



Allocation: Benchmarking and capacity utilisation rate



BPMR Mission: Korea Industry to Industry Dialogue on Emissions Trading and Market Readiness

March 24, 2015

Alistair Ritchie
ICF International

Agenda

- **Benchmarks**
 - Role of benchmarks in the ETS
 - Design options
 - Considerations for Korea
- **Allocation**
 - Initial free allocation
 - New entrant activity level
 - Bottom-up and top-down allocation
- **Benchmarks in practice**
 - Benchmark allocation development
 - Product benchmarks under the EU ETS
 - Allowances vs emissions – selected EU examples

Role of benchmarks in the ETS

- **Allocation methodology**
 - The cap defines scarcity of the market and the market sets a price
 - The price of allowances creates incentive to reduce GHG emissions
 - The allocation methodology defines “who gets how much in the beginning”, has economic impact on operators
- **Allocation types**
 - Auctioning: full “polluter pays principle”, undistorted price signal
 - Free allocation
 - **Grandfathering**: Simple, but bigger polluters get “reward”
 - **Benchmarking**: Rewards efficiency and “early action”
- **Benchmarks in K-ETS Phase 1**
 - Cement
 - Oil refineries
 - Aviation

Design options



- **Principles**

- One benchmark for one product
- No corrections for type of technology, fuel, raw material etc
- Possible where products can be defined & enough installations exist

- **Types**

Takes into account	Final energy consumption	Energy conversion efficiency	Fuel choice
Product benchmark	✓	✓	✓
Heat benchmark	X	✓	✓
Fuel benchmark	X	X	✓
Historical emissions	X	X	X

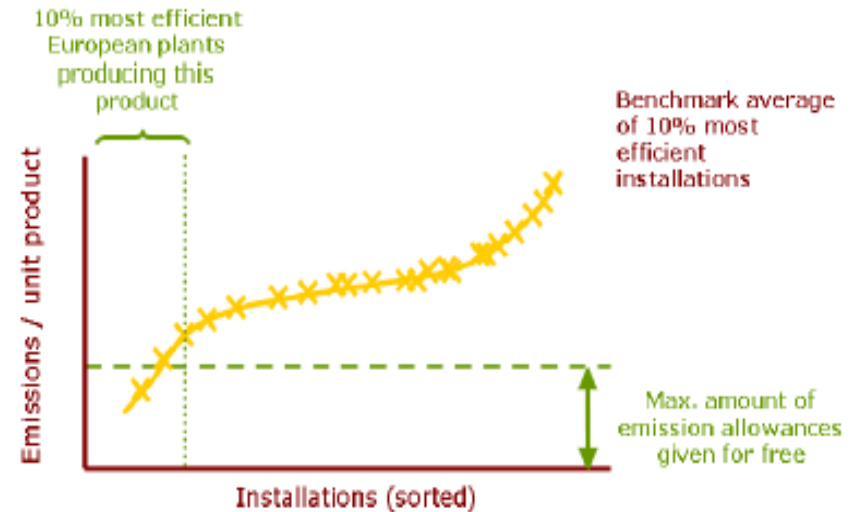
- **Potential development options**

- EU Benchmarks without data collection
- As above, but use factors to align with Korean context, with potential convergence
- Use BM from other sources, e.g. from industry professional bodies, BAT,...
- Develop Korean BM values based on data collection per entity

Considerations for Korea



- **Number of entities per sector**
 - Selection of methodologies
 - Potential use of international data
- **Benchmarking at entity level**
 - Potential 'fallback' approaches
 - Role of 'sub-entities'
- **Potential updating**
 - Benchmark emission factor
 - Activity level
- **International best practice in Korean context**
 - Ambition level
 - Principles
 - Rules eg data collection, verification, complex cases, new entrants / capacity extensions



Initial free allocation



Existing facility

*Initial allocation = BM * Historic Activity Level (2011-13 average)*

New or extended facility between 2011 & 2013

*Initial allocation = BM * HAL after establishment or extension*

New entrant facility

*Initial allocation = BM * Expected Activity Level*

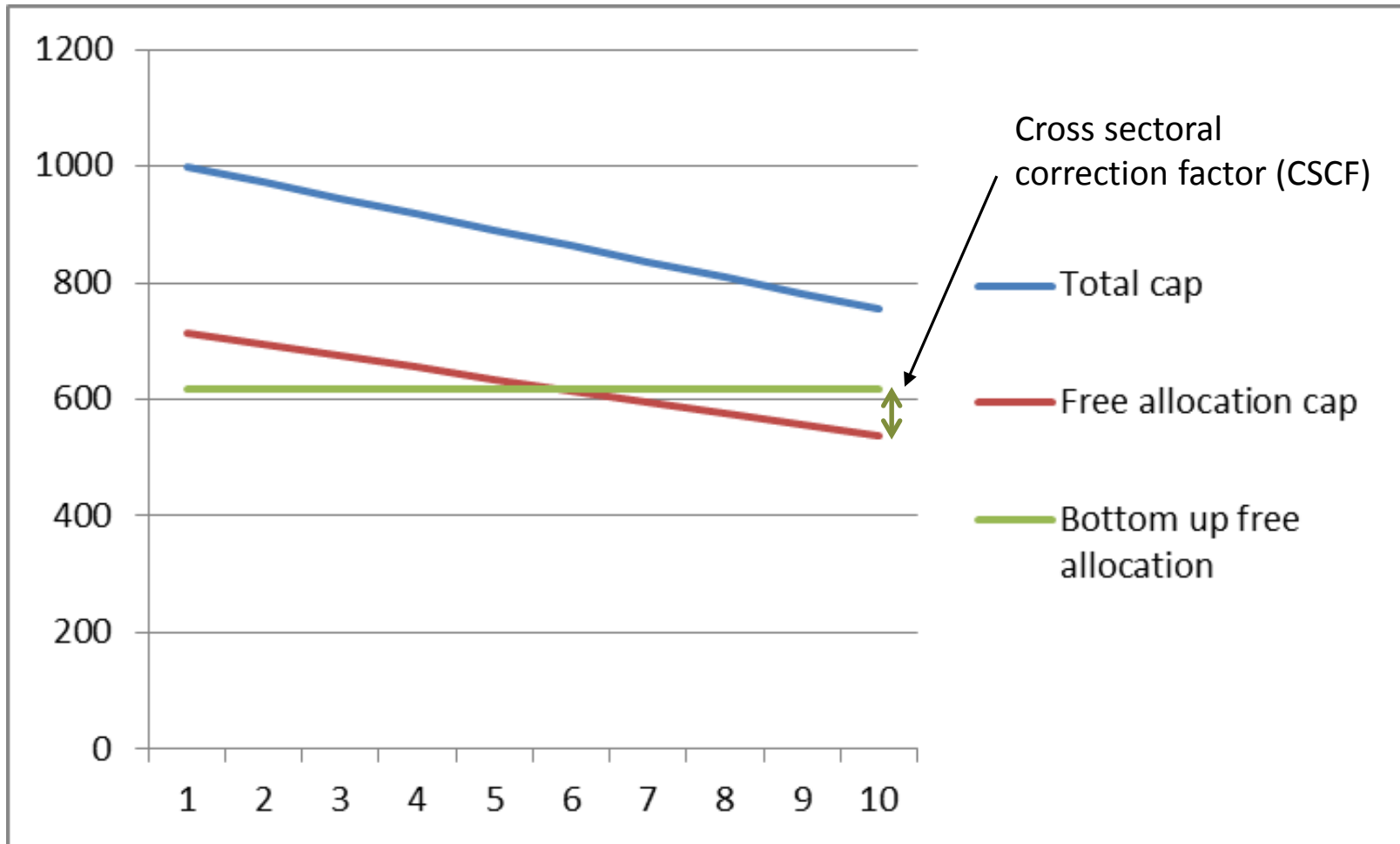
New entrant activity level (EU ETS)

*Activity level = Initial installed capacity * standard capacity utilisation factor (SCUF)*

Where:

- Initial installed capacity =
 - average of 2 highest monthly production volumes * 12 months, or
 - experimental verification of capacity under supervision of verifier for 48 hours, expressed as daily average * 30 days * 12 months
- SCUF per product = 80-percentile of average annual capacity utilisation factors for all installations producing that product (listed in Commission Decision 2013/447/EU)
- Average annual capacity utilisation factor = average annual production divided by initial installed capacity (from data provided by Member States in their NIMS – National Implementation Measures)

Bottom-up and top-down allocation



Benchmark allocation development

- Planning
 - BM design options
 - BM methodology, based on preferred design option
 - Rules (data collection, QA/QC, confidentiality issues etc)
- BM data collection & management
 - Training and guidance for industry
 - Data collection
 - QA/QC
- BM development
 - BM calculation
 - Verification of process, method & BMs
- Allocation
 - Activity levels
 - BM based allocations

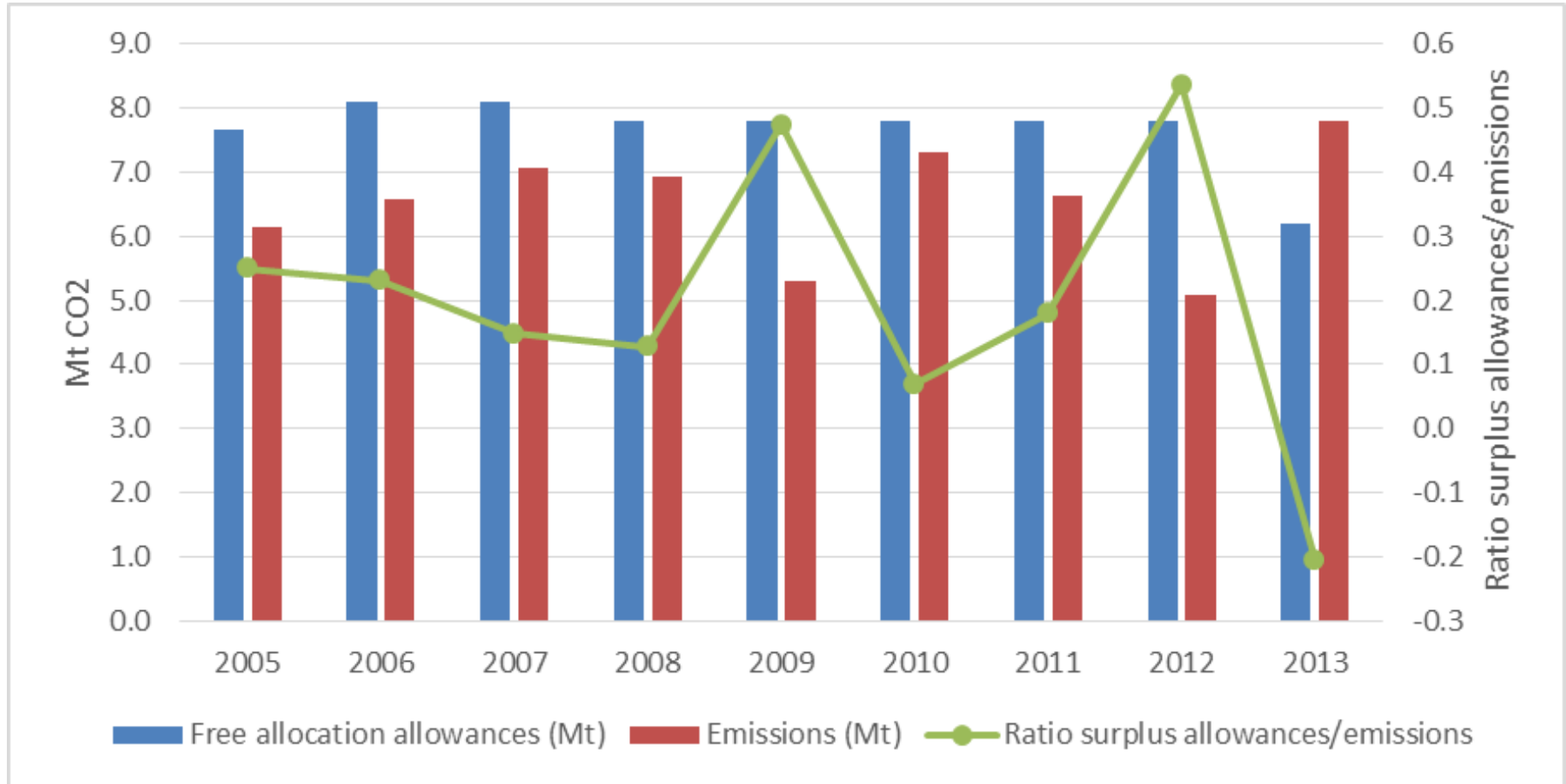
Product benchmarks under EU ETS



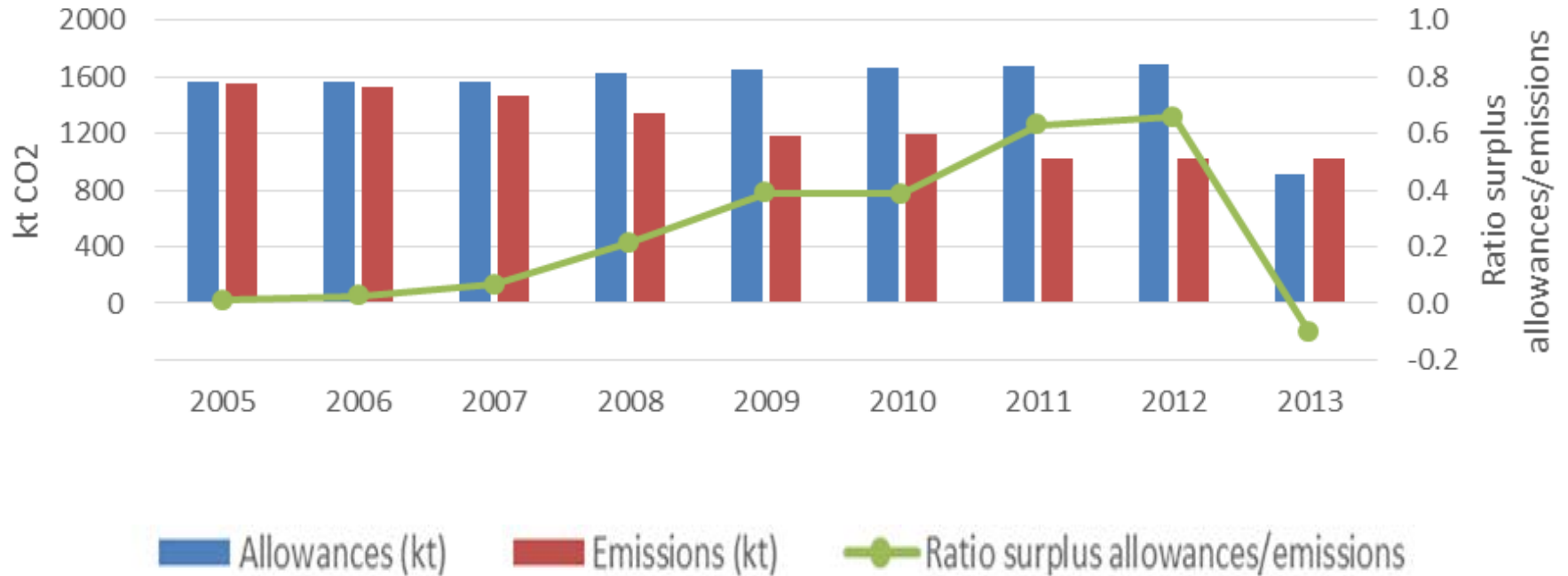
Product	Allowances/t
Coke	0.286
Iron ore pellets	0.019
Sintered ore	0.171
Hot metal	1.328
Pre-bake anode	0.324
Aluminium	1.514
Grey cement clinker	0.766
White cement clinker	0.987
Lime	0.954
Dolime	1.072
Sintered dolime	1.449
Float glass	0.453
Bottles and jars of colourless glass	0.382
Bottles and jars of coloured glass	0.306
Continuous filament glass fibre products	0.406
Facing bricks	0.139
Paving bricks	0.192
Roof tiles	0.144
Spray dried powder for tiles	0.076
Plaster	0.048
Dried secondary gypsum	0.017
Short fibre kraft pulp	0.12
Long fibre kraft pulp	0.06
Sulphite and thermo/mechanical pulp	0.02
Recovered pulp	0.039
Newsprint	0.298

Product	Allowances/t
Coated and uncoated fine paper	0.318
Tissue	0.334
Testliner and fluting	0.248
Uncoated carton board	0.237
Coated carton board	0.273
Nitric acid	0.263
Adipic acid	2.79
Vinyl chloride monomer	0.204
Phenol/acetone	0.266
S-PVC	0.085
E-PVC	0.238
Soda ash	0.843
Refinery products	0.0295
EAF carbon steel	0.285
EAF high alloy steel	0.357
Iron casting	0.325
Mineral wool	0.682
Plasterboard	0.131
Carbon black	1.765
Ammonia	1.612
Steam cracking	0.702
Aromatics	0.0295
Styrene	0.527
Hydrogen	8.85
Synthesis gas	0.242
Ethylene oxide/glycols	0.512*

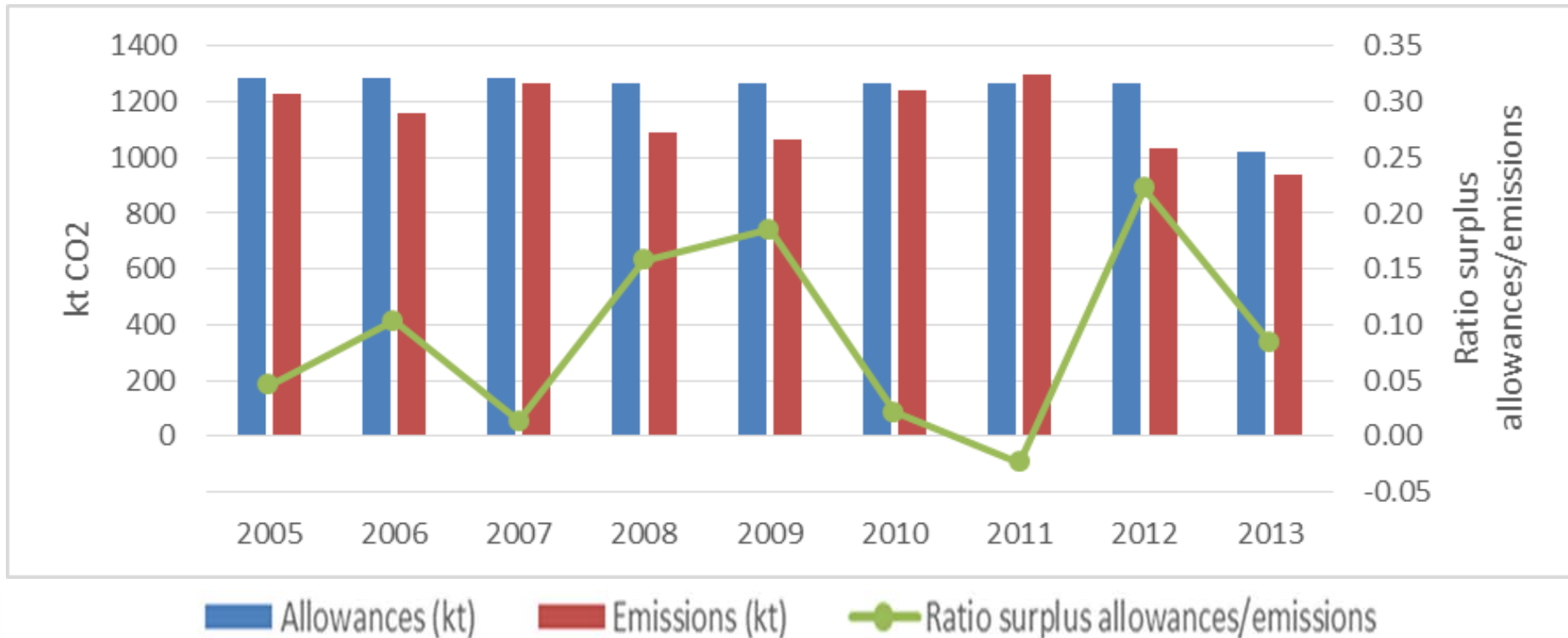
Allowances vs emissions – EU steel plant



Allowances vs emissions – EU refinery



Allowances vs emissions – EU cement plant



Questions?

Contact

Alistair.ritchie@icfi.com

Tel +44 7876 197824