Slovenski E-Forum
Emission Trading – Can it be Justified?
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EU ETS Performance and Alternative Approaches

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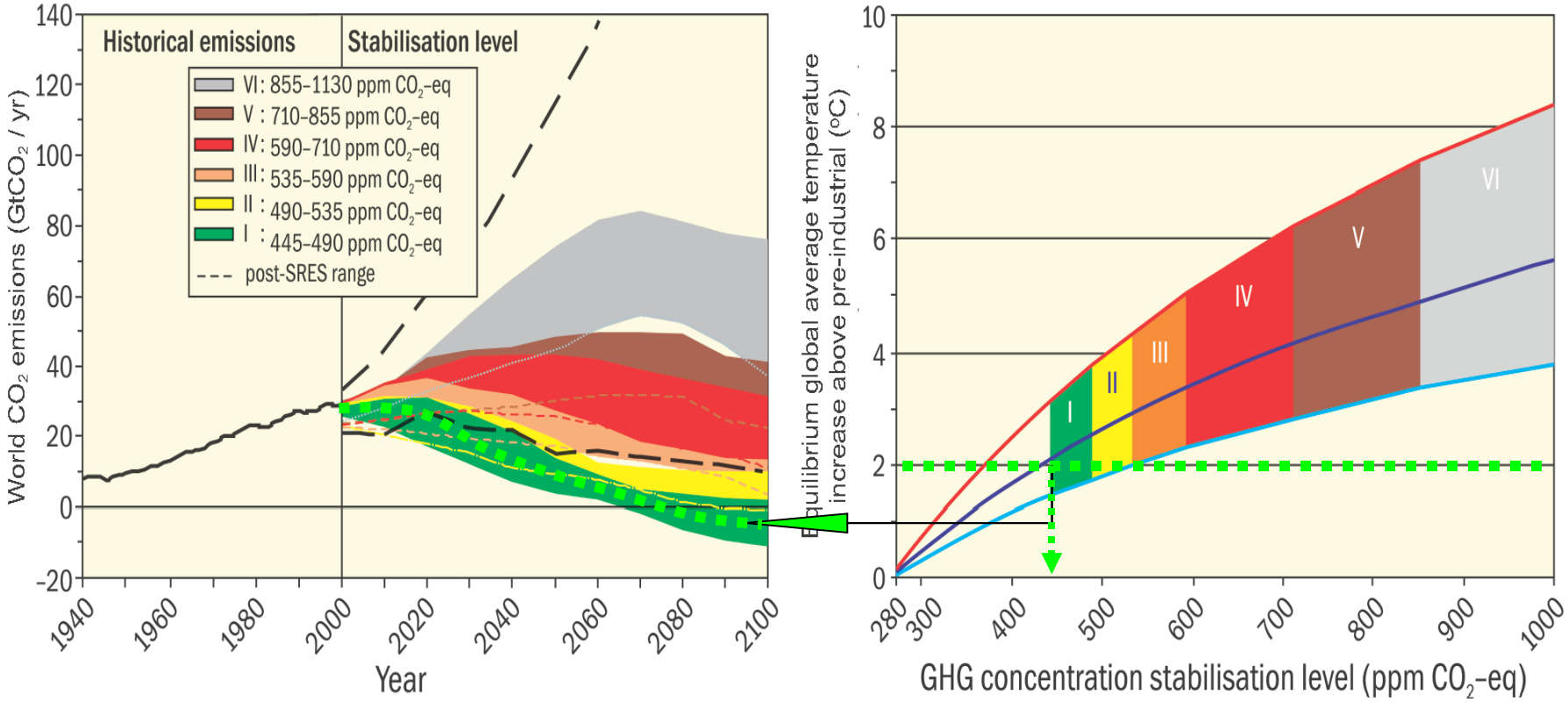
IPCC: +2°C limit ⟶ ~450ppm limit ⟶ CO2 emission reduction trajectory



Implications for international agreements on Greenhouse Gas Emissions Reductions

Scenario category	Region	2020	2050
A-450 ppm CO_2 –eq	**Annex I**	**-25% to -40%**	**-80% to -95%**
	Non-Annex I	Substantial deviation from baseline in Latin America, Middle East, East Asia	Substantial deviation from baseline in all regions

By 2050:

Almost carbon-free energy systems

Fossil fuels limited to auxiliary role

The emission drivers: Ehrlich-Holdren Identity

CO_2-emissions = People * Affluence * Energy intensity * CO_2 intens

Gigaton = Gigacap * €/cap * kWh/€ * C/kWh

Political:

People ~ demography, migration, culture, traditions

Affluence ~ growth, trade, technology, distribution

Technical:

Energy Intensity ~ *Efficiency* (4/5)& Structure(1/5)

CO_2 Intensity ~ Renewable Energy

Reducing Emissions

Assigning TARGETS = mission impossible?

>< Kyoto process

Almost Carbon-free: CO2 intensity ~ 0

Nuclear *or* Renewable Energy (RE)

RE *contingent on* HIGH Energy Efficiency (EE)

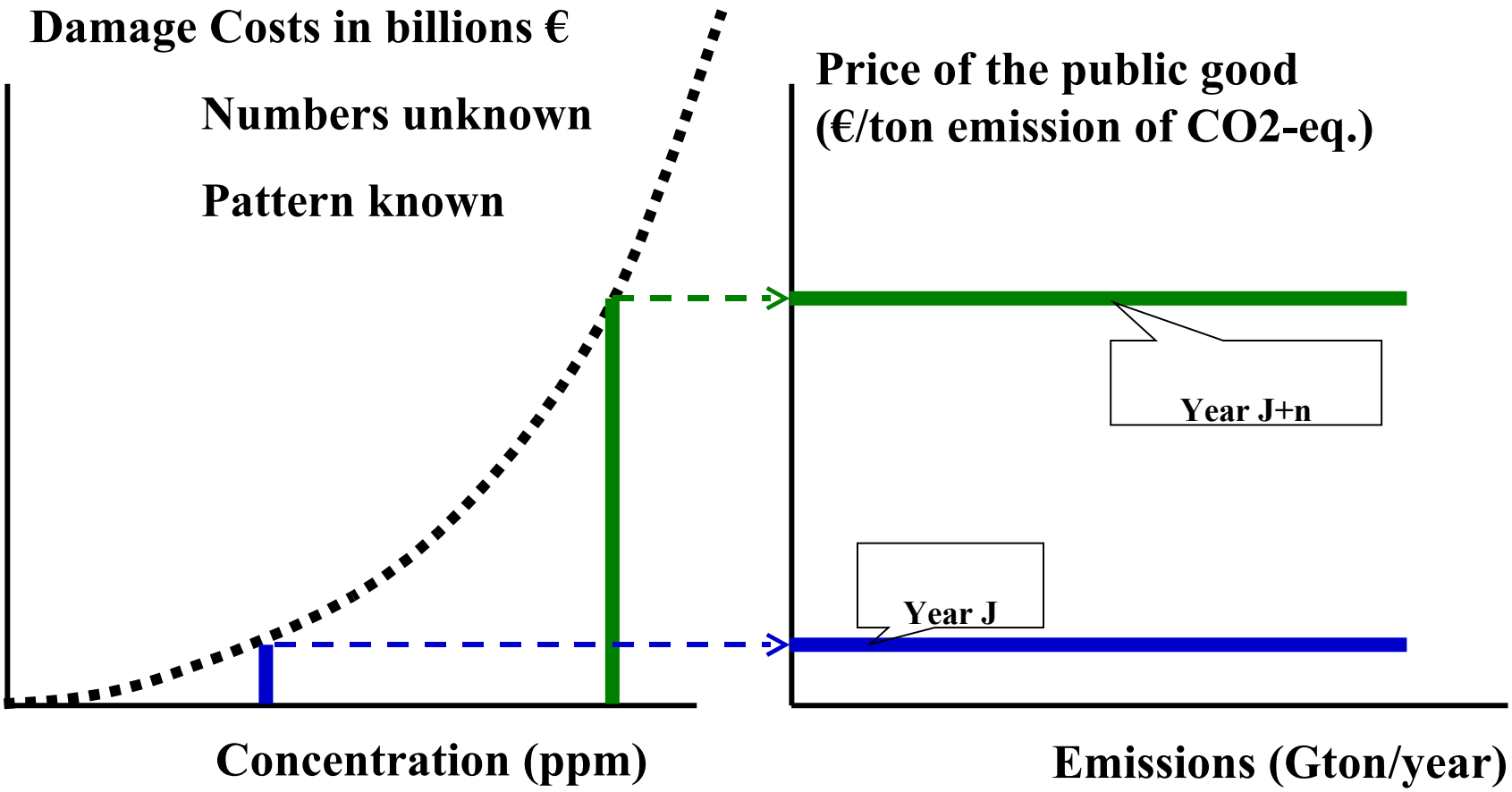
HIGH EE *contingent on* HIGH Energy Price (Tax)

Extend STERN statements:

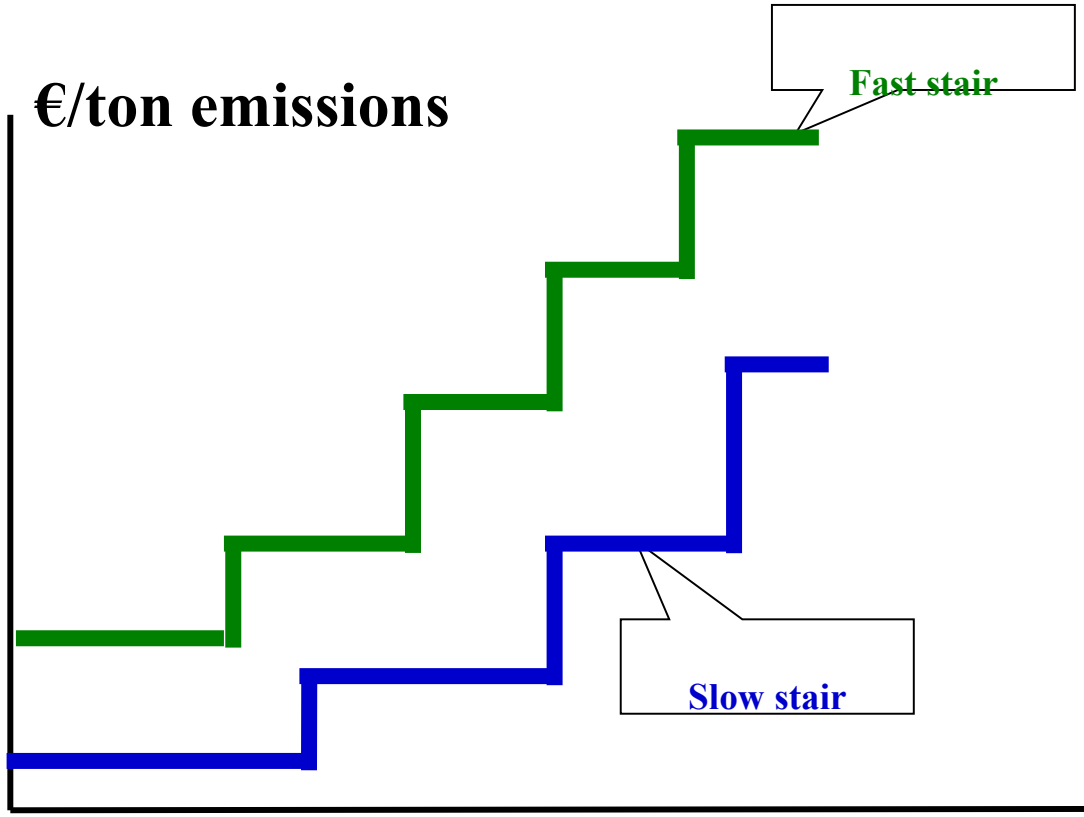
"set the carbon price" + the energy prices

"market failure" + policy failure (commons not preserved, protected against free-riders)

Public pricing: the CO2-eq. price



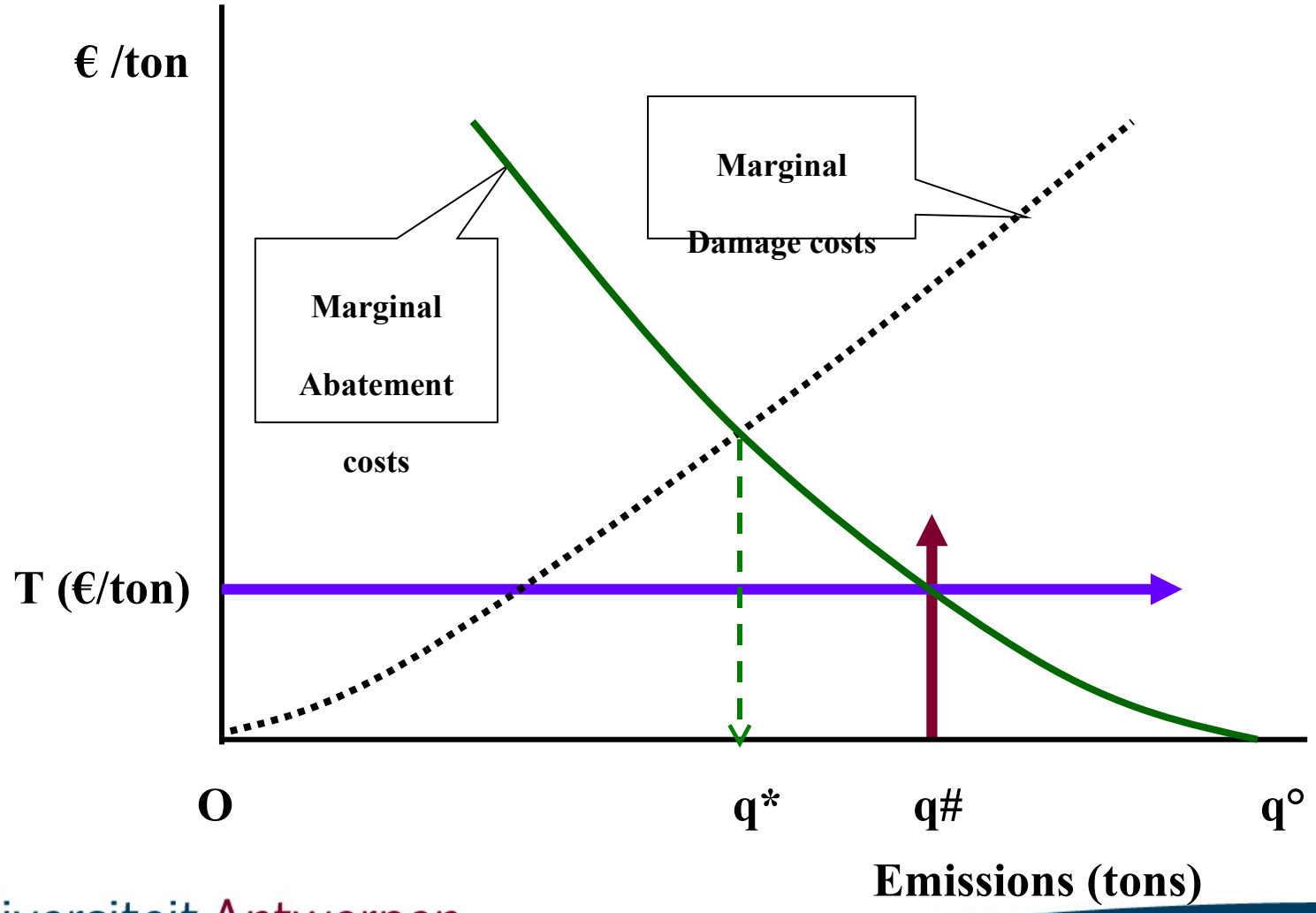
CO2-eq. Price : stairwise rising



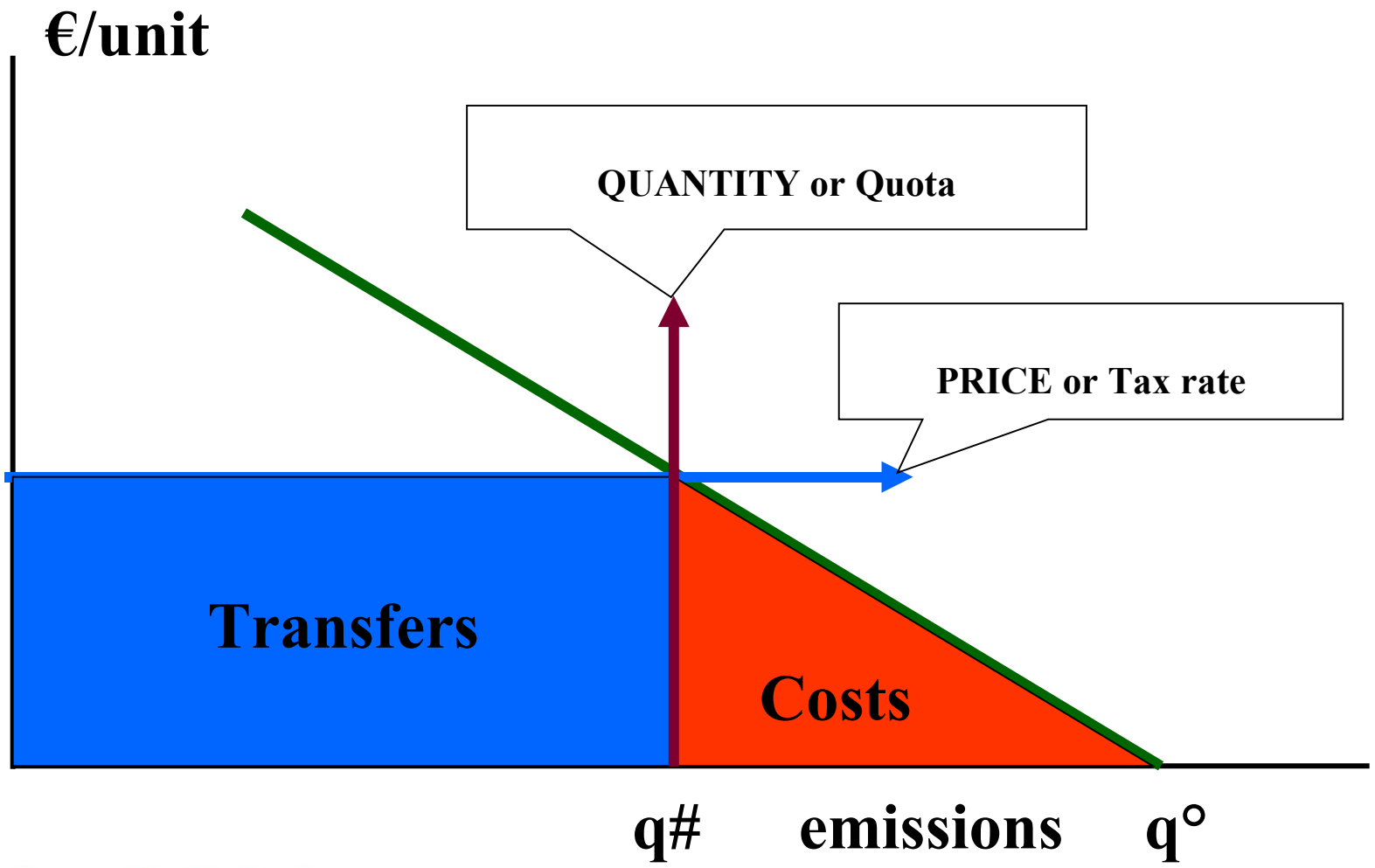
Stair-wise:

- **mounting**
- **clear**
- **predictable**

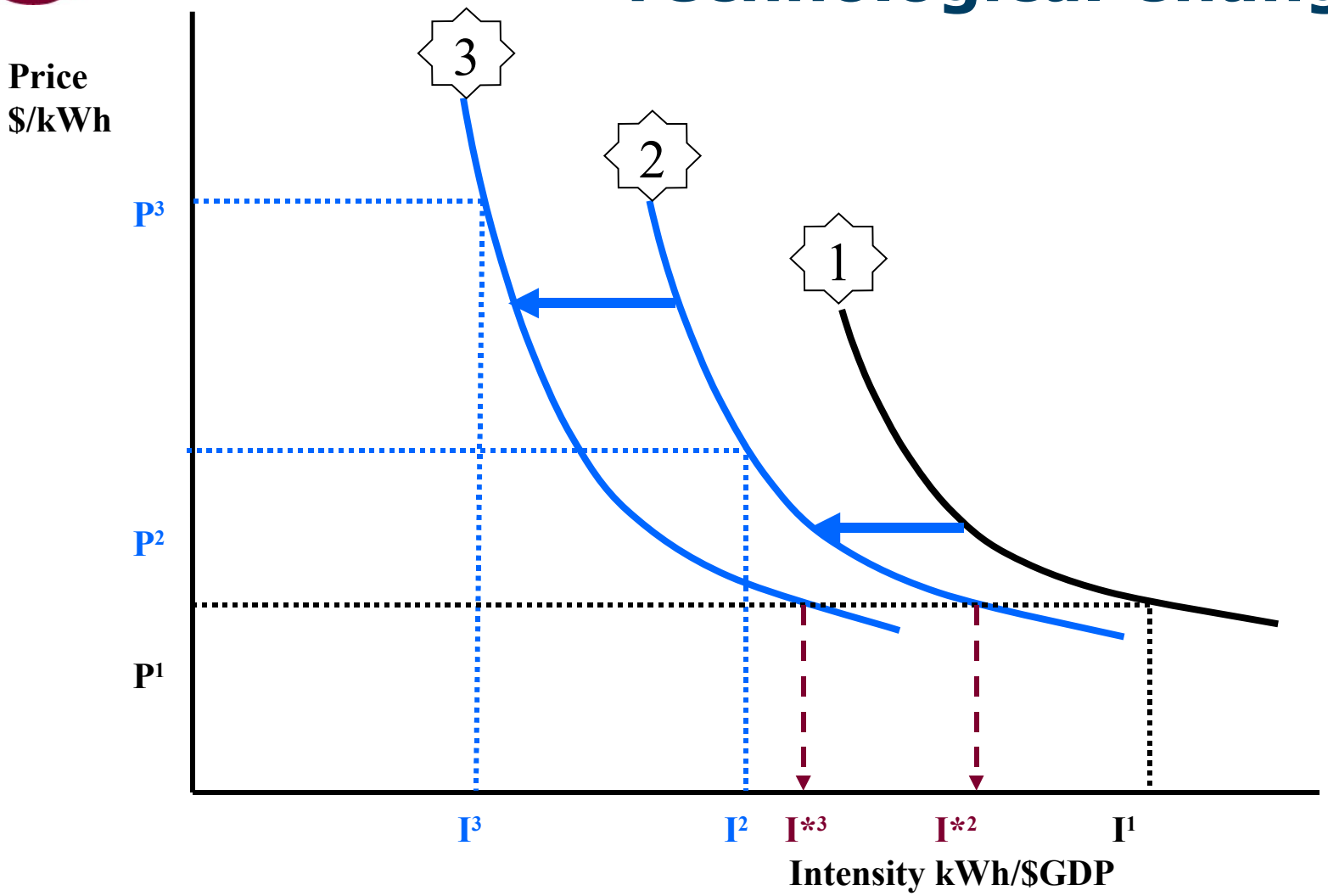
Price vs. Quantity
Top-down vs. Bottom-up



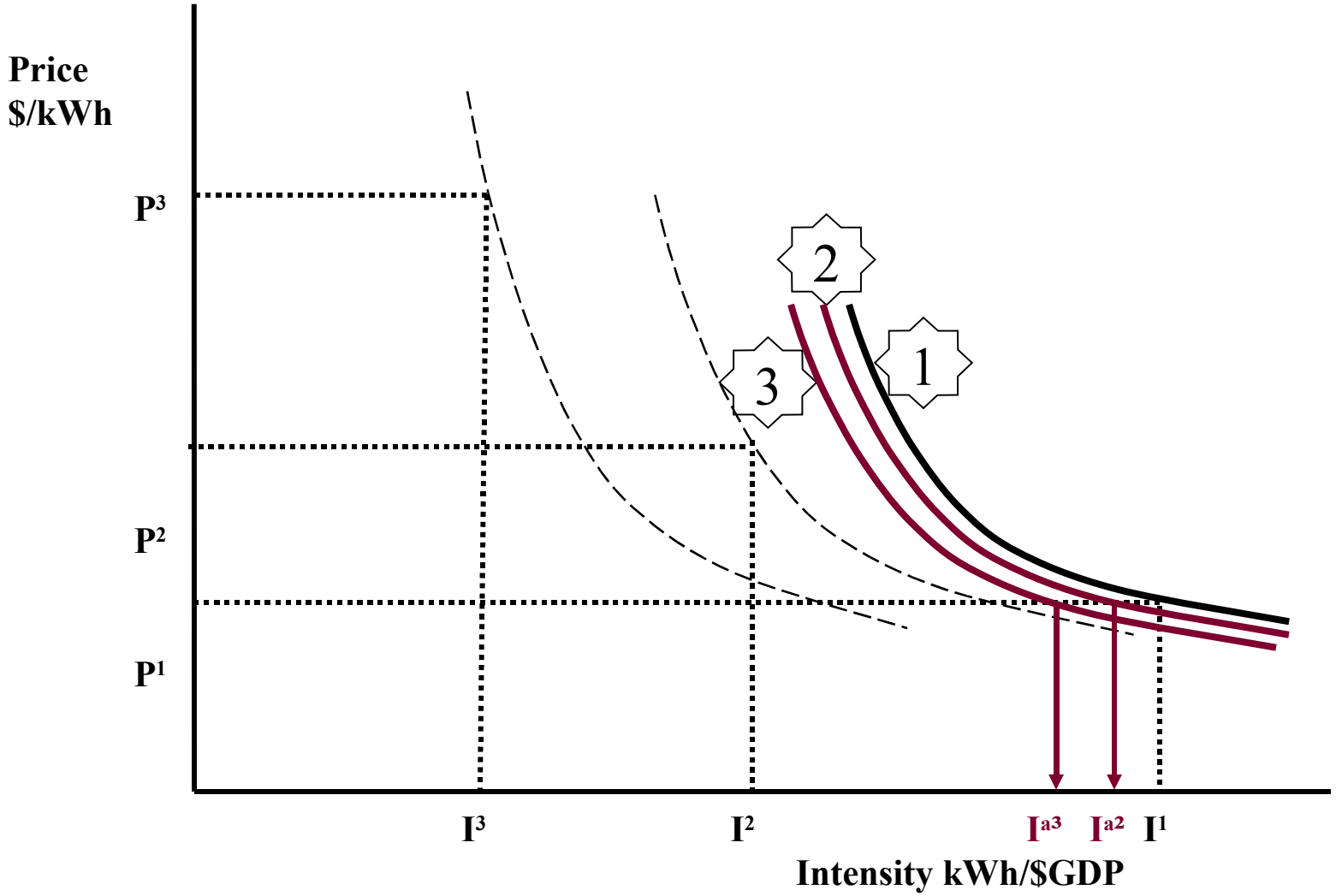
Expenses Polluter
Price vs. Quantity



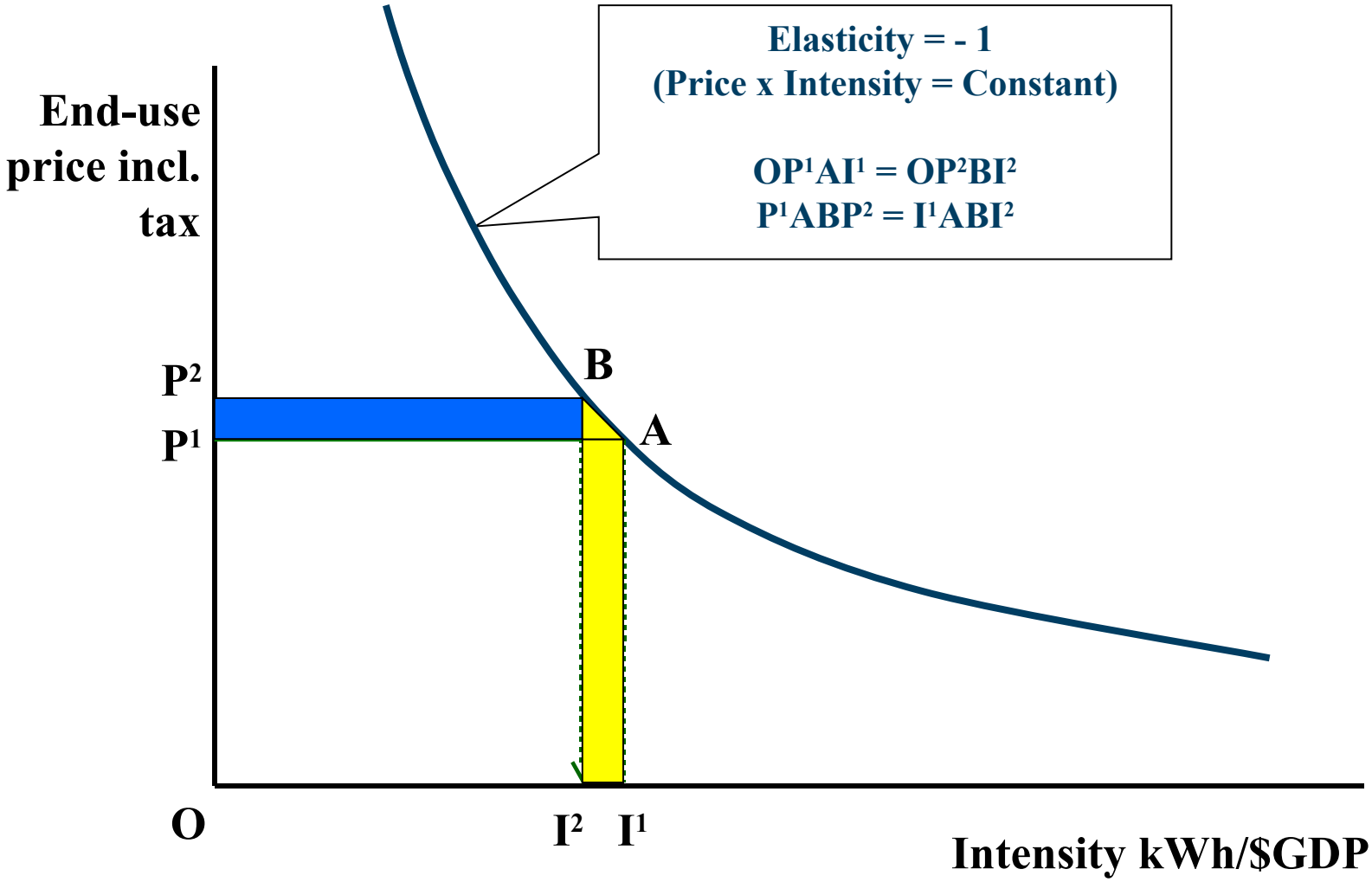
Price Induced Technological Change



Autonomous Technological Change



Tax returns can pay for transition costs



Uniform Tax Rate
Single Carbon Market

The economists' favourites,

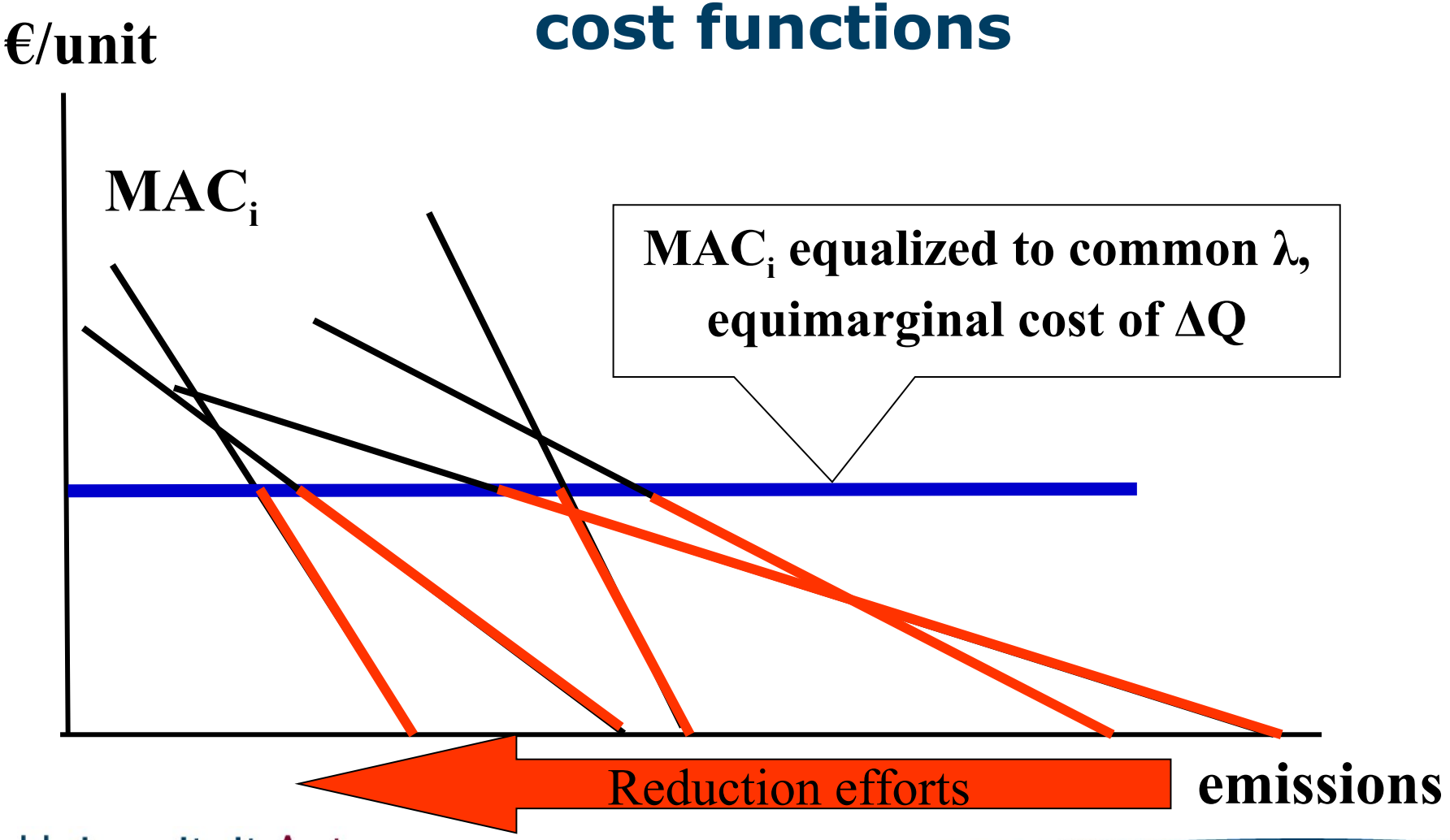
… but wrong when covering diversity

However, the need is high to price public goods, internalize externalities,

and…

true carbon emissions price is globally flat, stair-wise increasing

Costs effectiveness: assumes comparability of cost functions



Dream <> Reality

Perfect theoretical world

- simple
- uniform

MAC-fcts are comparable

- harmonized conditions
- only natural differences
- equity of no concern

No transaction costs: comitonomy

Transparent markets: tax or trade sets single price

Real practical world

- complex
- diverse

MAC-fcts differ in nature

- natural endowments
- artificial biases
- inequalities

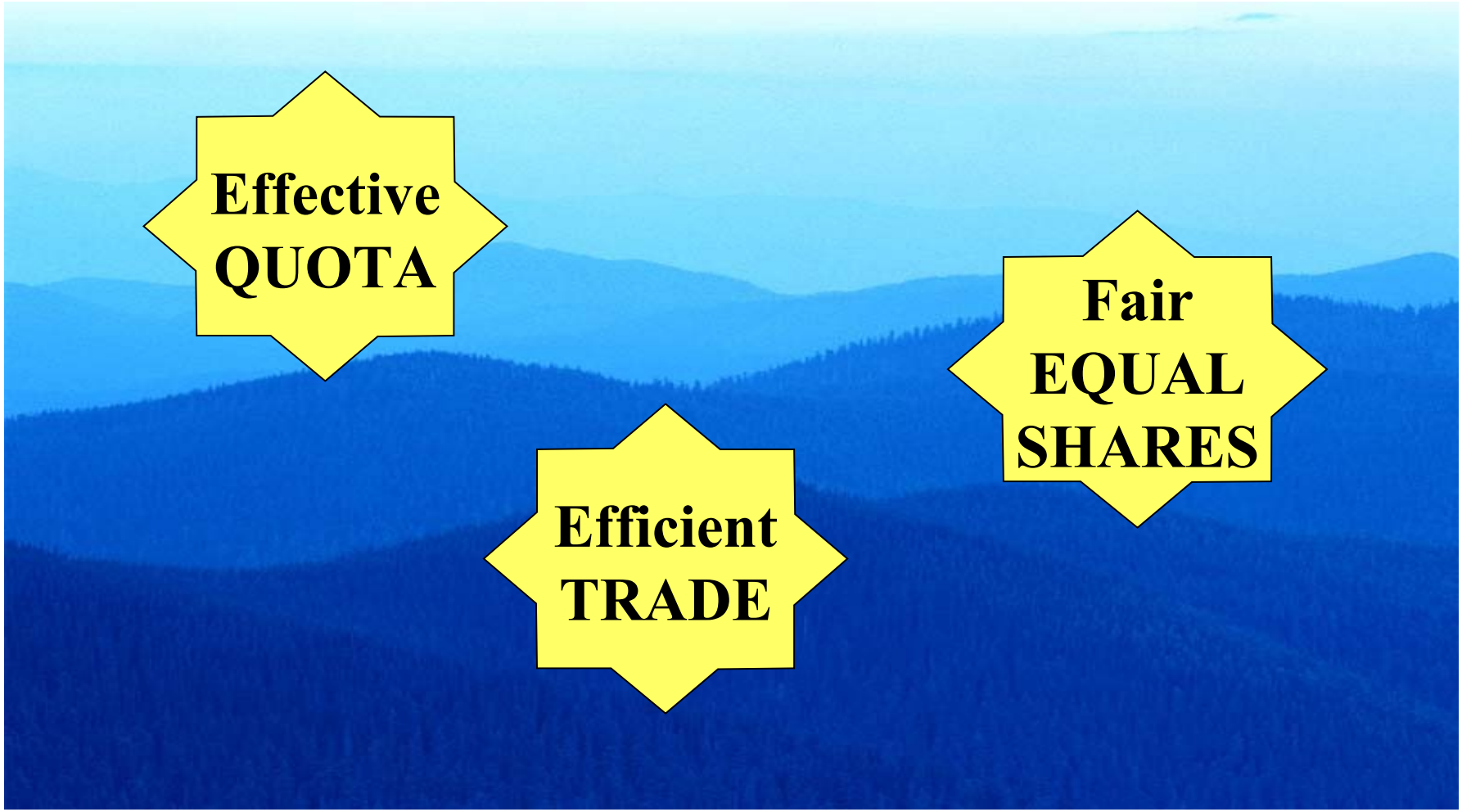
High transaction costs: comitology (~astro….)

Gaming the systems: prices volatile & windfall profits

Tradable Emission Permits

Hybrid of Permits & Taxes
USA: workable systems by clear scoping
Kyoto Protocol launches worldwide interest
EU: ETS as crown jewel of climate policy

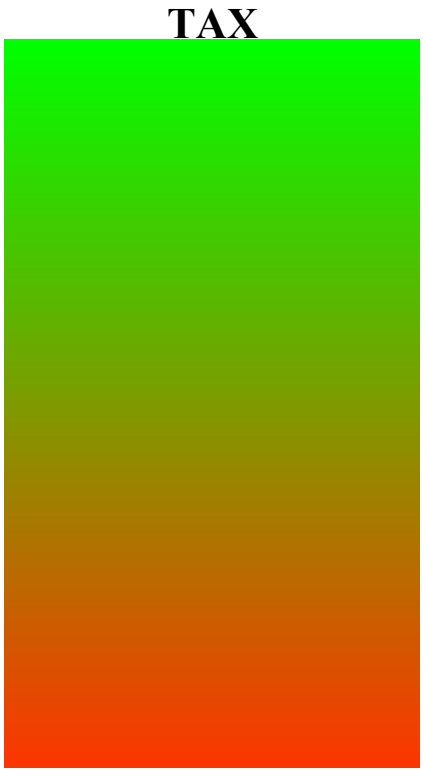
Tradable Permits: let's dream



Cap+Trade: practical set-up

- Define the Bubble
  - Include all relevant sources; no leaks
  - Scope of the bubble ~ level of authority
- Fix quota (quota trajectory over time)
- Introduce quota supply in the market
  - Perfect auctions <> gaming the system
  - Free gift: Who how many? Why? How long?
- Supervise performance & transactions

TP: Which Hybrid?



Type of Assignment of permits

- **Yearly full auction (renting)**
- **Open auction every few years**
- **Auction of futures and options**
- **Partly auctions / partly gifts**
- **Assign permits to $MAC_i = \lambda$**
- **Grandfathering**
- **Gifted along expected emissions**

EU: Implementing Kyoto

- Burden Sharing of EU 8%
  - Uneven allocation over member states
  - I.e.: starting platform not leveled
- NAPs (National Allocation Plans):
  - No harmonisation in sectors included
  - Over-assignment of free permits
- Emission Trading Scheme
  - Thin trade; volatile prices
  - Period I: final price = 0
  - Period II: CDM linked to ETS (Oct. 2004)
  - Period III: good intentions… a way to hell?

EU ETS: Effectiveness
Theory: quota are effective

Right quota = global stabilisation trajectory

Good distribution of quota = mission impossible

(EU burden sharing; NAPs)

Leakages because of wrong scope (bubble with holes)

- **Only ½ of EU emissions X EU is 1/5 of global ~ 1/10**
- **EU industry refuses bleeding, accepts non-biting ETS**

Bill pressure not felt because p=0

- **No additional reduction effort**

EU ETS: Effectiveness 2nd round (2008/12)

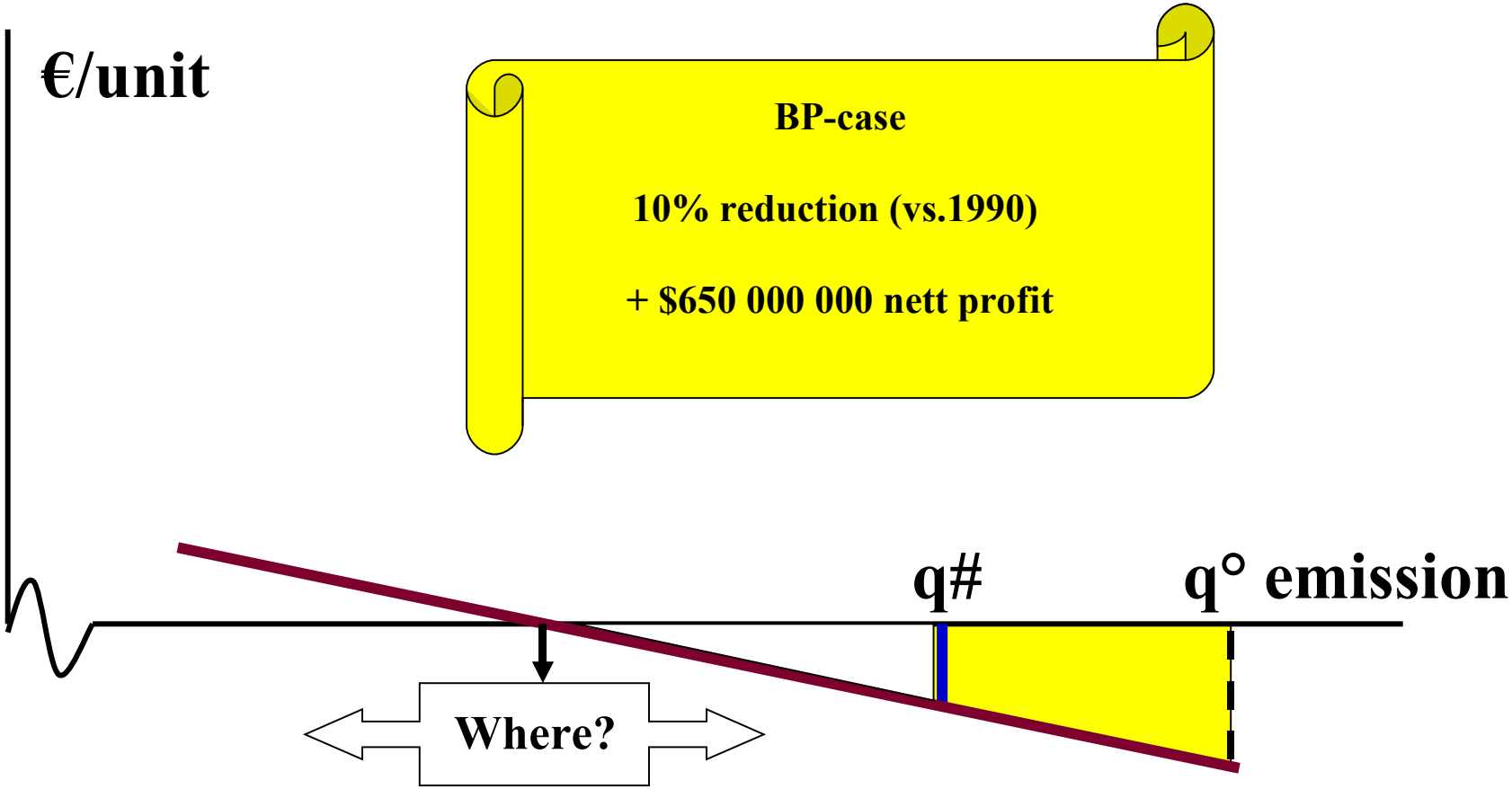
Link EU-ETS ~ CDM/JI crucial

Over-supply of CERs in EU-ETS?

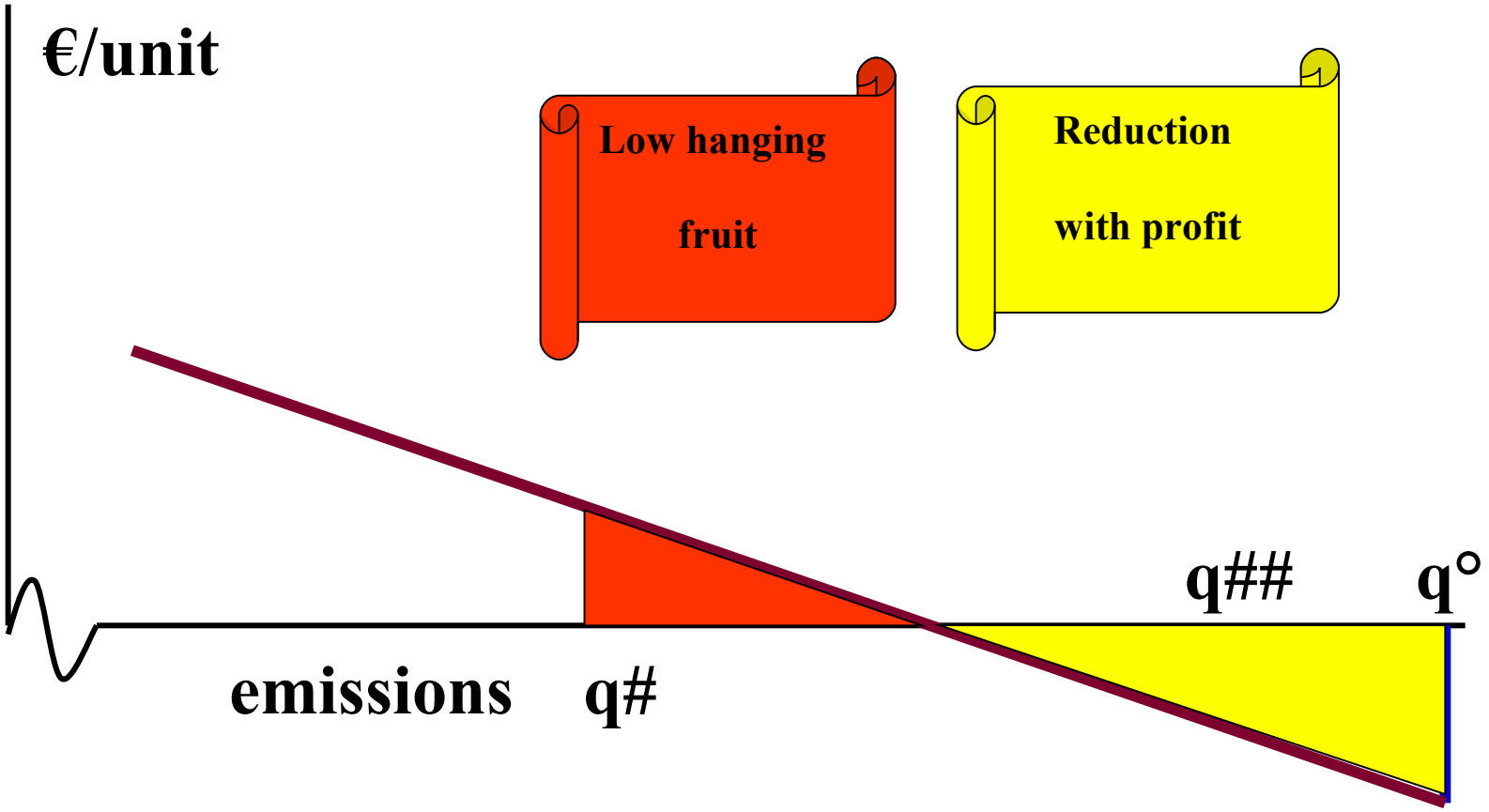
Difficult choices ahead

- **Either curtail CDM by accepting less projects?**
- **Or accept many projects and see CER-price crash, when limit on EU-ETS entry holds tight?**
- **Or allow more CERs entering the EU-ETS, causing the EU-permits prices to crash?**
- **Or eroding both systems?**

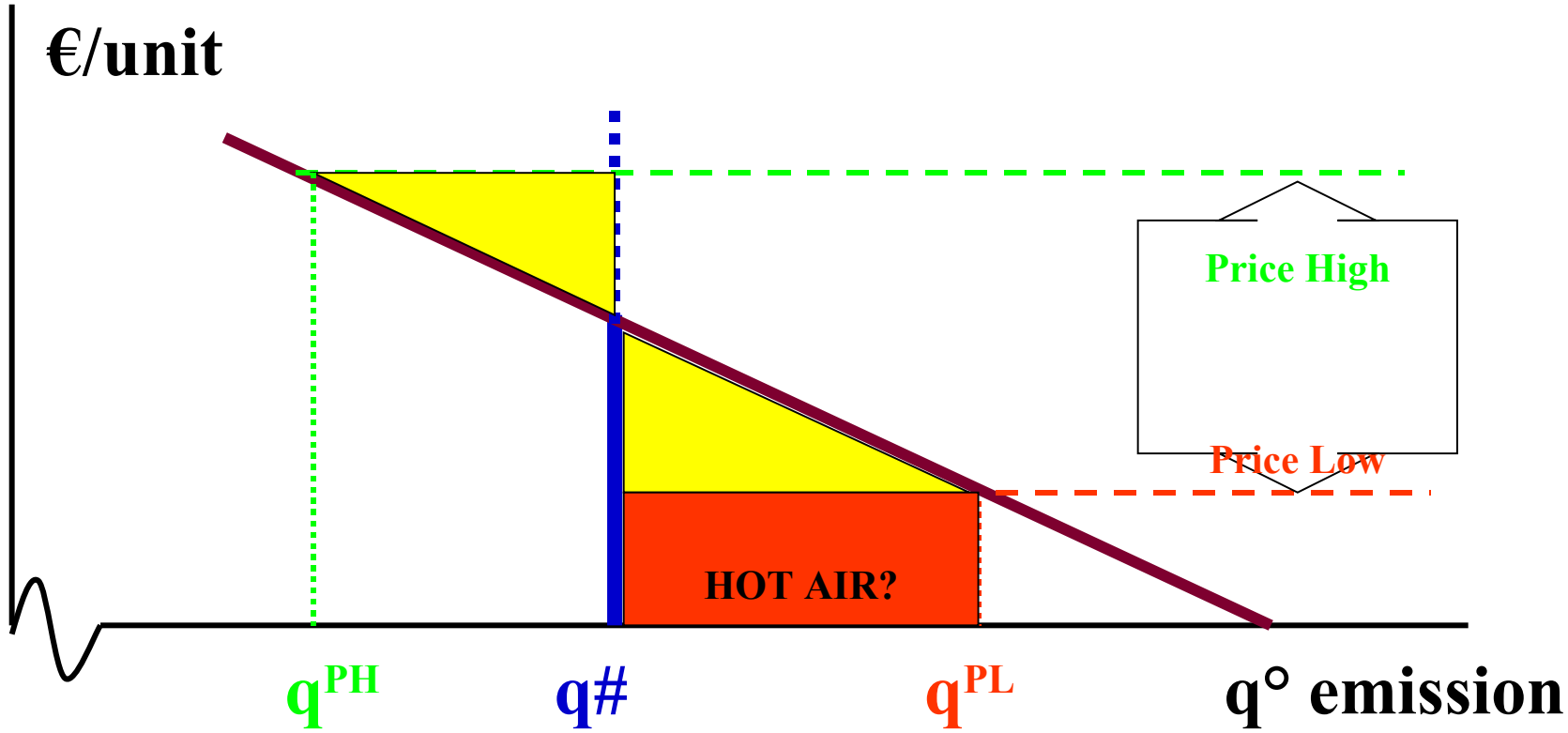
ETS: over-supply of permits
no effort



EU ETS: oversupply of permits small effort



EU ETS: Trade effects

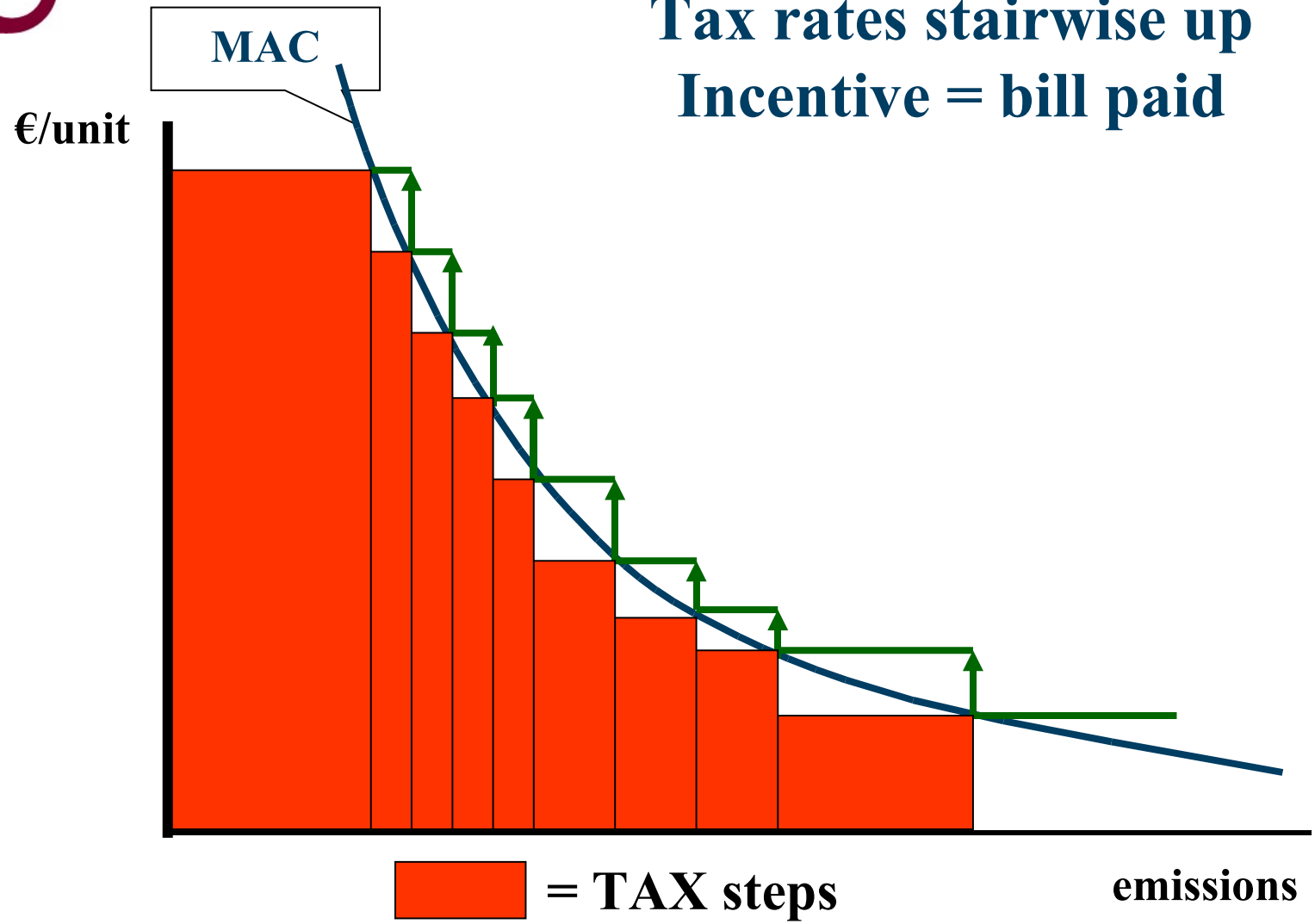


EU ETS: Tail wags Dog?

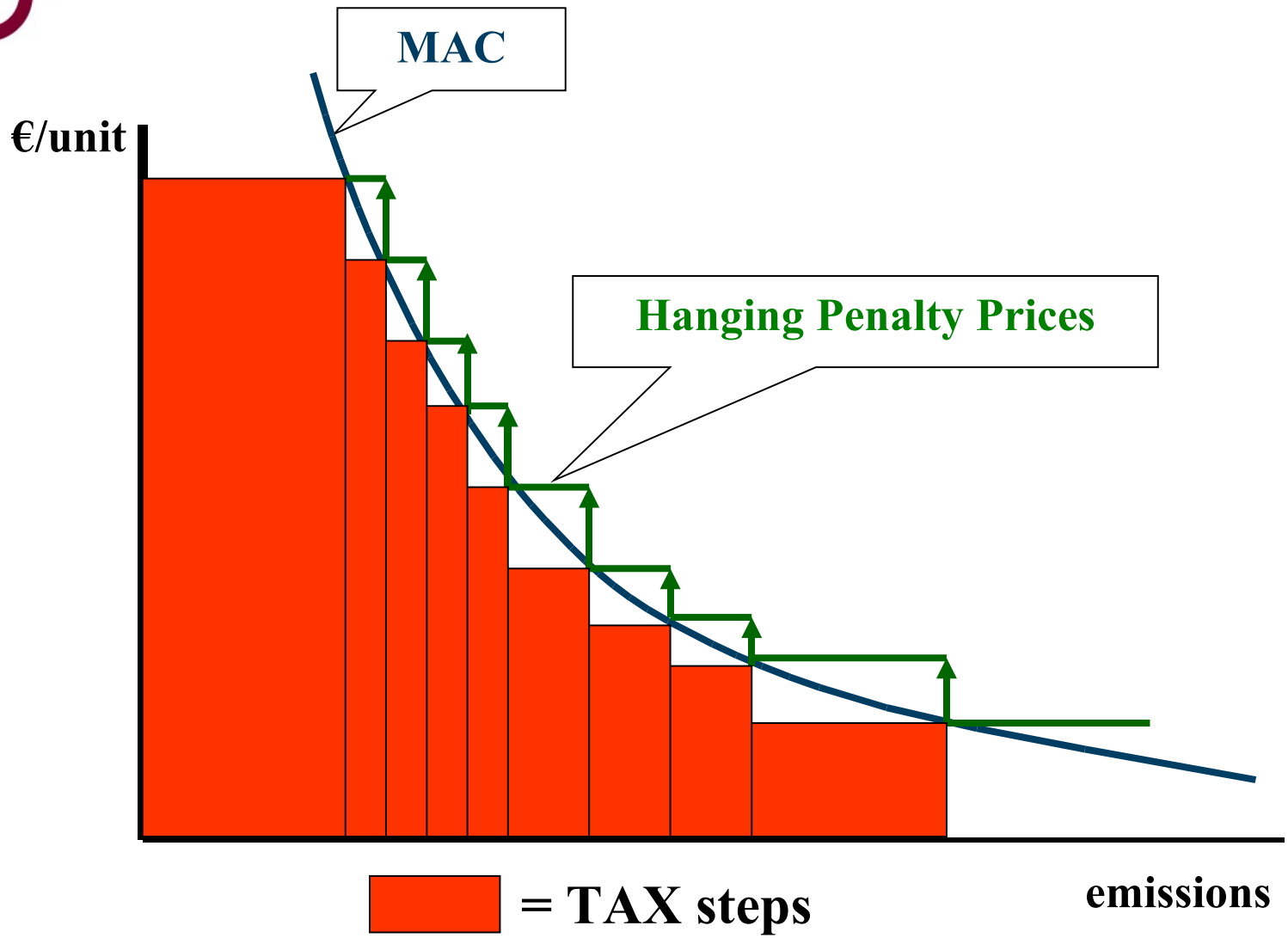
- **Total & Marginal costs**
  - **Marginal is derivative of total (not the reverse)**
  - **MC-pricing optimal IFF all submarginal units also pay the marginal cost (+ convexity)**

- **Free Permits up to actual emission levels**
  - **Permit price = penalty on excess emissions**
  - **No Trade in permits; but trade in penalties**
  - **Carbon price volatile and near zero**

Tax rates stairwise up
Incentive = bill paid



EU ETS: Tail wags Dog



EU-ETS: Distribution & Ethics

Distributional aspects

b) Grandfathered permits are a gift to historical polluters according their pollution.
Pioneers in efficiency are disadvantaged.
Windfall profits (electricity companies).

c) Uneven burden sharing and NAPs create windfall profits for winners, paid by losers.
Companies in ETS vs. emitters outside.
CDM: redistributive goals overridden by profit making scandals (incl. moral hazard).

Ethical aspects

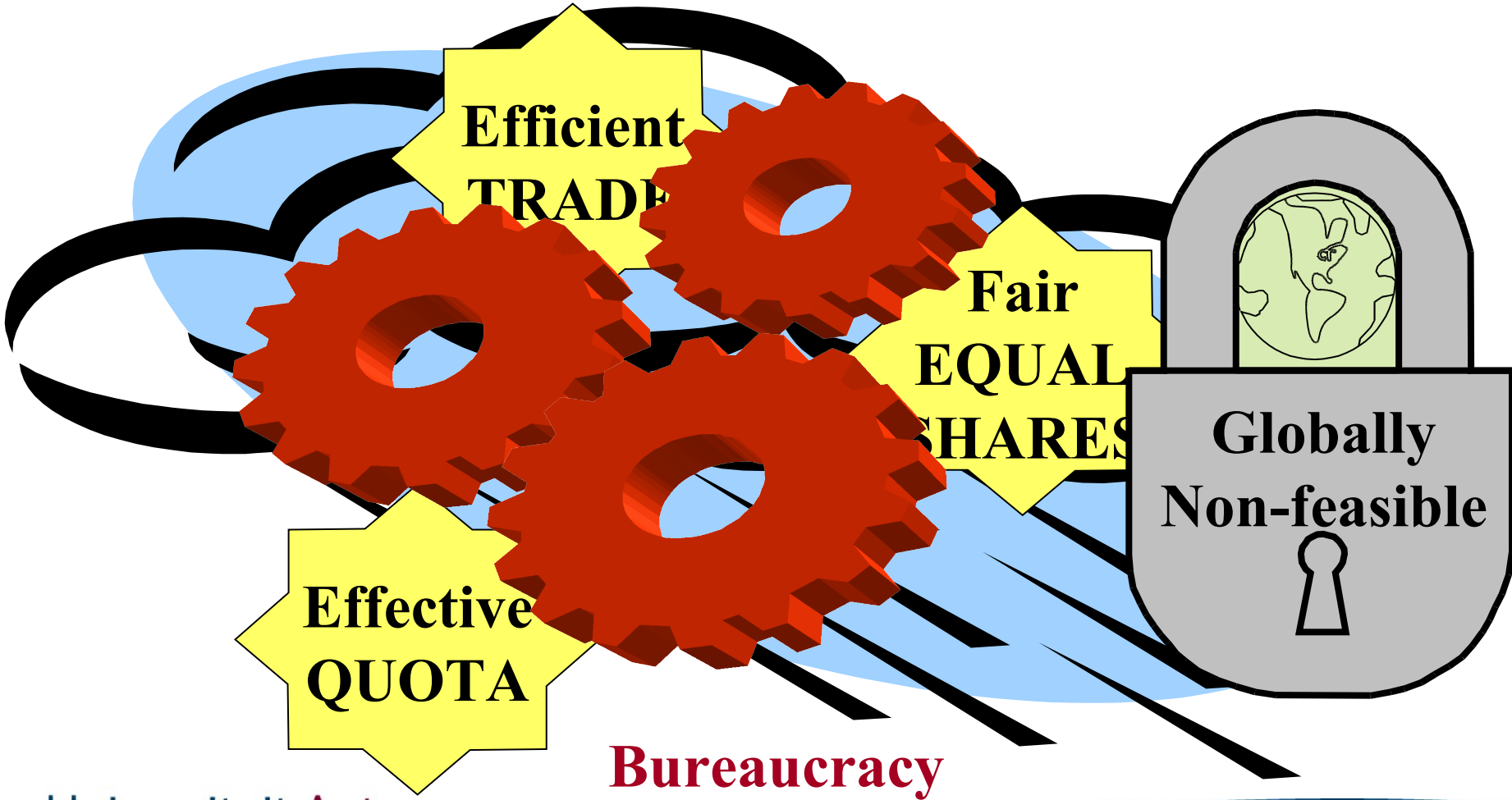
c) Affluent Lifestyles buy rights {FlexMechs}
Free riders and windfall profits erode social cohesion (Mishan)

EU-ETS: Administrative efficiency

Transaction costs decisive for feasibility

- **ETS requires perfect allocations or perfect auctions ⇔ scope & dynamics of climate change and economies**
- **Transaction costs (consultant fees) heavy Speculative trades (ETS) and CDM set-ups**
- **Meter & measure emissions of included parties, registers, verifying (CDM; JI?) Subsidiarity (NAPs) creates uneven treatment**
- **Eureaucrats enjoy discretionary power Playing field for lobbyists**
- **Muddling by eurocrats ("comitology")**

Mixed Tradable Permits: a nightmare



Alternative Post-Kyoto: Distinguish Activities Enumerable < > Numerous

Sectors: Enumerable activities

- Iron & steel, etc. (EU ETS)
- Int'l shipping (> x dwt)
- Int'l aircraft (> x dwt), etc.

Sectors and sources identified (separate registers)

SECTOR SPECIFIC GLOBAL ETS

- Permit auctioning (yearly)
- Auctions PRICE steered, maybe GDP/PPP adjusted
- Returns to home countries, earmarked as taxes

Numerous sources

- Cars, buildings, SMEs, etc. (excluded from EU ETS)

Billions of sources; individual monitoring not feasible

TAX REFORMS by COUNTRY

- subsidiarity
- monitor national accounts (IMF) & energy balances (IEA, OLADE, etc.)

Performance in raising tax returns + intensity decline: basis for transfers [CDM]

Alternative Post-Kyoto: Essentials & Components

Essentials

3. Global (start with G20)
4. Diversity in costs & means, responsibility
5. Respect souvereignity of UN states
6. Follow IPCC 450ppm trajectory (-80%, 2050)
7. Pricing has central role

Components

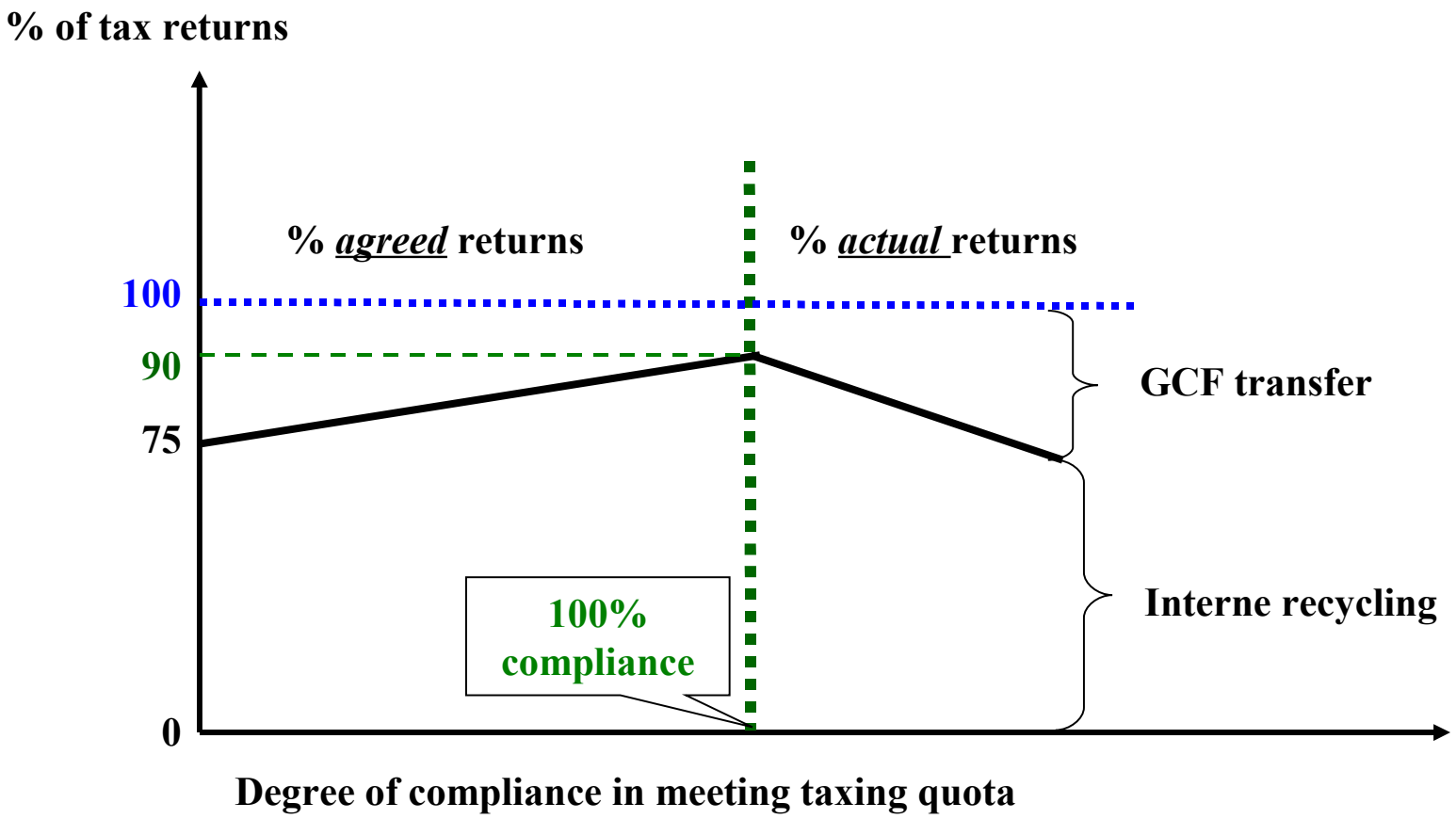
3. Global activity/sector based ET Systems
4. Tax reform by country
5. Protocol: 1°) tax returns 2°) intensity reductions energy & 3°) carbon
6. Tax returns & transfers
7. UN planning & control

Equity issues

1. Charge real costs (incl. Externalities, risks): 'polluter pays'
2. Public rents for the public good
   * Unchain taxing instrument
   * Privatising rents = citizens pay twice
3. Intergenational distribution
   * Today's rich have duty, no more rights

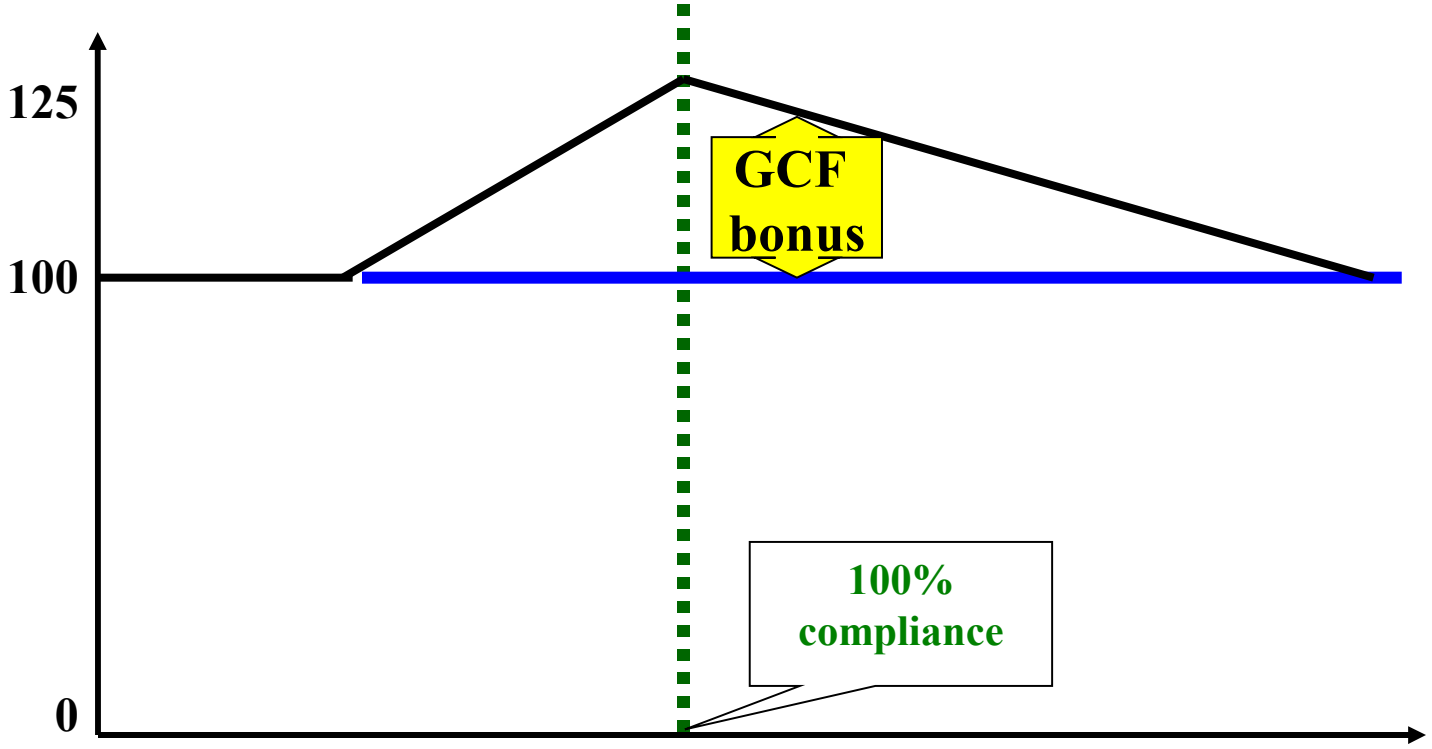
- Across countries: see regulations
- Within countries: the main barrier

Rich nations fund GCF (Global Climate Fund)



Poor nations get drawing right on GCF

% *actual* tax returns as GCF bonus upon 100% internal recycling



Conclusion

1. **Kyoto is flawed and weak**
2. **EU ETS is leaking and teethless**
3. **Real world diversity of economies limits use of uniform tax & single market**
4. **Diverse policies at comprehensive and global scale are feasible (tax reforms & sectoral ET)**
5. **Ultimate transition to Energy Efficiency / Renewable Energy, with prerequisites:**
   - *** Reduce commercial energy intensity**
   - *** Price driven (technological change, investments, behaviour, lifestyles, ...)**