

Overview of the European Emissions Trading Scheme

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Applying European emissions trading and renewable energy support mechanisms in the Greek electricity sector, 19th November '04



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The carbon economy

Two facets of the carbon-constrained economy

All GHGs equated to CO₂, commodity / intangible asset is tCO₂e.

- Project-based *emission reductions*: buyer purchases ex-post verified emissions reductions from a project reducing emissions compared to a baseline of what would have happened otherwise
- Cap-and-trade regimes under which there is ex-ante allocation of GHG *allowances* to covered installations.

Carbon economy statistics

(World Bank, June '04)

- 78 million tCO₂e traded during 2003, total market value ~ US\$330m (€285m).
- 64 million tonnes traded by mid-May 2004, value ~ US\$260m (€225m).
- Growing liquidity: new projects and players coming into the market, secondary transactions

→ The carbon economy exists: market value will approach €0.5billion in 2004

A mixture of schemes & mechanisms, complex links

- The Kyoto Protocol project mechanisms:
Clean Development Mechanism & Joint Implementation
- The Kyoto Protocol emissions trading scheme
- The EU Emissions Trading Scheme
- National cap-and-trade schemes, e.g. UK, Canada
- Regional schemes, e.g. USA & Australian states
- Voluntary markets, e.g. Chicago Climate Exchange
- Retail markets serving domestic / small buyers

Where are the volumes?

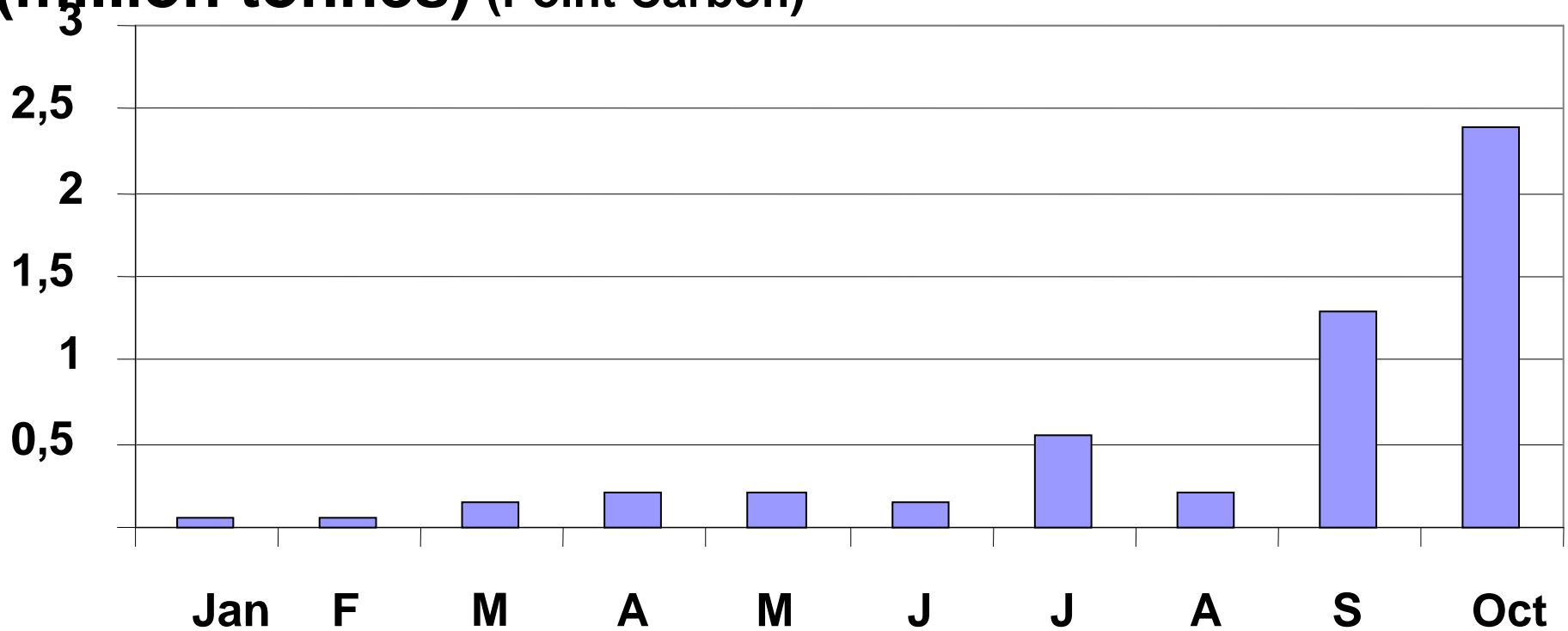
In 2004, by mid-May:

- Kyoto mechanisms: 93,2%
- Voluntary: 3,5%
- Allowances: 3,2%
- and the remaining small fraction from retail

(see additional data on buyers & sellers in handout)

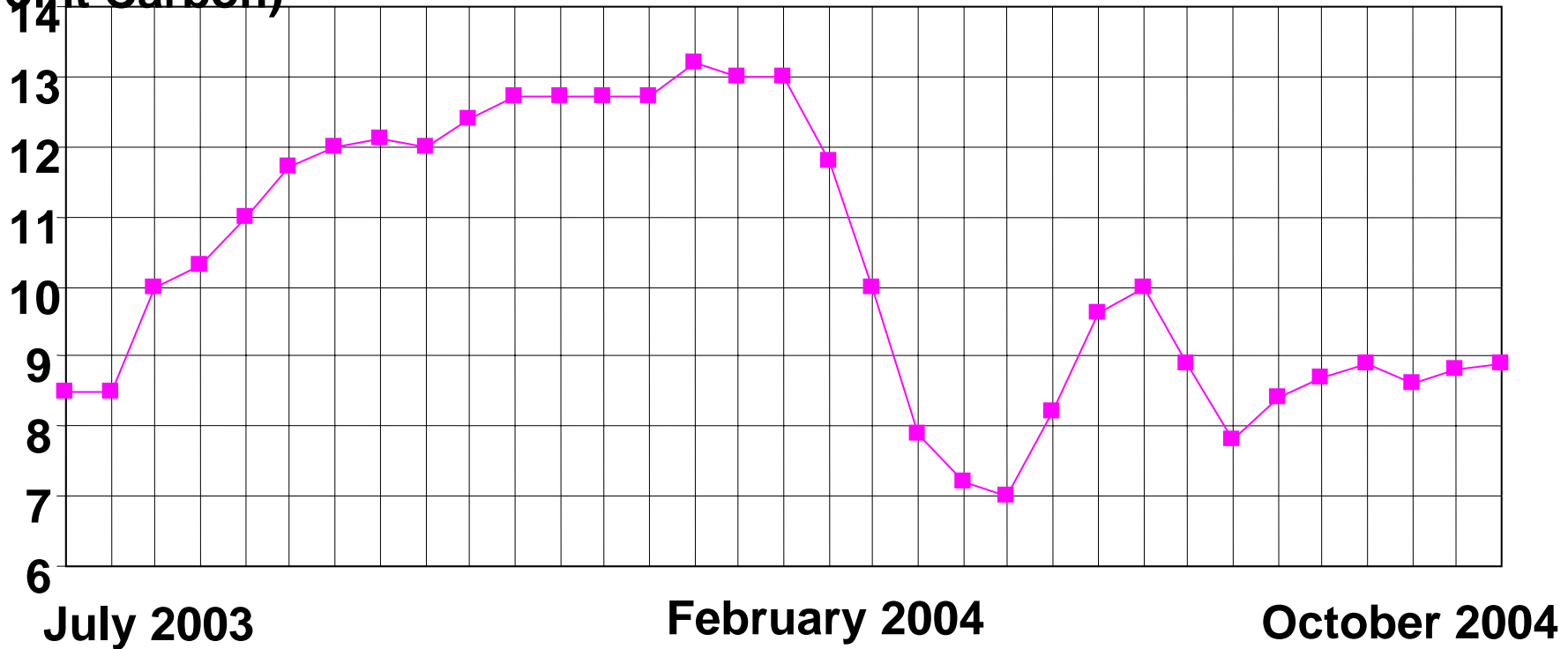
EU allowances – growing volumes

EU allowances ('05,'06 & '07) forward traded in 2004
(million tonnes) (Point Carbon)



What are the prices?

**Prices (Euro) in the forward market for EUAs 2005
(Point Carbon)**



Contract types

- Most trade – including EU scheme – uses *forward contracts*: fixed amount for a fixed price at fixed date in the future, with money exchanged at the future date.
 - Forward market will continue when EU scheme starts. Companies can *spot trade* when they have been granted the allowances & electronic registries are running.
- For stats above, money will change hands (apart from project failures, credit & liability issues)

The European emissions trading scheme

EU Burden Sharing Agreement 1998 for UNFCCC Kyoto Protocol is (in theory) the basis of the EU scheme

Austria	-13	Ireland	+13
Belgium	-7	Italy	-6
Denmark	-21	Luxembourg	-28
Finland	0	Netherlands	-6
France	0	Portugal	+27
Germany	-21	Spain	+15
Greece	+25	Sweden	+4
UK	-12	EU15	-8

European emissions trading scheme is law

- The emissions trading Directive 2003/87/EC became European law on 25th October '03.
 - 'cap and trade' scheme for CO₂
 - Mandatory for installations:
 - Energy activities (thermal input >20 MW)
 - Production & processing of ferrous metals
 - Mineral industry - cement, minerals, glass
 - Pulp, paper & board production
- ~12,000 installations in EU25
- ~150 in Greece

Permits & allowances

- Participating installations require a permit to emit CO₂
- Permit holders will have 'allowances', denominated in tCO₂e. One EUA = one tCO₂e.
- Allowances exist in electronic format.

Phases

- 1st phase is January 2005 to December 2007
- 2nd phase, January 2008 to December 2012, coincides with Kyoto first commitment period, during which there will be legally binding targets for developed countries which have ratified the UNFCCC Kyoto Protocol.

Trading

- Between & within companies, across national borders
- Links to Clean Development Mechanism & Joint Implementation
- Linked national electronic registries for recording (not trading)
- Allowances may be banked between years in 1st period but no Member States have allowed banking from 1st to 2nd period.

Monitoring, reporting, verification

- Operators identify the activities included and, for each activity on each site, collect data allowing emissions to be calculated or measure directly.
- Reports by operators must be verified, either by Member States' competent authorities or by independent verifiers.

Timeline

1Jan05	ETS starts
28Feb05	Allowances issued to installations
1Jan05 to 31Dec05	1 st compliance period
1Jan05 to 31Mar06	Emissions trading to meet 1 st year compliance
1Jan06 to 31Mar06	Reporting and verification
30Apr06	Allowances surrendered for cancellation

Penalties

- The penalty price for non-compliance is €40 per tonne from 2005 to 2007 and €100 per tonne from 2008 to 2012.
 - Paying the penalty does not remove the obligation to submit allowances corresponding to the excess emissions.
- Only those making accounting errors or playing accounting tricks will pay the penalty.

Linking with CDM & JI

- EU emissions trading scheme linked to CDM and JI - companies in the EU scheme will be able to use the credits from such projects, some quantitative limits (EU review when 6% reached).
 - Projects impacting on installations covered by EU scheme are forbidden. eg RE projects reduce allowances demand that there would otherwise have been from conventional generators so rewarding the former with allowances would be double-counting.
- Hence, considerable loss of interest in JI in Eastern Europe.

National Allocation Plans

National Allocation Plans

- Member States draw up NAP, lay out total cap & allocation of allowances between sectors & installations
- NAPs were to be submitted by 31st March '04.
- Allocation of allowances based on national commitments under Burden Sharing Agreement
- “safe-guards to protect against over-allocation of allowances” ?!?

1st phase allocation

- Analysts, researchers, governments – all have stated that phase 1 allocations generous.
- Not surprising: no binding commitments yet, infrastructure & learning required, & sensitive competition issues.
- Energy sector given most stringent allocation – both because sector has potential (e.g. fuel switching) and limited competition.
- EC made some cuts to caps, especially 2nd batch of NAPs.

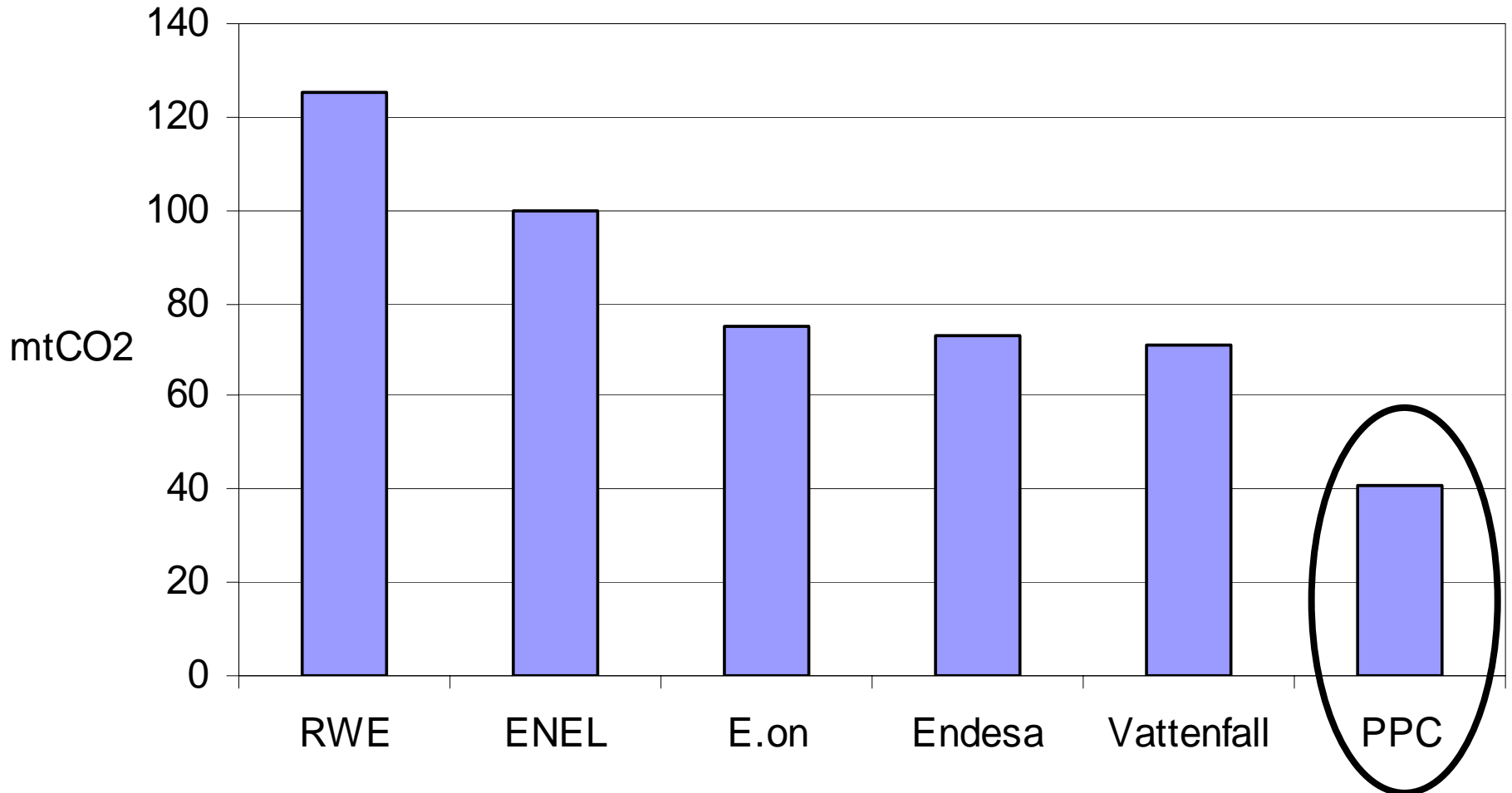
Conclusions

Important uncertainties

- May be limited net CO₂ reductions in 1st period, but will be trading activity, estimates of aggregate net demand from 0 – 60 mtCO₂ per year.
 - Allowances demand: new installations (new entrants reserve) or more output than expected.
 - Allowances supply: installations that close or have less output than expected.
 - The weather...
- Aggregate net demand impact on price, but what will happen to emissions from your installation compared to your allocation?

Largest players in year 2000

(Elsam 2002)



→ Some Greek companies have significant exposure

How significant is the scheme?

EUA price €10

- 10mt CO₂ per year, eg lignite power plant
exposure is €1m for each 1% short
- 1mt CO₂ per year, eg refinery or cement plant
exposure is €100,000 for each 1% short
- 250kt CO₂ per year
exposure is €25,000 for each 1% short

Proactive not reactive

- Phase 1 is a test but severe penalties if get it wrong.
- Approached as “compliance legislation” it could simply be a cost.
- However, companies with strategies could gain – new investment lines (carbon finance), new technology, green Public Relations.
- Emissions constraints will become tighter.

Few implications for renewables

- RE operators cannot be allocated allowances. An installation calculates on-site emissions from fuel use or directly measures emissions. Electricity import does not enter calculations – emissions accounted at generation installation.
- Modelling (e.g. IEA) has shown changes in merit order between coal and gas but costs of generation from fossil fuels not increased sufficiently to help RE compete.
- Biomass is the exception: biomass fuels have zero emissions factor eg, UK coal operators looking to reduce emissions plus obtain ROCs & LECs.

Thank you

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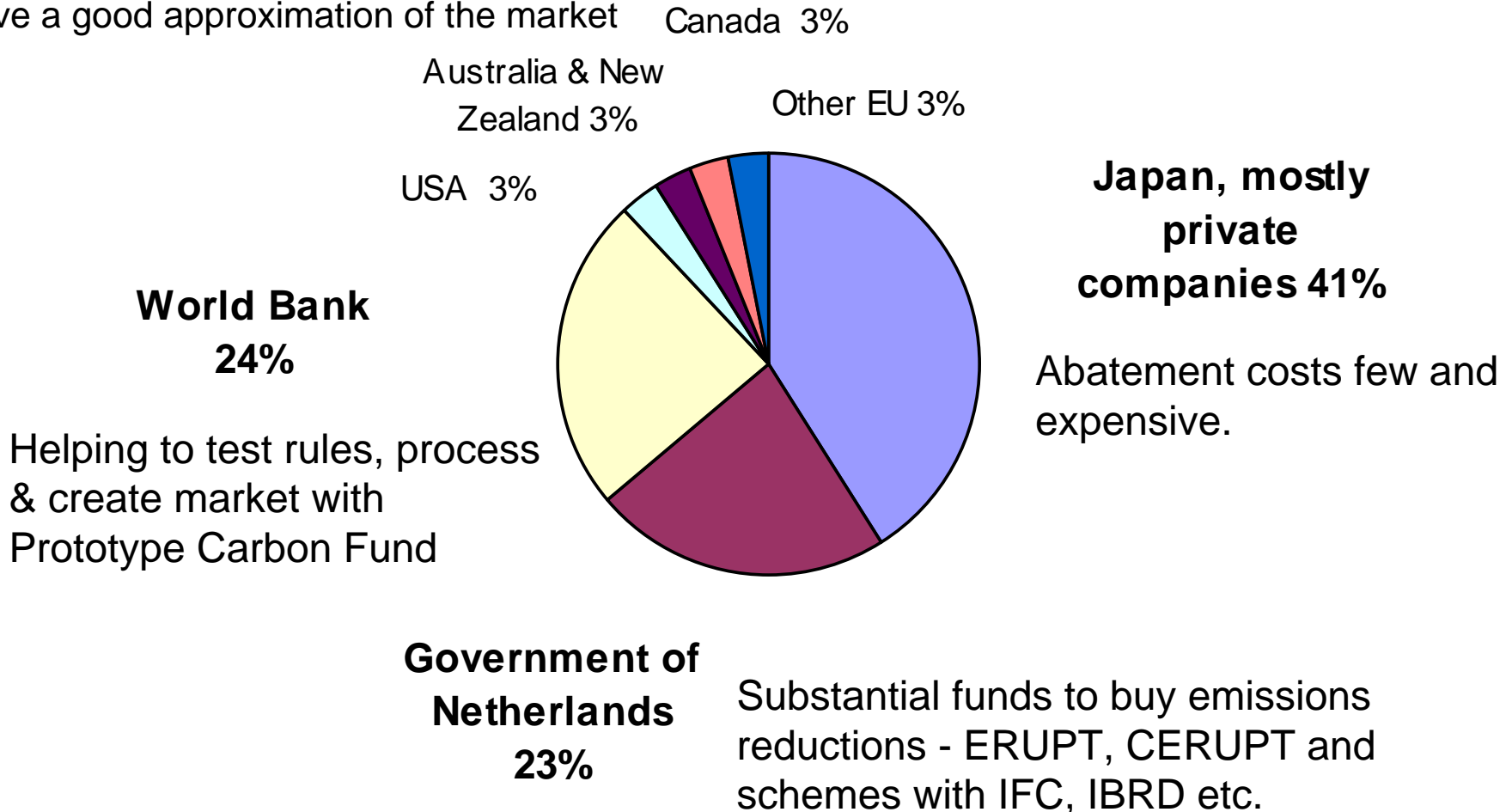


Extra slides

Who are the buyers?

(project-based transactions, World Bank June '04)

To mid-May 2004, note the figures vary because the market is small but give a good approximation of the market



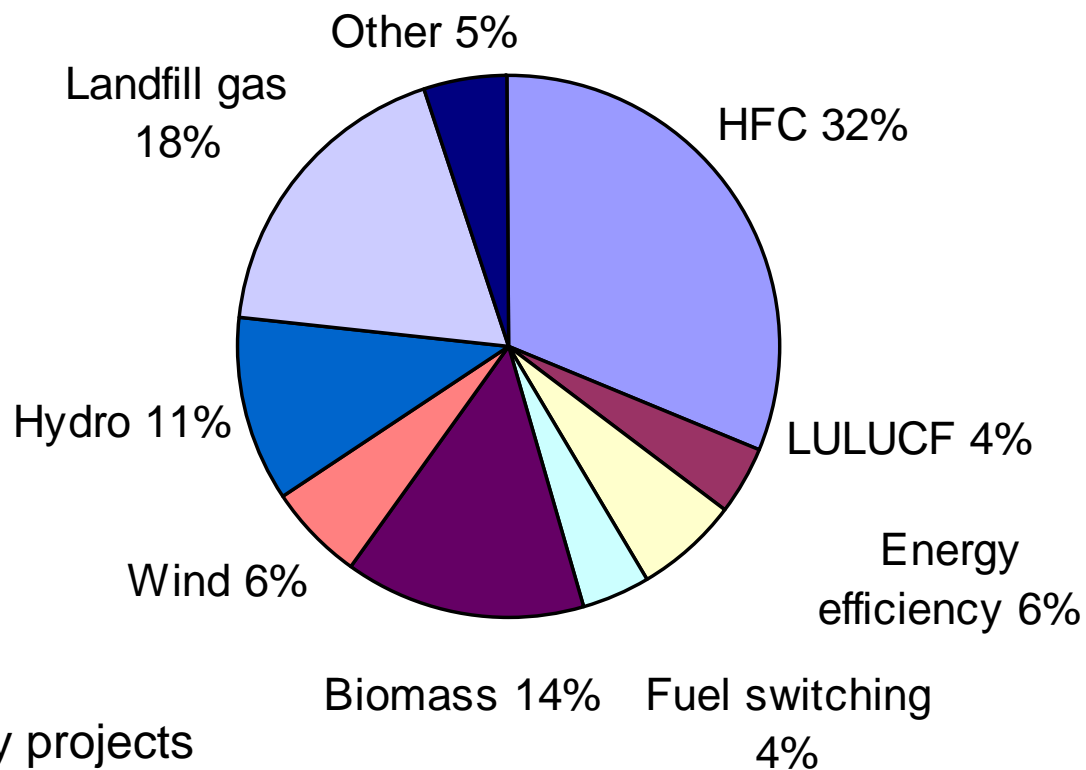
Who are the sellers?

(project-based transactions, World Bank June '04)

To mid-May 2004.

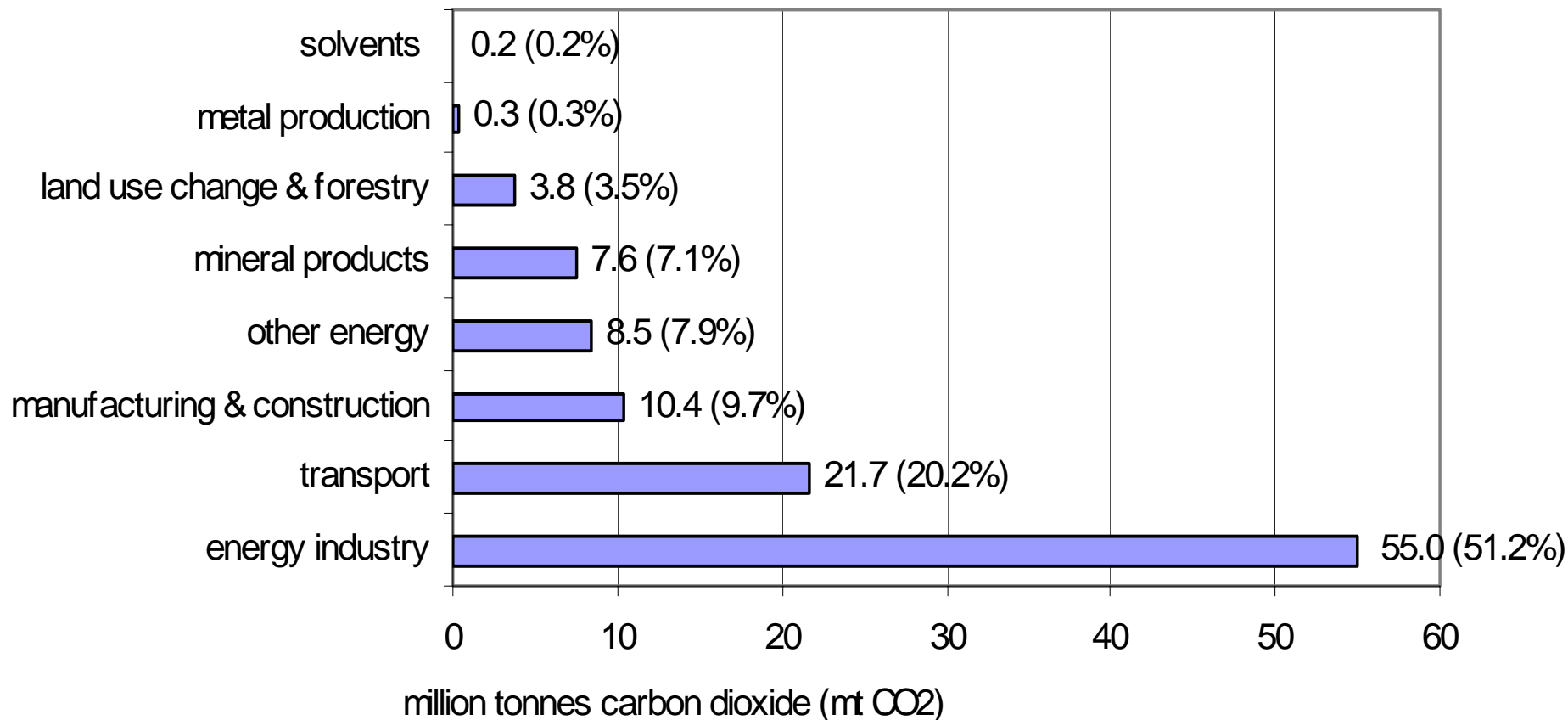
LULUCF = land use change and forestry

Mostly CDM with
Asia accounting for 51%
and Latin America 27%

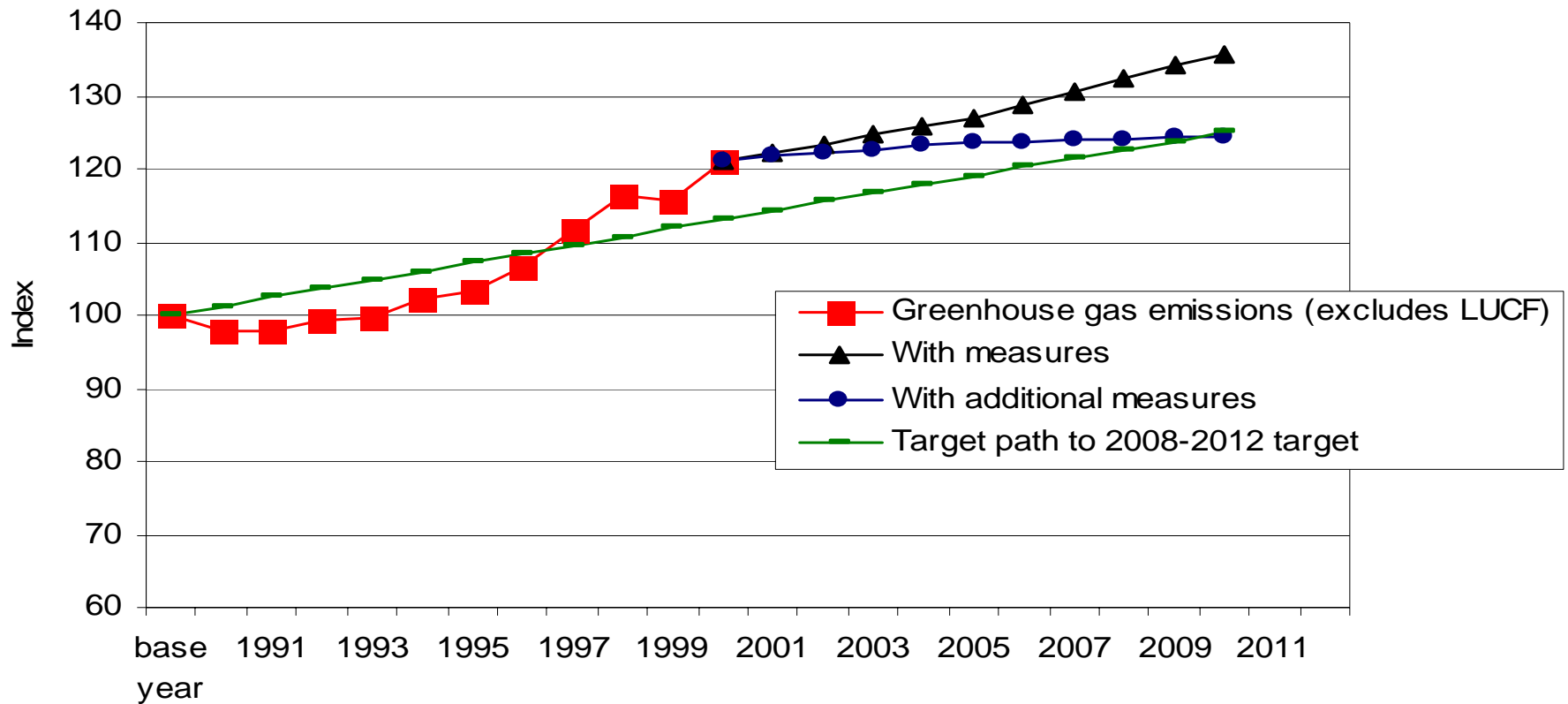


Renewable energy projects
account for 49%

CO₂ emissions in Greece in year 2000 (National Observatory Athens '02)



Historic & projected GHG emissions in Greece & target path (European Environment Agency '02)



Extra costs for conversion to cogeneration? (COGEN Europe)

Electricity

Overall CO2 saving, 20 – 50%

**Power plant
can sell allowances**

Heat & electricity

**Cogen operator
has to buy allowances**

Heat

**Power
plant**

**Industry
without cogen**

**Industry
with cogen**

