
Inclusion of Consumption in Emissions Trading – an International Comparison

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Background and experience

England

- Dual Citizenship: UK and Australian



Germany

- Masters of Public Policy - Hertie
- PIK, DIW Berlin

Australia

- Bachelor of Resource Economics
- Ministry for Agriculture
- Public Policy Consulting
- Asia-pacific emissions trading forum



The Inclusion of consumption in emissions trading

“Why are the second wave of emissions trading schemes targeting the **consumption** of greenhouse gases? “

Evidence from:

1. Tokyo;
2. Korea; and
3. California



Inclusion of Consumption around the world

| Region | Status | Good | Scope of Coverage and Relevant Policy | | |
|-------------------|--------------|-----------------|---------------------------------------|-------------------------|----------------------|
| | | | Domestic Production | Consumption of Domestic | Treatment of Imports |
| California | Active | Electricity | Absolute C&T | None | Absolute C&T |
| China - Guangdong | Active | Electricity | Absolute C&T | Absolute C&T | None |
| China - Shanghai | Active | Electricity | Hybrid C&T | Hybrid C&T | None |
| China - Shenzhen | Active | Electricity | Rate C&T | Rate C&T | None |
| Japan - Tokyo | Active | Electricity | None | Absolute C&T | None |
| Republic of Korea | Active | Electricity | Absolute C&T | Absolute C&T | None |
| California | Under Debate | Cement | Absolute C&T with OBA | None | A fee, possibly. |
| Australia | Repelled | Synthetic Gases | Fee | None | Fee |

Tokyo Municipal Government's ETS (TMG ETS)

Overview

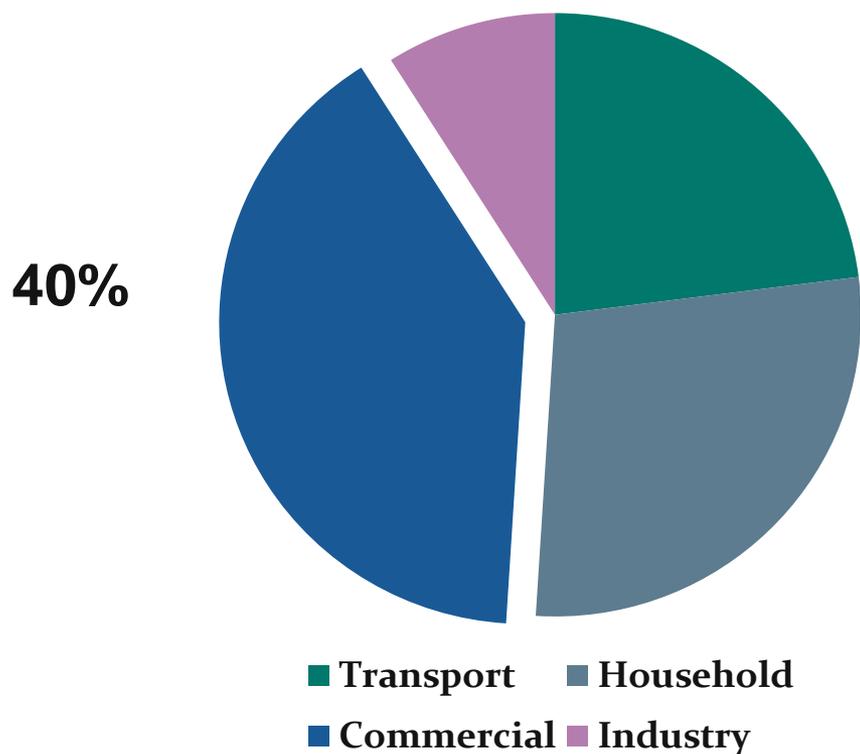
- **Cap** - 6 to 8 % (2010-14) & 15 to 17% (2015-20)
- **Covered Entities** - 1400 urban facilities that consume more than 1500 kL of crude oil equivalent per year.
- **Covered gases** – CO₂
- **Covered emissions** – 20%

How is consumption included?

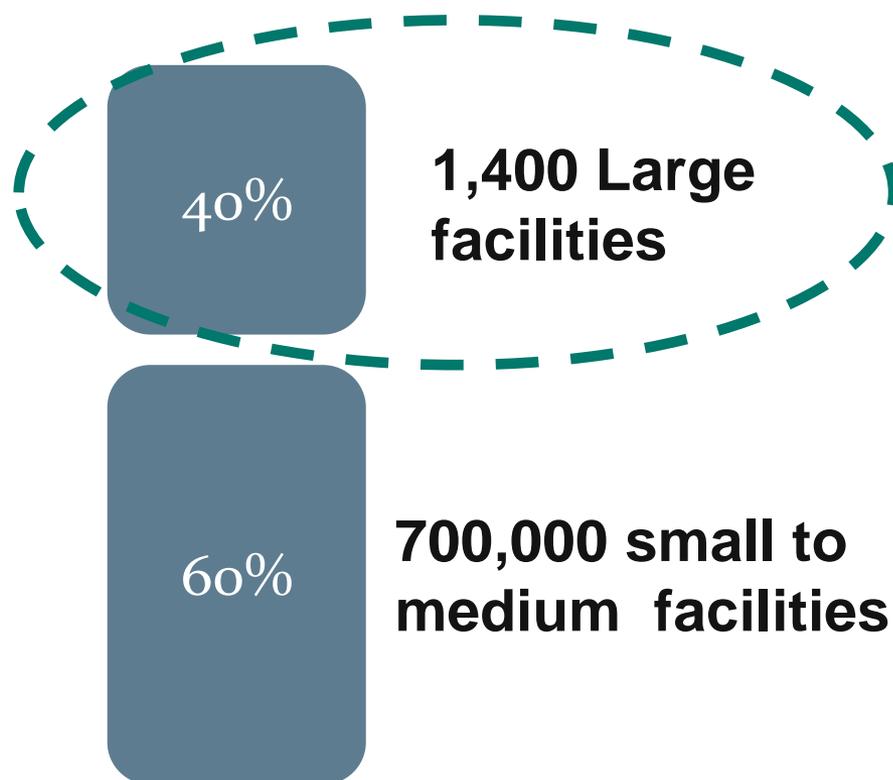
- **Point of regulation** – facility level (building owners and in some cases tenants)

Why target the consumption of electricity?

Total Emissions



Industrial/Commercial Emissions



Why target the consumption of electricity: other issues

1. **Legislative reasons** - 90 per cent of electricity production facilities are located outside of the Tokyo Prefecture. TMG does not have the constitutional right to establish property rights.
2. **Market Efficiency concerns** - split incentives in landlord-tenant contracts



The outcome?

- **23%** emission reduction from base year within 2 years!!
- **93%** of covered entities reduced emissions more than their obligations.
- *Caveat – the Great East Japan Earthquake*

Possible learnings

- Inclusion of consumption used to target small number of large emitters.
- Is effective in aligning split incentives in the commercial building sector.
- Reporting an open dialogue between tenants and building owners assisted rapid emission reductions

Overview

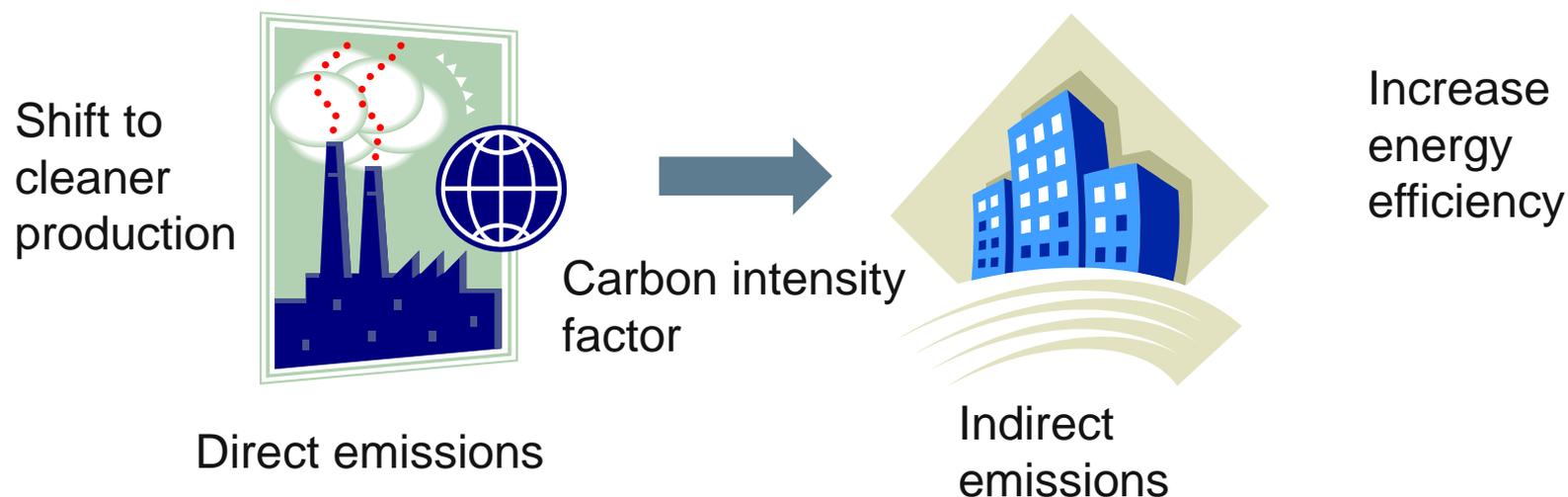
- **Cap** – rolling cap set three years ahead (2015 - 573 MtCO₂e; 2016 - 562 MtCO₂e; 2017 - 551 MtCO₂e)
- **Covered Entities** – 525 entities
- **Covered gases** – CO₂, CH₄, N₂O, HFC, PFC, SF₆
- **Covered emissions** – 66%

How is consumption Included?

- Cap and trade includes **direct and indirect emissions** from the power sector

Why target consumption of electricity?

- **Price regulation** in the power sector means zero pass through of carbon price to electricity consumers.
- Incentives for cleaner electricity generation but no incentive for reduced electricity use!
- Therefore, require consumers of electricity to purchase and surrender allowances for indirect emissions based on carbon intensity of power supply.



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- Therefore, require consumers of electricity to purchase and surrender allowances for indirect emissions based on carbon intensity of power supply.
- Double counting **NOT** double burden!

Overview

- **Cap** – 1990 levels by 2020
- **Covered Entities** – 350 entities
- **Covered Gases** – CO₂, CH₄, N₂O, SF₆, HFC, PFC, NF₃ and other fluorinated GHG
- **Covered emissions** – 85%

How is consumption included?

- Attribute emissions to **electricity imports** – point of regulation electricity consumers
- Imports assigned a specific or default emission rate (initially set at .428 MT/MWH)

Why Include imported electricity consumption?

- **Electricity generation** in California is relatively clean compared to generation from the mid-west.
- **Highly connected Western Electricity Grid** - fear of increasing share of imported electricity hence inter-state leakage concerns.
- **Resource reshuffling** still a concern – clean energy imported to California and dirty energy sent to states without cap-and-trade

Inclusion of Imported Cement Consumption?

Why Inclusion of imported Cement Consumption?

- Homogeneous product with relatively small number of additional points of regulation.
- High leakage risk category.
- ARB intended to cover in 2015, likely delayed.

Options for implementation

- **Option 1:** rely on default emissions factor for cement from an unspecified sources.
- **Option 2:** rely on default emissions factor based on technology and fuel mix.
- **Option 3:** full reporting of emissions associated with cement imports.

Conclusions and lessons learnt

Inclusion of Consumption has been used to address three limitations to ETS:

1. Split incentives in improving the energy efficiency of commercial buildings;
2. Regulation in the electricity price market; and
3. Address leakage concerns.

Does this represent an option for structural reform of the EU ETS??