



# On trading systems for Kyoto commitments (and more)

Energy Efficiency Certificate Trading  
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# Issues Covered

- Energy efficiency certificates in brief
- Parallels between CO<sub>2</sub>, renewable energy (RE) and energy efficiency (EE) certificates in the power sector
- EE trading: conflicting interests?
- Integration of trading systems



# Energy Efficiency Certificates

## Current Practice

- Demand-side management is challenged by electricity market reform  
→ EEC: a market-friendly option
- Target: a fixed amount of energy savings
- Responsible entities: electricity and gas distributors (with a threshold number of customers)
- Distributors monitor and report
- Can trade surplus EE certificates



# Comparing existing systems

	<b>GHG cap-and-trade system</b>	<b>RE obligation + certificate trading</b>	<b>EE obligation + certificate trading</b>
<b>Target type</b>	Absolute cap on emissions (Kyoto P.)	Percentage of total MWh or fixed quantity	Quantity of energy saved
<b>International trades</b>	Yes	Under certain conditions	No information
<b>Tradability into other systems?</b>	No example to date	Envisaged (GHG)	Envisaged (GHG)



**GHG cap-and-trade system**

**RE obligation + certificate trading**

**EE obligation + certificate trading**

**Who is responsible?**

Sources mostly, i.e. generators

Varies: from generators to end-users

Distributors (gas and electricity)

**Who bears the cost?**

Sources (and end-users via higher prices)

Same as above (and end-users via higher prices)

Distributors

**Policy objective / benefits**

Global environment

Global / local environment + RE sector

End-users: lower bills + comfort + environment

***conflicting interests?***



# Policy Objectives Vs Trading Gains

- **GHG: benefits of reductions are global**
  - ◆ reduction here  $\Leftrightarrow$  reduction there
  - ◆ all gain from transactions
- **RE: local effects (env. + social), reduced energy imports**
  - ◆ where RE is generated matters to some actors
  - ◆ international transactions not automatic
- **EE: lower bills, increased comfort**
  - ◆ distributor's interest in buying EE certificates means its end-users have limited access to DSM
  - ◆ significant problem in practice?



# Trading EEC as CO<sub>2</sub>?

## Case 1

- Generators: capped
- Distributors: EEC
- CO<sub>2</sub> reductions from excess EEC: captured by generators
- Converting EE to CO<sub>2</sub> allowances implies double counting

## Case 2

- Generators: not capped
- Distributors: EEC
- Excess EEC may be converted into CO<sub>2</sub>
  - ◆ Requires evaluation of achieved reductions - see JI / CDM methods



# In Closing

- **DSM and tradable certificates**
  - ◆ Are objectives and incentives consistent?
- **Fungibility of certificates into GHG system**
  - ◆ Feasible in some cases.
- **Lessons from other tradeable permit systems**


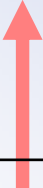





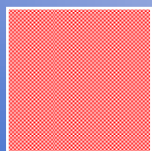


GHG trading

REC trading

EEC trading

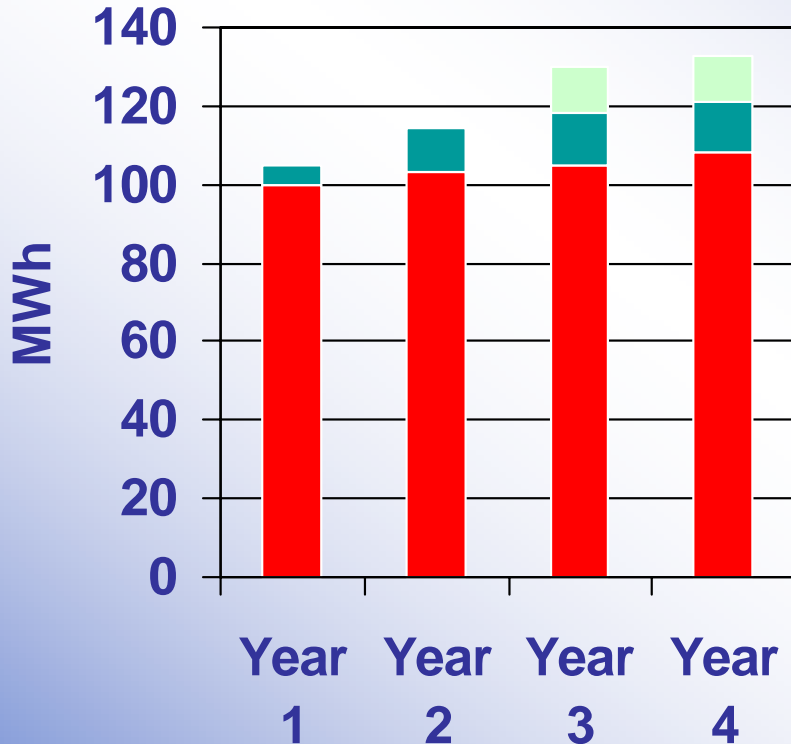
	GHG trading	REC trading	EEC trading
Generators			
Wholesale - Grid			
Distributors			



**Responsible entity**



# TREC and CO2 - An illustration



- CO2 objective: stabilisation at Year 1 levels
  - RE obligation: at 10% from year 2
  - RE: Compliance in year 2, over-compliance in 3 and 4: may convert excess TRECs into CO2
  - But growing fossil based power and CO2 emissions
- ⇒ Increased CO2 emissions and inflated number of CO2 emission permits