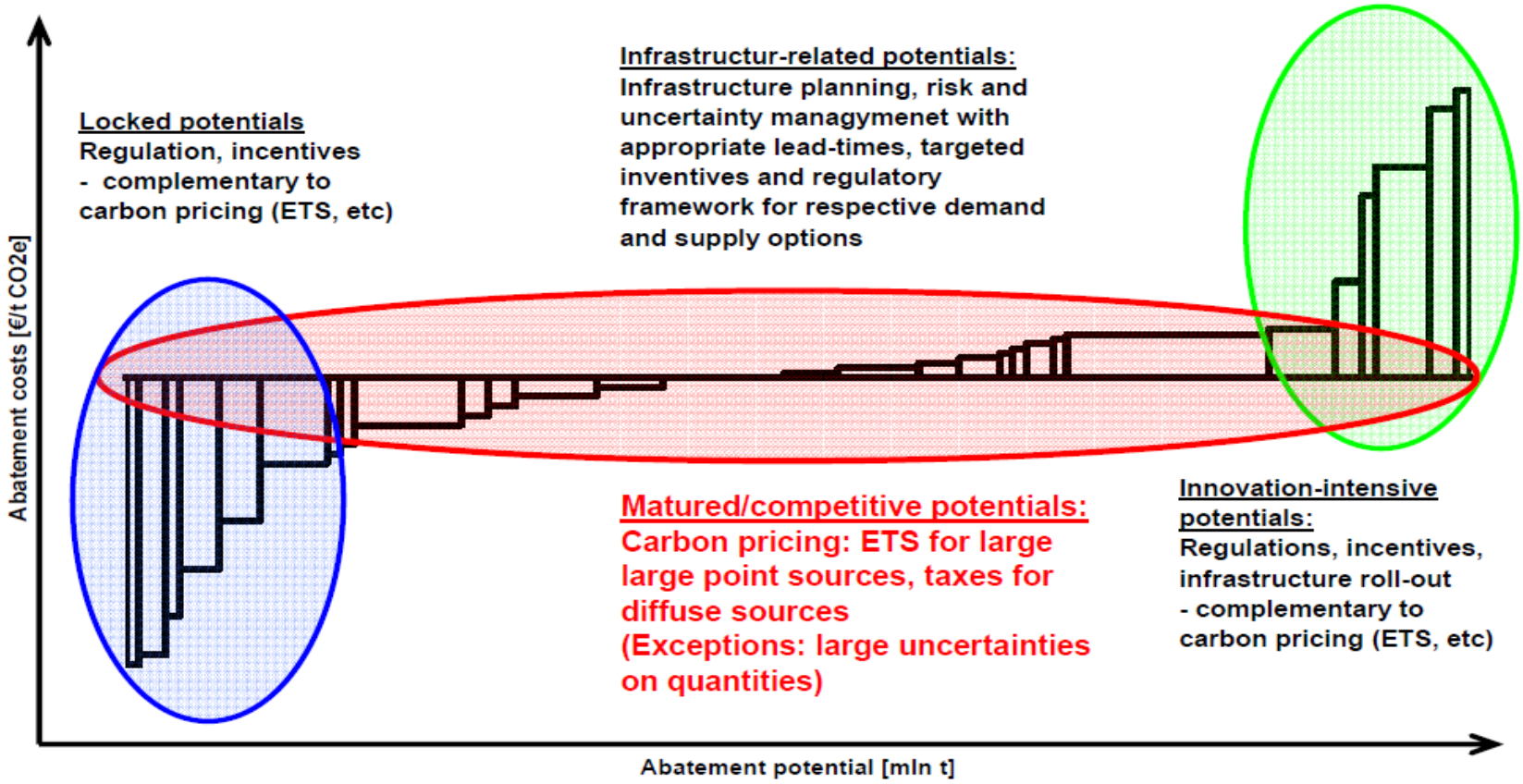
- The cap must be ambitous to incentivise operators to contribute to the reduction of GHG‘s (not only business as usual)
- The trading periods are relatively long and the dynamic on technology, prices, costs, infrastructure etc. is high – ex ante needs flexibility during the period and possibilities to intervene (MRV)
- The interaction between ETS and ESD is important – some technologies - like CHP - could create a gateway between ETS and ESD sectors
- New infrastructure must be developed (MRV, registry, authorities, exchanges)
- Education and development of know how not only on technology is necessary, but also on economic interdependencies
- The main emitters/emitting sectors should be focussed - inter alia to reduce the costs of administration (next Chart)
- ETS and/or carbon pricing is able to address economic and technological opportunities but not administrative, legal, institutional or informational barriers

Distribution of EU-ETS installations in terms of emissions



Source: European Commission

ETS as central pillar of a comprehensive policy mix (package of P&M's)



Source: Öko-Institut, Berlin

Success Stories

- **Between 2005 and 2016 the EU ETS GHG-emissions dropped by nearly 26%**
- **Valid Data – we had never before a better information about the energy, environment and climate related situation/structure of companies/installations**
- **The administration of ETS is very efficient in comparison with other mechanisms**
- **The economic incentive changes a lot within affected companies – suddenly Climate Change becomes an issue for CEO‘s and controller**
- **ETS supported innovation and creativity in order to save money**
- **The cap is the cap – so the environmental targets have been fulfilled in every case – very different to other instruments**

Success stories

- ETS has a lot of side effects on air quality, waste management and resource saving, cost reduction, waste water mangement, investment cycles and frequency etc.
- German industries urged the German government to keep the emissions trading as single instrument and not to complement it by additional mechanisms

Conclusions

- Paris: 195 countries agreed on the need to protect the global climate and the atmosphere
- The ultimative target of the Paris Agreement creates a huge challenge: „…well below 2° Celius…“
- Paris creates the need not only for a effective but also for a efficient strategy which guarantees the stabilisation and later on the reduction of greenhouse gases
- Emissions trading is able to provide the right framework to deliver effective and efficient results
- During a relatively long lasting process everything is in place and all actors are aware of the Challenges and Chances of ETS
- Carbon leakage rules are necessary if there is no global carbon market or carbon pricing instrument are not implemented all around the world

Conclusions II

Similarities between China and Europe:

- **China and Europe are heavily dependent on fossil fuels**
- **In both regions activities to combat climate change are faced with huge cost differences – so there is an opportunity to reduce GHG‘s not only effective, but also efficient**
- **Synergies (Climate, Air Quality, Ressource saving, Waste Management, Waste Water Management, Innovation to dvelop new technologies and offer it worldwide, Economic growth, Jobs) could be used**

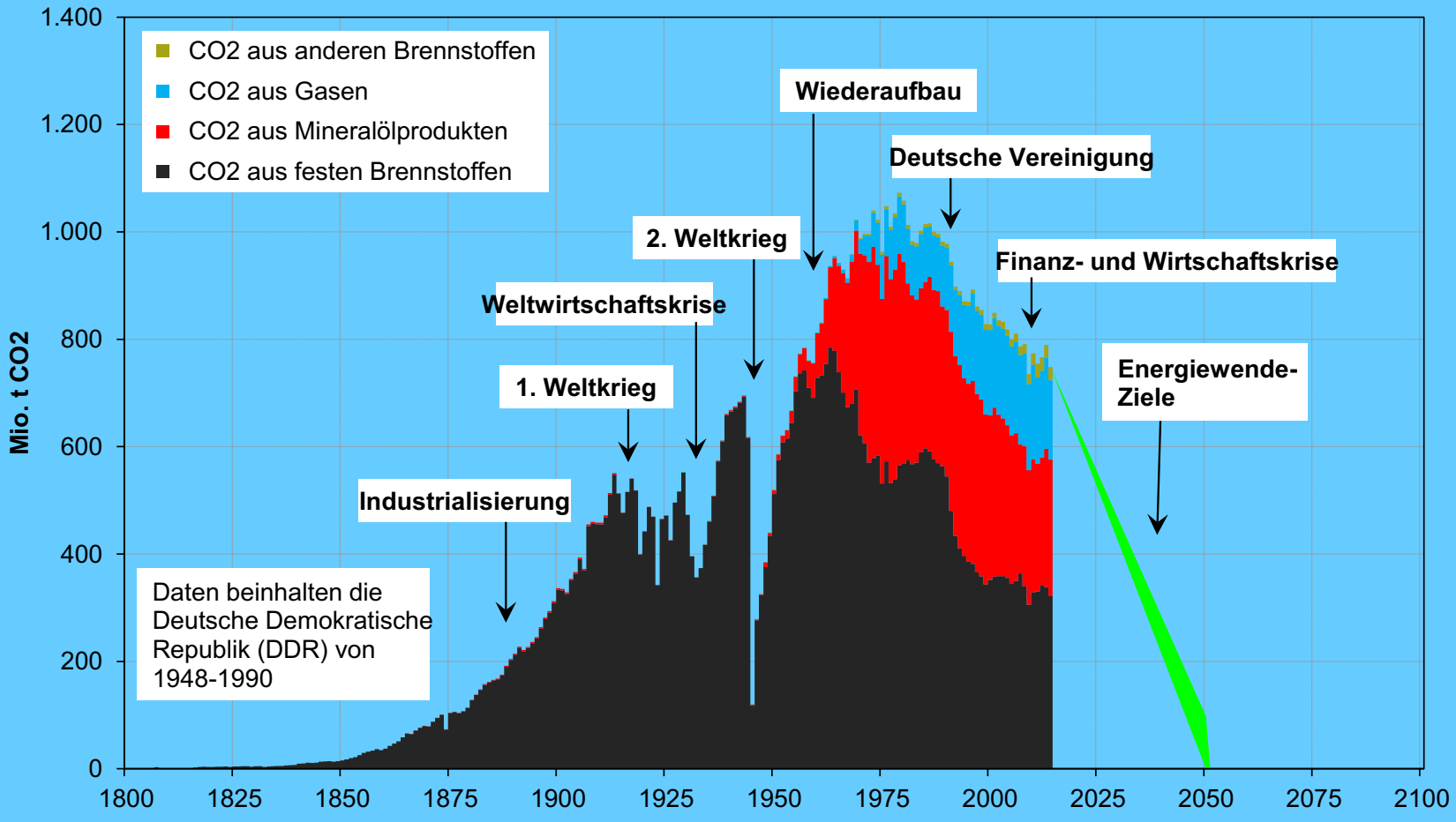
„Be not afraid of going slowly, be afraid only of standing still!“

(chinese proverb)

Thank you very much for your attention!

Anhang

Decarbonisation – the case of Germany



Allocation and carbon leakage

Competing objectives: Mitigation – Competitiveness

On the one hand

- **EU ETS: Price on emissions**
- **Incentive to reduce emissions and to invest in modern and efficient abatement technologies**

On the other hand

- **Carbon costs: Disadvantages in competitiveness**
- **Relocation of production to third countries with less ambitious climate policy**
- **Carbon leakage: Costs of ETS could lead to an overall increase in greenhouse gas emissions by additional emissions in third countries outside EU**

Carbon leakage – Measures in EU ETS (Phase III)

Direct carbon costs

Costs of participation in emissions trading

➔ additional free allocation (100% of benchmark allocation free of charge)

EU wide list of sectors and subsectors exposed to a significant risk of carbon leakage (carbon leakage list)

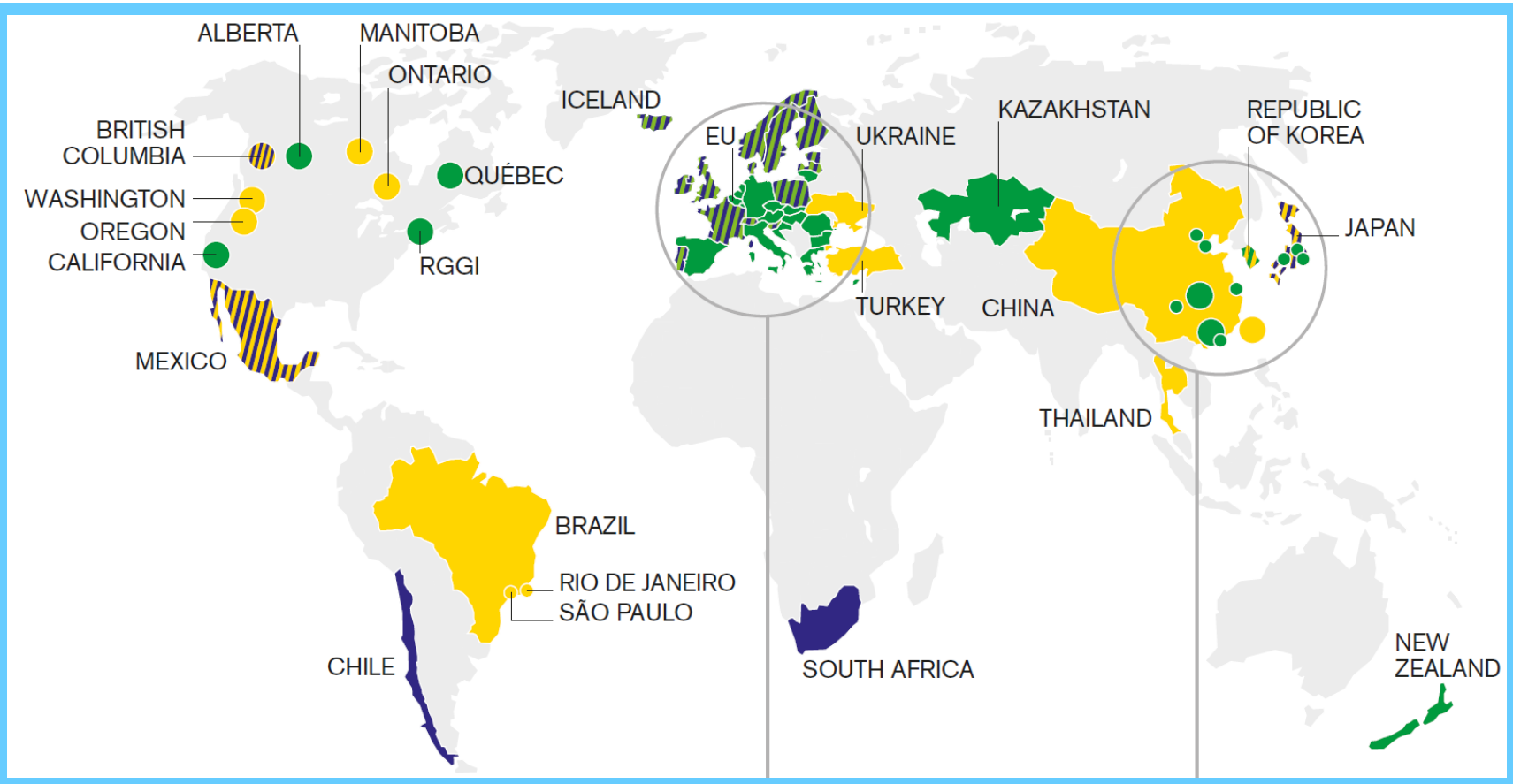
Indirect carbon costs

Costs related to EU ETS allowance costs passed on in electricity prices

➔ Financial compensation in line with EU state aid rules and national regulation.
In Germany: “Strompreiskompensation” (compensation of power price increase by emissions trading)

Carbon pricing on the international level

Carbon pricing regimes worldwide



Source: World Bank (2015): State and trends of carbon pricing