EU Emissions Trading System: critical review

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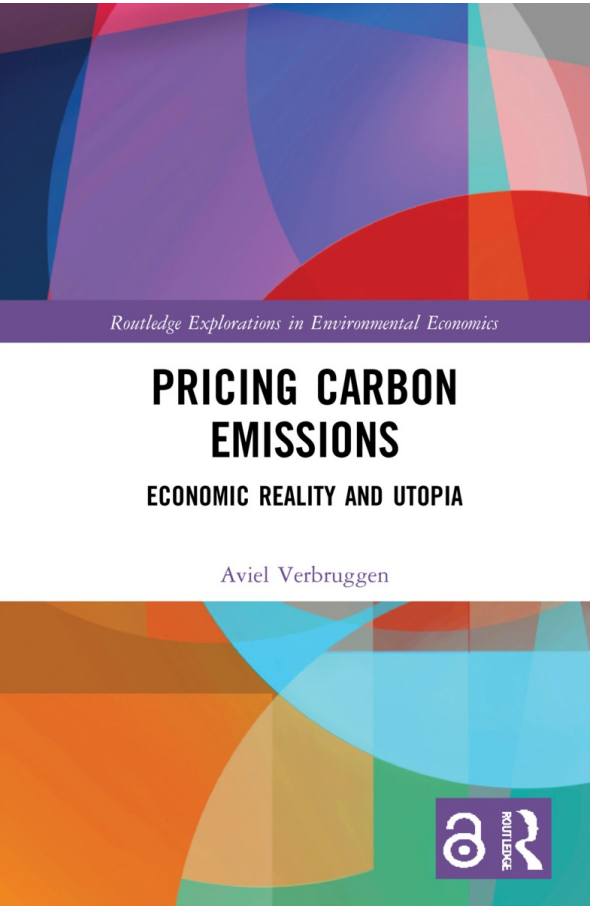
Based on: Pricing Carbon Emissions: Economic Reality and Utopia
open access book Routledge

Hint:

- **The Book provides more info than the Slides**
- **The Slides provide more info than the Talk**
- **Slides with a red point are skipped in the lecture**

This book finds: EU ETS amplifies the climate crisis



- **By diluting the Urgency to Act-Now, needed for avoiding**
  - **Irreversible climate collapse**
  - **Irreversible biodiversity loss**
  - **Societal disintegration**
- **ETS is a product of corporate power**
  - **Thriving in neoliberal regimes, obstructing Sustainable Development**
  - **Sanctified by neoclassical economics**
- **This lecture presents some of the book's analysis**
  - **Necessary transformations in energy systems and societies**
  - **Carbon Pricing and Money**
  - **Neoclassical economics illusions (3 major ones)**
  - **Bewildering discursive power of Stakeholder Masterminding**
  - **Reality behind the CAP & TRADE façade**
- **Beyond the book, research on 'Fit for 55' brings bitter notes**

USA: cradle of emissions trading

1960s: growing awareness about environmental harm by humans

- Population growth (Ehrlich's 'population bomb', I=PAT identity)
  K. Boulding (1964) suggests "birth licenses" to cap population growth: each woman receives 21 deci-children licenses free to transfer. Organizational and legal hurdles (e.g., how to enforce once a non-licensed child is born?). Mind teaser influenced H. Daly (ecological econ.) macrostability (efficacy) with microvariability (efficiency); equal treatment of participants (equity)
- J. Dales' 1968 book "Pollution, Property, and Prices" formulates emissions trading

USA several trading experiments

- River basin water pollution control, air pollution control, fisheries, …
- Increasing the flexibility/efficiency of emission permit practice by allowing to nett, offset, cap emission sources under a bubble – implying exchanges
- Successful example: leaded gasoline phase out by USA refineries

USA acid rain control: SO_2 emissions from coal-fired power plants

- 1 jurisdiction (USA); 1 informed-experienced regulator (EPA)
- 1 type of emitters: electricity companies – leakage not an issue
- 1 substance (SO_2); 1 technology (coal-fired power plants)
- 2 well-known SO_2 emission reduction means: low-sulfur coal, advanced scrubbers
- Free emission permits; little trade across companies
- System ended by 2010
- NOx control via separate regulations (i.e. market segmentation; trade as instrument submitted to environmental policy-making)

EU: GHG emissions trading & Tradable Green Certificates

December 1997, COP Kyoto: Al Gore imposes 'Flexible Mechanisms'

- Global GHG permit markets as backbone of global climate policy
  - Most COP participants had never heard about emissions trading before Kyoto
- Clean Development Fund (demand by developing parties) turned in CDMechanism
  - EU delegation opposes but concedes for obtaining USA's signature on the Protocol
- In 2001, W.G. Bush administration dumps the Kyoto Protocol
- CDM offsets: rich parties escape decarbonization duties; unclear 'additionality' in reducing emissions; perverse effects (China creates HFC23 flows for CDM credits); Certified Emission Right (CER): its value dropped to almost 0

EU Commission U-turns from opponent to top advocate of ETS

- 2000 Green paper on GHG emissions trading within the EU: Cap and Trade as pure textbook recipe (Tight capping + Auctioning of permits + Market sets prices)
  ⇔ 2003 Directive very different, e.g., auctions shelved for free donations of permits in worst way of grandfathering

Early experiments with Tradable Green Certificates (TGC)

- 1999 EU Commission advocates Tradable Green Certificates for promoting renewable electricity
  ⇔ Germany, Spain, … oppose and apply Feed-in-Tariffs for innovation in PV, wind and other RE technologies = success for decarbonization (now used in ETS)
- 2002 Belgium, UK, … try TGC, experience technological race to the bottom + skimming of excess profits [slide 8]

ETS levies-permits hybrid: color depends on system of allocating permits

LEVIES

- Yearly auctioning of shrinking year quota
- Auctioning of quota for a trade period of a few years
- Auctions spread over years, following the demand for permits
- Partial auctioning, partial free permit gifts
- Assign permits to equalize Marginal Abatement Costs among participants [MACi = MACj = λ]
- Assign permits for emissions expected when Best Available Technologies (BAT) are applied
- Grandfathering permits based on historical emissions

PERMITS

Don’t get fooled by Carbon Prices: ‘Follow the Money’

1. **Carbon Pricing in general: objectives ⌘ outcomes (incl. distributional)**
   - Collect money
   - Incentivize particular activities / change in activities
   - Compensate the use of commons / public goods

2. **”Carbon Price” confusion by various meanings and deception**
   - Speculation price at the carbon permit exchanges (Leipzig, London)
   - Fringe price (no valid representation of Marginal Cost price)
   - Symbol of “market performance” of the EU ETS
   - Administrative price (fixed via Market Stability Reserve + speculation on top)

3. **MONEY counts (ETS hides volumes, origin, destination, distribution, …)**
   - Firms select investments via capital budgetting, discounted cash flows
   - Firms pursue ‘above-average profits’
   - Firms exploit every opportunity to cash rents, royalties, excessive profits

Neoclassical econ. flaw #1: negating and abusing diversity

1. **Ambigious views**
   - On the one hand, diversity is ignored: replaced by averages, representative consumers, abstract producers, unlimited substitutability.
     Disturbance of mathematical homogeneity is 'loss of economies of scale'.
   - On the other hand, heterogeneity is seen as source of gains to capture by trade.
     The wider and deeper heterogeneity, the more gains in the air.

2. **The 'holy grail' mirage of Global Uniform Carbon Price (GUCP)**
   - Harmonized global tax rate or worldwide emissions trading
   - Labeled as ideal instruments, maximizing economic efficiency

3. **Evaluating GUCP performance**
   - Factual evaluation is impossible because GUCP does not exist
   - Observation: a uniform price on heterogeneous cases ends in unplanned, intricate ad-hoc adaptations, exceptions, exemptions, … a mess
   - Observation: actual business pricing adapts to detailed diversity

Neoclassical econ. flaw #2: uniform price-induced innovation

1. **LESSON: Feed-in Tariffs (FiT) pull Renewable Electricity (RE) to maturity**
   - Germany, Denmark, … applied specific FiTs for diverse RE technologies
   - 2001: Germany rejects EC market-based Tradable Green Certificates (TGC)
   - Flanders, UK, … apply TGC: technological race to the bottom; excess profits (next slide)
   - 2014 Energy corporations lobby EU Commissioner Almunia, effecting new State Aid guidelines prioritize large-scale RE projects + nuclear subsidy

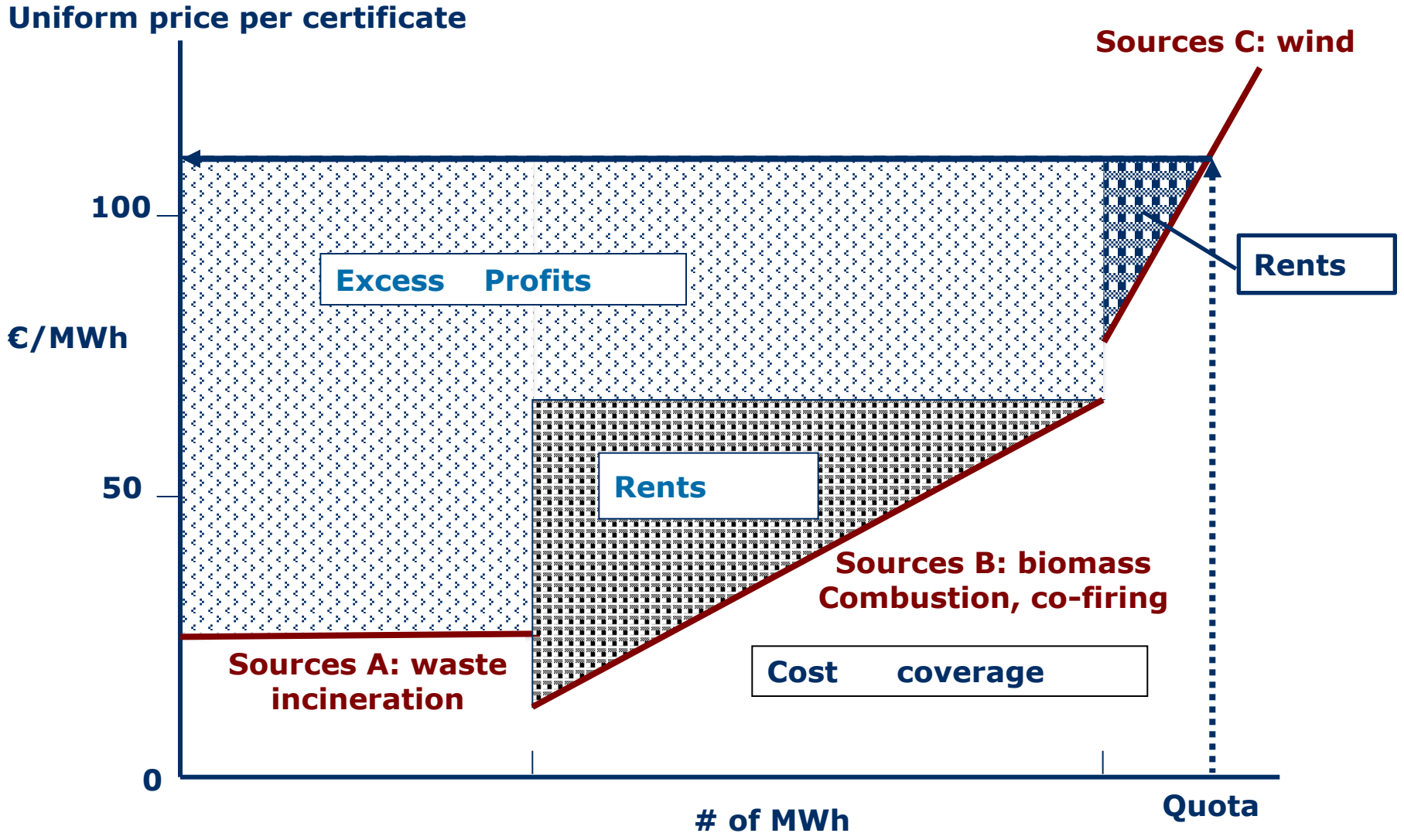
2. **EU ETS triggers no decarbonizing innovations**
   - Business-as-Usual of energy & industrial corporations continued
   - Anti-Tax coalition rejects paying for emissions, environmental innovation, asks subsidies
   - Electricity producers build coal-fired power plants [2008-2018: NL, D]

   … now free-ride on FiT innovation results for coal phase-out

   … meet the ETS CAP decrease in phase IV [2021-2030] (slide 9)

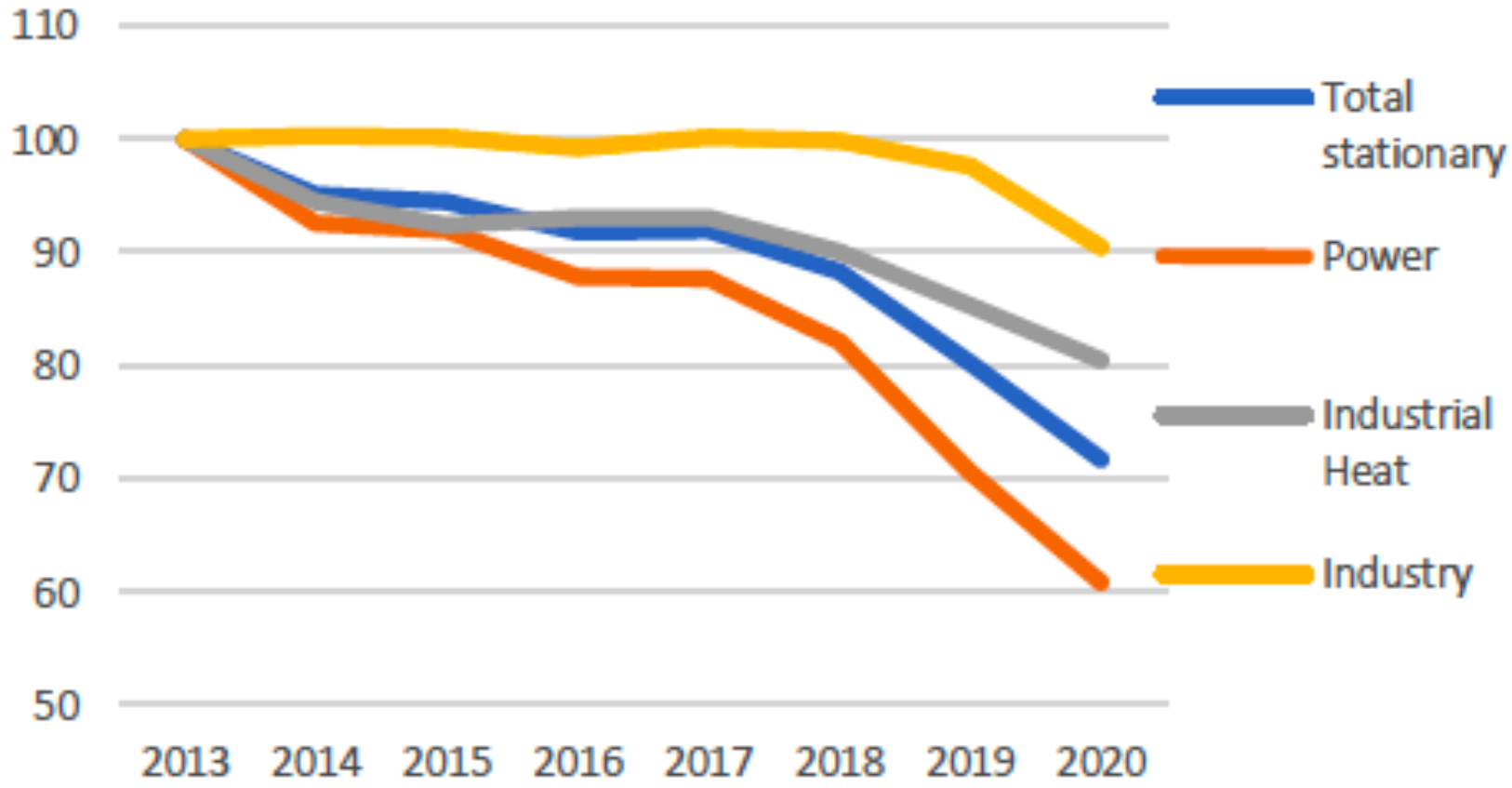
3. **Integrated Assessment Models (IAM) used by IPCC WG3**
   - Incorporate neoclassical recipe (clockwork) of uniform price-induced innovation
   - Hence, results and policy recommendations are problematic

Technological race to the bottom + Skimming of excess profits in Tradable Green Certificate (TGC) systems due to uniformity (lack of market segmentation)

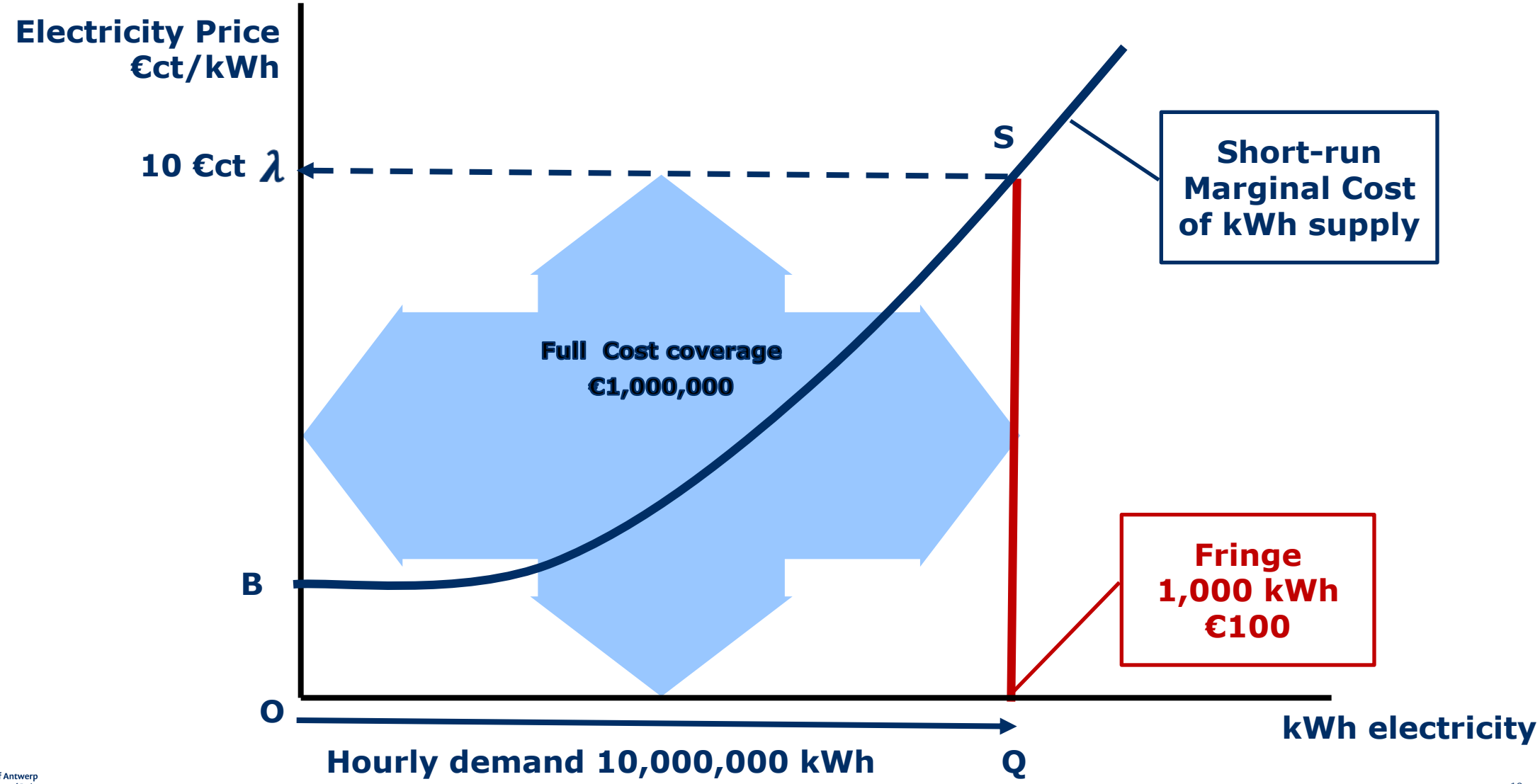


EU ETS state 2020 (Marcu et al. 2021)
Verified emissions (official statistics), requesting emission permits

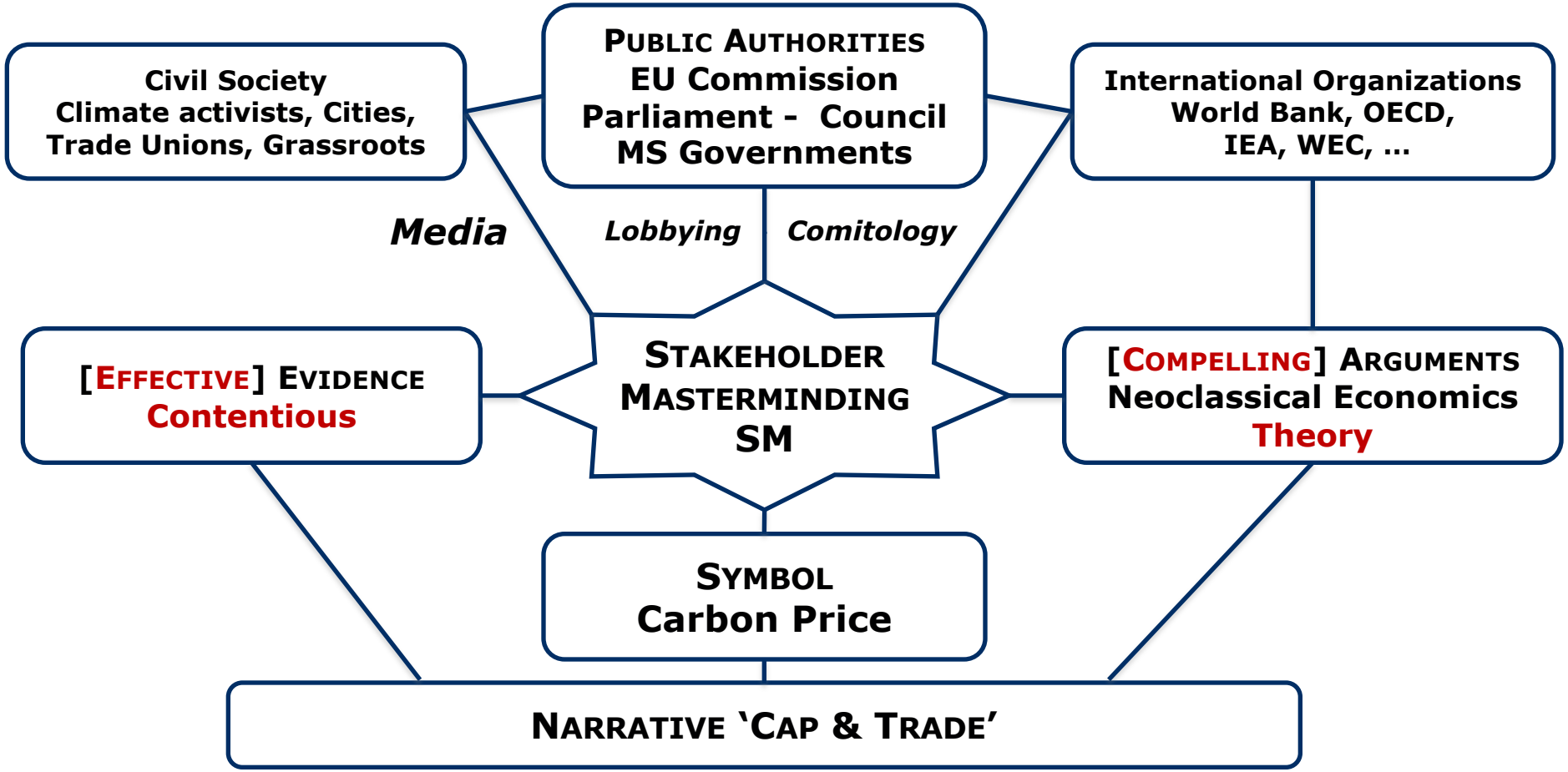
Figure 5: Index of verified emissions



Neoclassical econ. flaw #3: Fringe price equalized to Marginal cost price (to pardon free permit donations)



DISCURSIVE POWER



Bewildering discursive power upholds the CAP & TRADE façade, notwithstanding

- **evidence is contentious, not effective**
- **formal mathematical theory as argument is not compelling**
- **CAP & TRADE narrative hides opposite reality (next slide)**

EU ETS Façade vs. Reality

EC(2000) CAP&TRADE Façade

EFFECTIVE reduction of emissions by stringent CAPS

EFFCIENCY in reduction by equalizing the Marginal Abatement Costs of all emitting activities, buying permits at auctions, exchange via TRADE

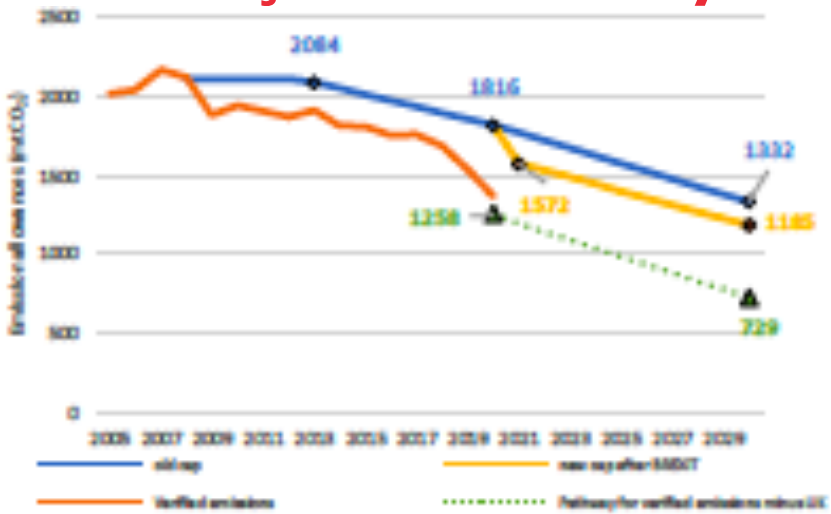
Permit price set by market forces

Uniform price-induced innovation for decarbonising activities

No bureaucracy, market allocates

Fairness, Polluter Pays Principle

2005-2020 Reality



Oversized and permeable CAPS

Surplus permits in phases I, II, III [2005-2020]

Figure: Caps vs. Verified emissions

Source:

Marcu et al. (2021). State of the EU ETS

Free permit donations (grandfathered, then benchmarked)

… continue in phase IV [2021-2030] for EITE activities

Speculation with surplus permits is not trade

Administrative price fixing via Market Stability Reserve

Declining emissions by external economic factors and by competitive RE technologies (irena.org)

Incredible mess. Hidden ownership, transactions, money flows

People Pays Polluters: €billions in rent skimming on top of auction payments, both charged on non-ETS electricity bills

Fit for 55

- **Continues + expands EU ETS**
- **Similar to ETS in discourse, stakeholder masterminding, bureaucracy,**
- **Confined to European financial-economic interests**
- **Missing universal scope, while climate is a global commons**
- **Skips Our Common Future Sustainable Development. Prolongs neoliberalism**
  - Corporate interests prevail (like electricity corporations skim rents from billing electricity users, fossil fuel sellers can sqeeze money out of transport and building users)
  - Material growth as solution (e.g., aviation gets free skies when shielded by EU ETS)
  - No cure for inequality
- **EU ETS is 20^{+} years lost in climate politics; Fit for 55 adds another decade**
- **Carbon markets do not solve the climate crisis; they amplify the crisis.**

Unclear and dubious ETS Carbon Prices

CaT theory "A uniform carbon price sets all MAC_i equal (= total AC minimum)" is the main selling point of EU ETS, however:

- **Emission sources in the ETS face very different prices**
- **For most sources, prices were/are zero**
- **Fringe prices unlikely induce any action, certainly no disruptive innovations**

Electric power corporations active roles

- ✓ **Manage main parts of ETS billing**
- ✓ **Most electric utilities have experience**
  - ✓ **in market trading (fossil fuel trading)**
  - ✓ **as intermediary between public authorities and constituencies**
- ✓ **Bulk share of ETS bills charged on non-ETS electricity consumers**

Distribution of the financial burdens

- ✓ **Governments (UK, Germany, Belgium, …) reimburse EITE (Emissions Intensive Trade Exposed) companies 75-85% of ETS driven electricity expenses**
- ✓ **I.e. non-ETS electricity consumers pay the bulk of ETS bills**
- ✓ **Permit price increase = profits on hoarded permit stocks + paying the 'coal exit'**

Can ETS survive high permit prices?

❑ Yes

- ✓ When roll-of mechanisms via electricity bills persist: the non-ETS electricity consumers pay the bulk of the bill
- ✓ Pivotal role electric power corporates may be undermined by fast growth in prosumer solar & wind generation
- ✓ For protecting prosumers, public regulation of electricity pricing is more relevant than carbon pricing

❑ No, when bills are charged on industrial emissions

- ✓ Industries cannot, will not, pay twice: a yearly permits bill + investments in decarbonizing innovations
- ✓ Price Induced Technological Innovation is fiction, most when MAC curves are sticky
- ✓ Carbon leakage is likely when EU industry would have to pay high emission bills
- ✓ Then, EU based industry will quit (blow-up) the ETS, or buy time by something frivolous like the Carbon Border Adjusment Mechanism (CBAM)

Has GHG emissions trading a future?

Prerequisites:

- ❖'Segmented & Specific' substitutes for 'Amalgamation & Uniform' in handling emission sources and applying economic instruments.
- ❖Submit Policies & Instruments to Sustainability Assessment
- ❖Accord with stimuli for decarbonization innovations, more important than market mechanisms
- ❖End belief in uniform Price Induced Technological Innovation (PITI)

❑ **Yes, GHG emissions trading may play a role**

- ✓ When organized per industrial sector / subsector
- ✓ On a global scale, e.g, civil aviation to preclude leakages
- ✓ Foster flexibility in emissions reductions (avoid rigid technical prescriptions)

EU ETS deceiving experience brings two feelings:

- **Relief: better climate policy is feasible after breaking the deception**
- **Responsibility: find new effective, efficient, fair policies, e.g.: new electricity pricing theory & practice; carbon intensive goods & services taxed at the place and moment of use by people**

Some ideas about future electricity supply (book section 8.1.3)

- Electricity regulation and pricing is far more important than carbon taxing
- The inevitable transformation of energy supplies to full harvested renewable currents (wind, light, water, geothermal) outdates the present electricity economics theory
- A new theory is needed, conceived for systems of 100% RE supplies with (almost) zero marginal costs (except biomass), and ca. 80% <u>not</u> on command
- New challenges/opportunities are redundancy in capacities, c.q. supplies, islanding of loads and generation, service reliability at different levels in the system and end-uses
- Options to address the challenges: reward capacity investment expenses by Feed-in-Tariffs (now ”power purchasing contracts”); for ranking deliveries to the grid (replacing outdated merit order ranking based on fossil fuel combustion) apply the principle of proximity between generation and end-use; pricing of sold power varies by reliability indicators with the responsibility for ISOs to respect bands (in Belgium ELIA + in Flanders Fluvius as responsible agents)
- ICT, big data processing, realtime optimizations, … play a significant role
- Local bottom-up projects (like Lovitas). Some may succeed in full islanding (with H2 storage and fuel cells); others will continue to depend for complementary and back-up power on the grid (then, the terms of interaction with the grid are crucial)
- Proper relationship between central top-down generation & decentral bottom-up, based on the principle ‘central complements decentral’ instead of today’s ‘central obstructs decentral’