

**Disruptive Views on Climate Policy**  
Aviel Verbruggen, University of Antwerp  
[www.avielverbruggen.be](http://www.avielverbruggen.be)

Presentation at KU Leuven Euroforum  
June 14, 2013

*This text supports a presentation at the KU Leuven EUROFORUM (June 14, 2013). The slides are added at the end of this file. This contribution discusses two papers, edited by KU Leuven colleagues:  
Muys, B., Van Acker, K., Vandevyvere, H., Mathijs, E., Marx, A., Van Lipzig, N., Jones, P.T. 2013. Transition to a Climate Neutral Society.  
Proost, S. 2013. Climate Change Policy in a Non-Cooperative World.*

**SLIDE 1**

Dear ladies, dear gentlemen,  
Although my publications seem still on the Alma Mater's INDEX, Erik Schokkaert and Frank Vandenbroucke invited me in person: thanks, Erik and Frank. Also thanks to the authors of the two papers, providing windows of opportunities for discussion, and for exposing my quite different findings and propositions. I got 20-25 minutes; I could speak for 2 hours. But for more, please check my website.

**SLIDE 2**

**Overview**

**SLIDE 3**

**1. EU leadership in energy & climate policy**

Both papers see energy policy and climate policy as interlaced. Can one exert leadership in one, without the other? And: 'Does a common EU energy policy exist?'

There are a few energy directives:

- The one on the Internal Electricity & Gas Market: since 1996 the EU tries to install a competitive market. The directive was improved in 2003 and again in 2009 (third package), but not yet sufficient to finish the job.
- The Renewable energy directive (since 2001)
- The combined heat & power directive (since 2004), now merged in the energy services Directive (2012)
- The energy performance of buildings directive (2010)

A few EU countries are known for their explicit energy policy choices, e.g.:

- Denmark and Austria rejected nuclear plants in the 1970s, and favor energy efficiency and renewable energy
- Germany is phasing out nuclear and works hard on the energy transition
- France tries to sell nuclear plants all-over Europe and the world, with as new champion of nuclear revival the almost fully de-industrialized UK, asking the French state company EDF to construct its nuclear plants. This looks a strange backfiring of the liberalized electricity market in Thatcher homeland?

Most observers complain about the lack of sufficient coordination among the national energy policies, and about the lack of a common EU energy policy.

On climate policy, the EU has adopted the orphaned Kyoto Protocol, with all its shortcomings and flaws.

**SLIDE 4**

Since then it is trying to "inflate a leaking balloon": big effort, little outcome. Both papers accept EU leadership as a given. I quote here from Muys et al.:

- "Europe should consolidate its leading role" (p.3).
- "Other major economies like the USA, China and Japan are not willing to accept binding emission targets" (p.7),
- so not supporting "Europe's intentions to claim world leadership in this much needed transition." (p.7)

The authors also assign an unproven status to the mandate, authority, and role that the European institutions can or could play.

Self-awarded excellence and leadership is not helpful in advancing global climate policy. Preparing a global climate treaty, asks respect for five basic principles: universality, sovereignty, realism, transparency, and diversity.

Universality excludes biased weighing of various – in particular national or regional – perspectives.

It differs from "we EU the good guys" – "they USA, China and Japan the bad guys". A few questions:

- Did the authors investigate the merit of "countries accepting binding emission targets" for global climate policy? Targets of delivery beyond 5-8 years (one or two presidential terms in the USA) lack urgency and erode responsibility. Such targets include demography and economic growth and are dependent on a bunch of evolutions, making their actual meaning obscure. Canada has shown pledged targets are not binding after all. The EU and USA export their carbon emissions to industrializing China. An economic recession deflates the last pressure in the pledged targets, ...
- Is the focus by the USA put on bottom-up initiatives and self-responsibility not a valid part of the puzzle?
- Is China not on a better track by addressing directly the drivers of GHG emissions (energy intensity, shares of renewable energy) instead of the symptoms? Can China be blamed to refuse constraints now on its total emissions?
- Is Japan not the most energy efficient industrial economy in the world? It absorbs the closure of all its nuclear capacity after the Fukushima catastrophe. It cooperates with developing countries, aside from the Kyoto Protocol.

For European and global climate policy, it would be healthy to stop believing and broadcasting EU climate policy is the best.

COP15 in Copenhagen (2009) is the Alesia of EU climate policy. The process and the Accord frustrated, and still frustrate, EU policy makers and other Kyoto Protocol adepts. But my appraisal was: "the Copenhagen Accord may be the best occurrence for climate policy since the UN Framework Convention of 1992."

#### *SLIDE 5*

### **2. Opposite perspectives: Uniformity ⇔ Diversity DPSI@R framework**

Important environmental themes are investigated with a DPSI@R framework (see the Flemish, European, Global, STATE OF THE ENVIRONMENT reporting).

DPSI@R is the best framework to overlook and handle the huge amount and diversity of drivers up to impacts, and the apparatus of various responses with large toolkits.

The transition from a carbon-intense to a low-carbon society means the reversal of trillions of daily activities by billions of people. Such transition needs layers of DPSI@R frameworks and analyses, and a huge range of different toolkits for "cutting-pasting" the reality. Primitive man had only a club as a tool. Modern man has hundreds of cutting tools (knives, scissors, saws, axes, lancets, drills, etc.) and tens of pasting modes (weaving, knitting, gluing, welding, etc.). My argument is that we need all of them to reform & rebuild societies.

This contradicts the widely spread belief that for cutting (flattening upraising) CO<sub>2</sub> emissions we better construct a global UNIFORM instrument: the giant scythe of global emissions trading, or the global uniform carbon tax on all CO<sub>2</sub> emissions.

#### SLIDE 6

The uniformity belief is grounded in the particular hourglass structure of the mainly energy-related CO<sub>2</sub> climate change DPSI@R. The universality of the state variable GHG concentration is no proof of superiority of a uniform approach of the pressures (here: the emissions of GHG) and their underlying driving forces. Neither a uniform approach of the diverse impacts is warranted (but here the need for diverse approaches is generally accepted).

The flawed logic of transferring attributes of the state stage to the upstream stages (driving forces and pressures) is deep-rooted in standard climate change economics and is fatal for proper climate policy.

#### SLIDE 7

### 2. Opposite perspectives: Serious about 2°C ⇔ Offsets

The Copenhagen Accord succeeded in global acceptance of the +2°C limit on global average temperature increase, and in "the will to *urgently* combat climate change" because "*deep cuts* in global emissions are required". The most visible and realistic presentation of the "urgent & deep cuts" is provided by the countries' average GHG emissions per person, from now on to e.g. 2050. The use of the 'contraction & convergence' patterns does not imply agreement with proposals made since 1992 by e.g. the Global Commons Institute (London). My use of the 'contraction & divergence' differs on:

- 1) No need to converge to one single global average
- 2) Equal carbon budgets per person are illusory and discriminating, because people is not uniform
- 3) Global trading of erroneously uniform budgets is no step forward, but rather a mirage.

However, it is necessary to project indicative future patterns of countries' average emissions per person, in order to:

- 1) Clarify "common but differentiated responsibilities" (UNFCCC 1992)
- 2) Frame the necessary future climate treaty and its mechanisms
- 3) Show the perversity of OFFSETS in international climate policy as set-up by the Kyoto Protocol.

Considering the necessity of all emissions per person trends to converge, what sense does it make to continue the US citizen average 20,000 kg per person emissions, by reducing the 80 kg per person of Ethiopian citizens?

#### SLIDE 8

Economists call this "*opportunities to reduce emissions much more cheaply in the rest of the world*" (Proost, p.18).

More important than the blunt inequity implied in the offsets trade, is the actual defect and delay by the industrialized, wealthy countries on their responsibility to start, roll out, speed up, and spread the transition from the carbon-intensive to the low-carbon technologies and societies. On the contrary, we mainly export our carbon locked-in technologies and practices to the developing countries, although it is mostly touted as if we spread low-carbon solutions

This brings us to mitigation costs.

In discussing the EU Energy 2050 Roadmap, Proost (p.10) states: "Marginal carbon abatement costs would be of the order of EUR 250 to 310 (as of 2008) in 2050. These orders of magnitude *have to be compared* to the marginal cost of EUR 5 to 20 per ton CO<sub>2</sub> paid in industry over the last years."

First, I would amend his statement by substituting "EUR 0" for "EUR 5 to 20" because the ETS has not set a price on the emissions. Almost all allowances so

far have been free gifts to big polluters, and there was only much-to-do-about eventual payment of overshooting the free allowances, or seen from the industry as a whole: much-to-do-about nothing.

Second, what is implied in "have to be compared"?

On a later occasion (p.17), Proost mentions: "Of course, this is a marginal cost and the total cost is much lower" (presumably here is meant that the average cost is much lower). More misleading is the confusion between prices, expenses, costs and transfers (p.16) by comparing the EUR 30 /MWh coal electricity with the EUR 330 /MWh *taxed* coal electricity. **As economists teach: for an economy, taxes are transfers and not costs.** This means that the country taxing coal power by EUR 300/MWh, can use the EUR 300 to obtain e.g. 4 MWh solar power: A good deal for the transition.

#### SLIDE 9

Third is the necessity to leave behind the economist static or comparative static frames, and look at the dynamics of induced innovation. This is illustrated by the animation in slide 9, where innovation, substitutions and other activities and practices shift marginal cost curves to the left, when emissions are priced higher and higher over time.

- 1) Disruptive mitigation technological innovation and deployment are pulled by increasing carbon prices.
- 2) 'Inducing force' originates from households, companies and organizations willingness to keep their carbon bills more-or-less constant or 'affordable'.
- 3) Increasing carbon (annex fuel) prices enhance efficiency, with another technology and economy in the end

#### SLIDE 10

### 2. Opposite perspectives: Cost-Benefit Analysis (CBA) in a complex world

Colleague Proost is known for favoring CBA in climate policies. On the practice of CBA, there is ample literature of praise and of blame. Let me add two points for reflection:

POINT 1: vantage or reference points for analysis and for assessing what are costs and what benefits.

Usually, economists consider the present and present people as the reference. It is an evergreen hearing that GHG emission reductions are "sacrifices by the poorer present generation for the richer future generations" (Proost p.6), or that "renewable electricity deployment is inflicting costs on the electric power system (and should pay for it)".

The former case I label as reverse ethics, because the proper ethics are: the present generation owns *no rights* to jeopardize the ultimate life-support systems of a clean atmosphere and a stable climate, but has the *duty* to bring emissions down; when we include environmental responsibility for the actions by our parents and grand-parents, the inhabitants of the wealthy countries should lead in the urgent and deep emission cuts.

For the case of renewable electricity, the proper reference point is not the obsolete, to phase out fossil-nuclear electricity system, but the targeted highly efficient, fully renewable electricity based power supply system. In compliance with the "polluter pays principle", the regulator should not charge the cost of the transition on the renewable challengers, but on the risky and polluting incumbents.

Proost (p.21; 23) errs when he emphasizes "highly-subsidized" or "massive subsidies" for renewable energy.

First, the actual subsidies for the risky and polluting incumbents are much higher and massive. In addition and in correspondence with lowering these perverse subsidies, the subsidy request for renewable energy will decrease.

Second, the massive request for renewable electricity support as such is a hopeful sign, if not the Flemish support system of tradable certificates is wrongly

designed and its political management is a mess, creating massive excess profits for the least innovative technologies. My 2004 analysis announces that: "The payments by end-users (of electricity) would grow so high that the [Flemish support] system would implode under its own weight".

POINT 2: What can CBA contribute to societal decision-making, e.g. on climate change? This assessment starts by identifying the decision-making context.

#### *SLIDE 11*

Like his fellow economists, Proost (p.6) sees two dimensions: future time and uncertainty. Time is a continuous variable extending from now, over years, to decades and centuries, ending in eternity. Economists discern risk and uncertainty, but with definitions and vocabulary unsettled. Let me introduce the container term DOUBT, and add ignorance as the highest degree of doubt. More important, the two-dimensional space needs completion by a third dimension REVERSIBILITY, with gradations of flexibility, rigidity, preclusion, to absolute irreversibility.

Very few CBA studies recognize this third dimension. Let's assume a bliss case that a CBA analyst does, arises the practical problem of properly addressing the three dimensions. Is economics equipped to do so? Yes and No.

#### *SLIDE 12*

In the context space of societal decision-making, one can mark domes of complexity. Within the small dome of {years-risk-flexibility}, CBA is useful, I would agree a necessary tool to optimize nearby allocations.

When extending the dome to {decades-uncertainty-rigidity}, good CBA is challenging, but when modesty is cultivated it may be helpful.

In the outer space of complexity, CBA is helpless and rather counterproductive. Already on 'time', the most comprehensible dimension of the decision-making space, the economist's discounting technique ionizes beyond the critical point of a few centuries. A selected club of Nobel-price winning economists gathered at Resources for the Future in Washington DC to discuss the issues, but left without a workable consensus (Portney and Weyant 1999).

#### *SLIDE 13*

### **3. Is climate policy complex?**

Climate policy has to be studied in a context of complexity. However, in my analysis, climate policy is not complex. In a DPSI@R framework the policy problem can be decomposed up to very specific driving forces and pressures on the one hand. On the other hand, the impacts of climate change may be very complex, but amenable to categorizing for policy purposes. Also the policy decisions can be organized in a time-sequential process with yearly intervals for adjusting indicators of efforts and results, lustrum intervals for reviewing parameter values, and decadal intervals for adjusting structural aspects. Politically the most risky, but not complex, challenge is the explicit identification and addressing of power and money interests in the energy sector.

A few suggestions to avoid complicating affairs but to devolve complexity are listed in slide 14. Slide 15 specifies how 'National Budget Reform' can be quantitatively measured, and expressed as a ratio for comparability across countries.

#### *SLIDE 14*

#### *SLIDE 15*

### **4. ETS: Flagship or leaking balloon?**

The usual mantra is that emissions trading is a superior instrument, and worth being the flagship of European climate policy. But already before the ETS started,

I assessed that the ETS would be mainly a machinery to enrich big corporate industry, without effectiveness in reducing greenhouse gas emissions. At a 2003 KVIV conference on climate policy for an audience of industry stakeholders, scientists, and environmental NGOs, I argued the (at that time: planned) ETS is inferior compared to energy and carbon taxes, but also asked attention for, I quote: "*The time lost with the study, organization, monitoring, and - according my expectation - ultimately giving up on the instrument [the EU ETS], is of incredible value.*"<sup>1</sup>" "Urgent" is added to "drastic" for the climate policy required (Stern 2006; Copenhagen Accord 2009). The now 15 years since Kyoto, lost for climate policy, equal a more than 30 ppm CO<sub>2</sub>-eq concentration increase, irreversible for a few hundred years. During the lost years of effective climate policy development and deployment the energy economies of the world slipped further into carbon lock-in. My published position was and is that there was and is no time available for freewheeling experiments with illusory instruments.

#### SLIDE 16

The ETS is a hybrid instrument: a chameleon shifting color from green, when by yearly auctioning of all permits, it looks a re-invention of levying emissions, to red, when free permits are assigned. The types of assignment at the start and during running (I prefer to say: keeping alive) the artificial, called 'market-based' instrument, are decisive for the actual type of hybrid adopted. When talking about the ETS, one should specify what hybrid is meant.

#### SLIDE 17

In this Euroforum, insufficient time is available to necessary argumentation on the ETS. Shallow consideration of the ETS opens the road to wide acceptance of its illusory promises, as Muys et al. (p.22-23) once more illustrate. Please allow me a detailed text analysis, followed by comments.

Quote 1: Muys et al. state that the EU Emissions Trading Scheme (ETS) "has been an important step-up", and continue: "But with a carbon price having dropped below 3 euro per tonne, the scheme is *now effectively halting firm efforts to reduce CO2 emissions, ...*" (my italics).

The "now ... halting" suggests that the ETS in the past has ever triggered firm efforts, what is contrary to independent observation. At least their statement requires proof or solid references, not available when it comes to facts assessment, but abundant in the advocacy, announcement publications.

Quote 2: Muys et al. continue: "The ETS in its present form essentially failed as a result of active lobbying on the part of large-scale old-generation industries at the expense of new sustainable more decentralized and lateral businesses."

The failure of the ETS is more than a story of black versus white hat businesses. Moreover, the most solid support for the ETS comes from the European electric power oligopolies. Do Muys et al. rank such oligopolies at the white hats side of the energy transition?

Quote 3: Muys et al. continue: "Does the cap-and-trade system still has a future now? Yes, because it is *the only system in place that has shown a certain effectiveness.*" (my italics).

This TINA (There Is No Alternative) argument is not expected from authors that favor a novel future society. The argument is moreover wrong in two ways. First: the ETS has not proven effectiveness, and second: there is a valid and practical

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<sup>1</sup> Original Dutch text: "De tijd verloren met de verhandelbare emissierechten te bestuderen, organiseren, opvolgen en - naar onze verwachting - uiteindelijk opgeven van het instrument, is ongemeen kostbaar." (p.24)

alternative: redirecting and boosting budget reforms as platforms for domestic emissions in every country, complemented by global emissions trading organized by separate activity sector (oxygen steel; cement; international aviation; international shipping; etc.).

Quote 4: Muys et al. then ask: "What about the alternative of levying a CO<sub>2</sub> tax on all products and services as the way forward to bring the transition on track? *In theory*, paying the correct price for environmental damage, and allowing a tax reduction of labour and human creativity, will re-orient societal evolution towards a sustainable future." (my italics).

This distant and halfhearted look at the tax instrument is furthermore biased in favor of the other illusory application of a uniform instrument: the imaginary uniform CO<sub>2</sub> tax on all products and services. This uniform illusion is confused with the working reality of budget (tax) reform, however considered by the authors only 'in theory'.

Quote 5: Muys et al. want to end their riddle by: "But carbon taxation in Europe without global agreement would lead to massive leakage. For this reason we recommend an improved ETS as the best option under the current setting."

#### SLIDE 18

Muys et al. truncate a logic sequence, as follows:

1. Generally experienced and approved statements: a) An economic instrument is effective in reducing CO<sub>2</sub> emissions when it sets a "real price of carbon"; b) When Europe applies a real (meaningful) carbon price, and the other countries don't, carbon leakage occurs.
2. Muys et al. consider the ETS free of leaking (that is the argument why ETS is preferred above taxes; see quote 5), without other countries applying a real carbon price.
3. Muys et al. should then finish as: By being free of leaking, the ETS sets no carbon price, i.e. the ETS is ineffective.

Yet the authors prefer a teeth-less ETS and the illusion of EU spin, above practical and effective budget reform.

#### SLIDE 19

ETS – basic questions (open for reflection and discussion)

My evaluation: the ETS flagship is leaking. Warren Buffet offers free advice to the responsible politicians and officials: "*In a chronically leaking boat, energy devoted to changing vessels is more productive than energy devoted to patching leaks.*"

My prediction: the industries (the electricity and oil&gas companies the most) will continue to support the ETS for two main reasons: 1) the ETS preempts and precludes the development and deployment of real climate policies, that would boost the transition to sustainable energy systems; 2) **the ETS offers bright excess profit perspectives by hoarding free and cheaply bought allowances now, for selling them at high prices to captive customers in the second half of the trading period.**

#### SLIDE 20

##### 5. Science or Stories?

The contribution of science (scientists) to Sustainable Development

In the world of climate policy with options and choices, scientists willing to be relevant, cannot abstain from normative analysis and constructive proposals. In their section 4 (Science for transition), Muys et al. observe that lock-ins and path-dependencies also apply on science. They quote Levidow (2008) on "dominant paradigms that generally succeed in keeping resources and power, while pre-empting alternative futures." They add: "Academics therefore should give voice to alternative paradigms and critically evaluate dominant ones."

I agree, and the evaluations should be thoroughly scientifically critical.

But Muys et al. also join Gibbons et al. (1994) in the "necessary shift from mode-1 to mode-2 science. Mode-1 science is strictly academic, mono-disciplinary and technocratic, and able to make predictions in certain contexts. But as sustainability challenges are inherently uncertain, a shift to mode-2 science is needed, in which *scientists co-produce knowledge with stakeholders* in a process of collaborative learning" (my italics).

I fully disagree with Gibbons et al. and with Muys et al., because:

- Strictly academic is not necessarily mono-disciplinary and technocratic
- I am absolutely skeptical about "scientists co-producing knowledge with stakeholders".

Science is mandated to study, investigate, invent, create, and search for 'truth' on the basis of facts and non-falsifiable theories. **Beliefs and interests should stay out as far as possible.** Science disrupts, brings unrest, points to change, continuous transition. Independency is a prerequisite for academics.

For agreement in society, there is politics, defined by Mouffe (1999) as "*the assortment of institutions, practices, discourses involved in ordering and managing society.*" Over the last years, the involvement of stakeholders in politics, and increasingly in science and in the institutions of science, universities, is alarming.

In the 1980s, the Dutch liberal Minister of the Environment Pieter Winsemius (1986) trained his environmental planners in interactive cooperation between government officials and 'target groups' (mainly representing activity sectors that cause environmental pressures). His argument was valid: you cannot impose a plan on people, when it's not partly their plan. Government has to listen and learn from societal groups, to design the best plan for agreement. Then, law will enforce the agreed plan. This way of interaction between government and constituency is a win-win for society and its members.

Now the term 'stakeholders' has substituted for 'target groups', with stakeholders mostly being unspecified in general theorizing, but boiling down to the parties with highest interest when specific issues are addressed. **For example, on global climate policy the big energy supplier and user industries are most influential, the global environmental and development NGOs most vocal, and the large majority of the common people most silent and underrepresented.**

What actual knowledge can be co-produced by scientists-stakeholders processes? My experience is that common, but ungrounded convictions that serve the interests of the strongest and cleverest stakeholders, get the aura of scientific, what makes them easier selling to the media and common people.

Assessing my personal academic career, the work with impact on the course of developments towards sustainability, is firmly rooted in mode-1 science. For example, strictly scientific analysis and detailed modeling of: the intricacies of electric power systems; the correct identification of cogeneration activity and its merit; the pitfalls in renewable electricity support systems; assessing whether nuclear power can be part of sustainable development; time-sequential decision analysis under uncertainty for financial appraisal of irrevocable investments, etc.

On global climate policy, after analyzing the contents and functioning of the Kyoto Protocol and studying the proposals of tens of colleagues, I developed workable alternatives (see references on first slide), sailing against the winds of beliefs, intentions, illusions, and hard fought interests.

I hope my contribution could ignite your curiosity and desire for considering disruptive views on climate policy.



## KU LEUVEN: EUROFORUM June 14, 2013

### Disruptive Views on Climate Policy

**Aviel Verbruggen**  
**University of Antwerp**  
**IPCC member since 1998**

[www.avielverbruggen.be](http://www.avielverbruggen.be)

**Sources:**

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1

## Overview

### 1. EU leadership in energy & climate policy

#### 2. Opposite perspectives

\* **Uniformity** ⇔ **Diversity**

\* **Serious about 2°C** ⇔ **Offsets**

\* **Statics** ⇔ **Dynamics**

\* **Cost-Benefit Analysis** ⇔ **Complexity**

### 3. Is climate policy complex?

### 4. ETS: Flagship or leaking balloon?

### 5. Science or Stories?

2

## 1. EU leadership in energy & climate policy

### Both papers accept EU leadership as a given

#### Energy policy & climate policy are interlaced:

- \* Lead in climate policy without energy policy?
- \* EU adopted flawed Kyoto Protocol

#### UNIVERSALITY is basic principle at UN level

- ⇔ self-awarded excellence & leadership
- \* USA, China, Japan, ... are not the bad guys
- \* STOP believing & broadcasting EU is leading

#### Copenhagen-2009 = Alesia of EU climate policy

⇔

*“The Copenhagen Accord may be the best occurrence for Climate Policy since the UN Framework Convention of 1992”*

3

## 1. EU leadership in energy & climate policy

### Kyoto Protocol: main flaws

#### 1. Emissions reduction TARGETS by country

Mingle Population, Affluence, Technology, Energy, ...

- Obscure & contentious numbers; zero sum games

Too little, too late: baseline 1990 ∞ horizon 2012-2020

- Politicians “engage” their followers

#### 2. Global INSTRUMENTS: Emissions Trading & CDM

Simplistic theory of “perfect” market

=> Crash on complex, diverse realities

=> Comitology (lobbies dominate)

Swindle profits, fraud (undermines social cohesion)

OFFSETS: rich countries delay/defect on transition

#### 3. Transfers, REDISTRIBUTION, sustainability

Not structural, e.g graduation, duties & rights

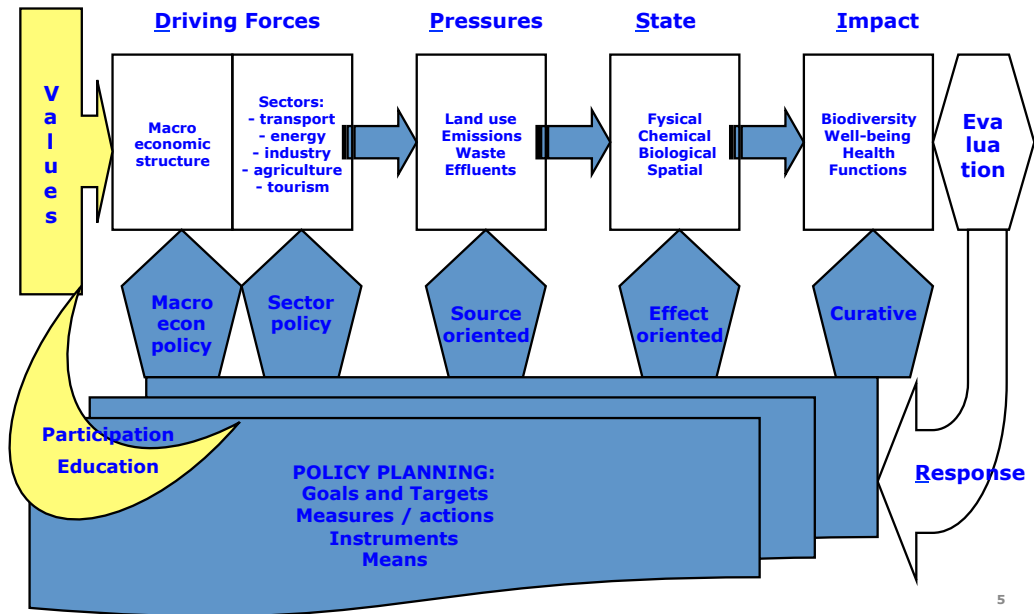
Paternalism; Re-packaging aid (promises)

4

2. Opposite perspectives: Uniformity ↔ Diversity

DPSI@R framework for scientific analysis

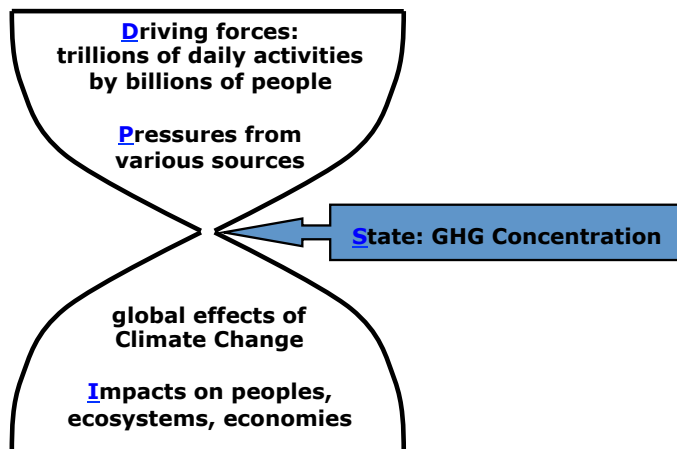
Mitigation – Abatement – Damage - Adaptation



5

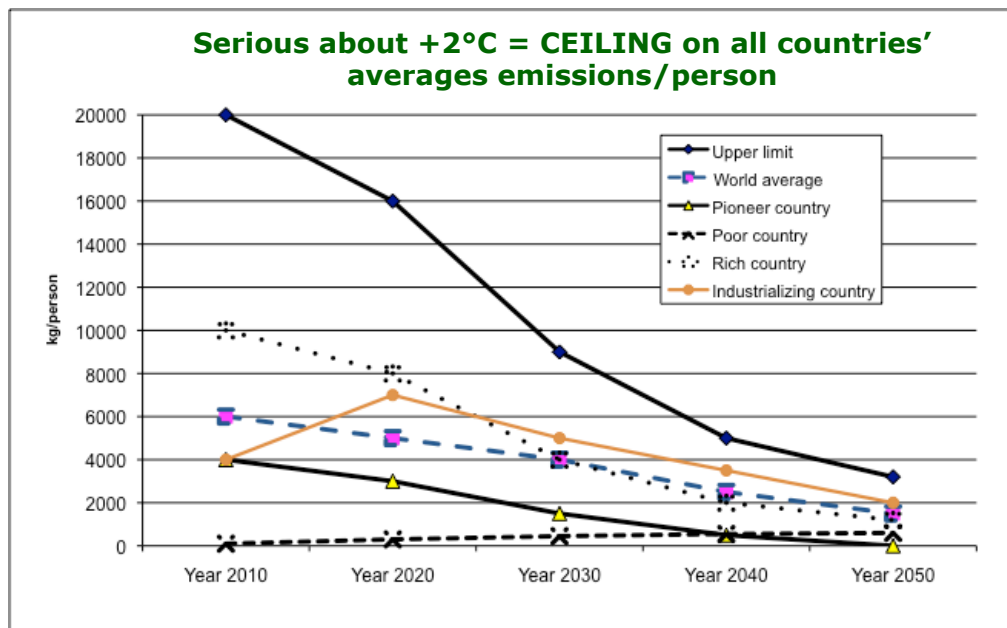
2. Opposite perspectives: Uniformity ↔ Diversity

Climate Change: DPSI hourglass structure



6

**2. Opposite perspectives: Serious about 2°C ⇔ Offsets**



7

**2. Opposite perspectives: Serious about 2°C ⇔ Offsets**

**Offsets and Mitigation costs**

**OFFSETS**

*“Opportunities to reduce emissions much more cheaply in the rest of the world” (Proost, p.18)*

**Or: Blunt inequity**

**Rich countries delaying & defecting on transition duties**  
**Carbon technologies & practices lock-in of developing countries**

**Mitigation costs**

*“Marginal carbon abatement costs would be of the order of €250 to 310 (as of 2008) in 2050. These orders of magnitude have to be compared to the marginal cost of €5 to 20 per ton CO<sub>2</sub> paid in industry over the last years.” (Proost, p.10)*

**Or was it € 0 per ton CO<sub>2</sub> paid in industry?**

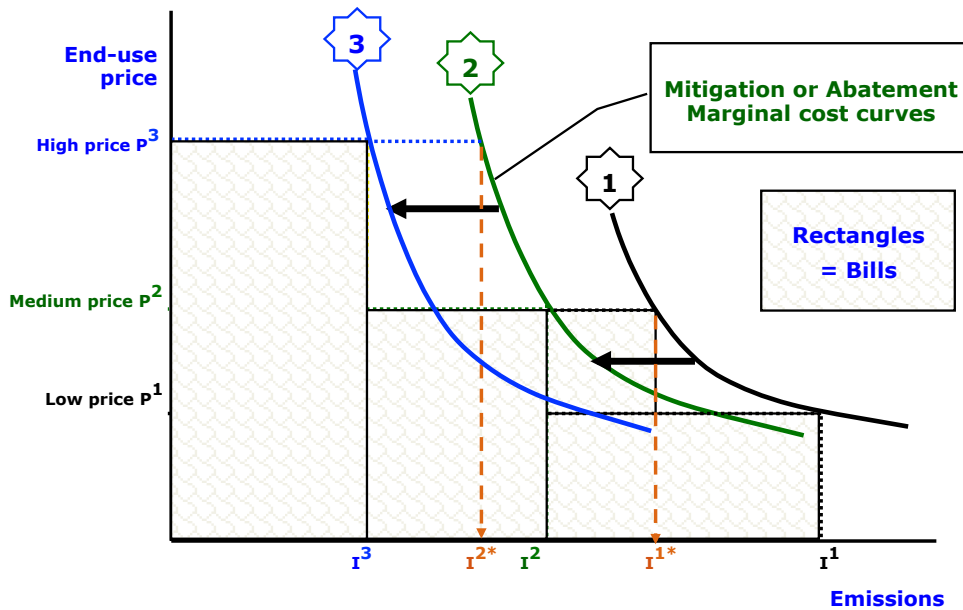
**Proper distinctions of <marginal, total, average> prices, expenses, costs, transfers ⇔ Proost (p.17, 16): coal based electricity of €30/MWh vs. €330/MWh (€30 + \$300 tax)**

**Necessity to look at dynamics of induced innovation**

8

**2. Opposite perspectives: Statics ⇔ Dynamics**

**Induced innovation by carbon pricing**



9

**2. Opposite perspectives: CBA ⇔ Complexity**

**Costs and Benefits in CBA**

**The PRESENT as reference**

*GHG emissions reductions as “sacrifice by the poorer present generation for the richer future generations” (Proost, p.6)*

**This I call “reverse ethics” ⇔ proper ethics**

- \* The present generation owns *no rights* to jeopardize the ultimate life-support systems atmosphere and climate
- \* The present generation has the *duty* to reduce emissions
- \* **Wealthy countries should lead urgent & deep emission cuts**

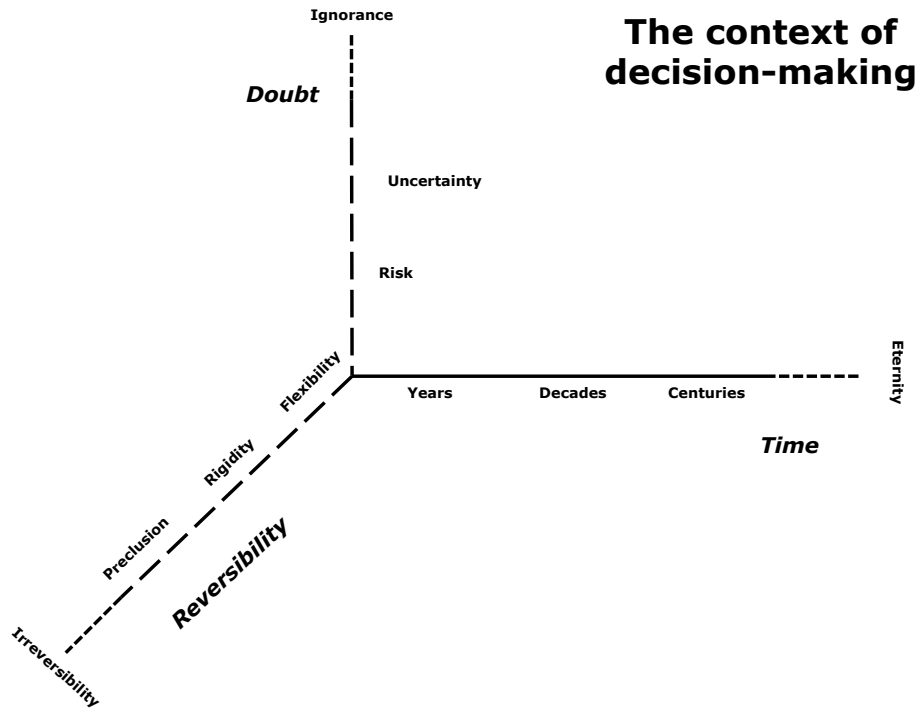
**Grandfathering INCUMBENT solutions**

*“Highly subsidized” or “massive subsidies” for renewable energy (Proost, p.21, 23)*

- ⇔ **Actually higher subsidies for risky & polluting incumbents**
- ⇔ **Lowering perverse subsidies → lower request for renewable**
- Massive request for renewable electricity support is hopeful**
- IF abolishing Flemish tradable certificates & political mess that provides massive excess profits to incumbents**

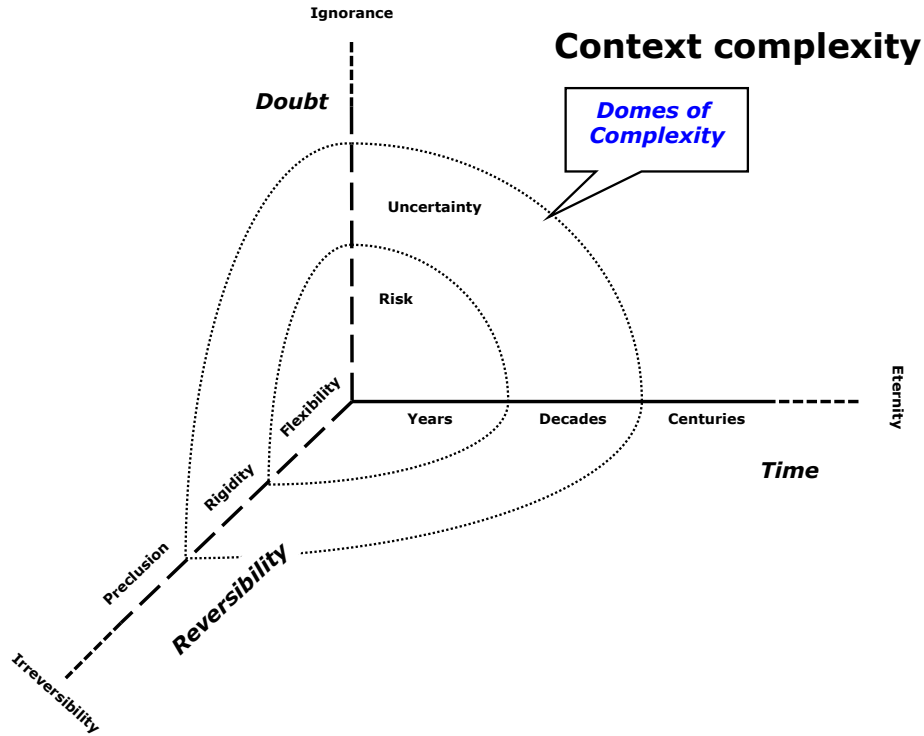
10

**2. Opposite perspectives: CBA ⇔ Complexity**



11

**2. Opposite perspectives: CBA ⇔ Complexity**



12

### 3. Is climate policy complex?

**Climate policy:**  
wicked, complicated, contentious, ...  
but NOT COMPLEX

#### 1) Decomposition

- ❖ Mitigation: **energy-related**, land use, industrial gases, by sector, by region, by emitting activities & people
- ❖ Adaptation: by sector, by region, by exposed people

#### 2) Time-sequential decision-making

- ❖ yearly pledges & reviews on reducing Cpp [carbon per person] and on controlling its **3 main drivers**
- ❖ starting from yearly rolling baselines

#### 3) Political economy of **energy interests, power, money**

13

### 3. Is climate policy complex?

**Devolve complexity in Climate Policy**  
(homework)

- 1. Urgency: deliver by performing institutions, trained & experienced people, proven data, established MRV, ...**  
**No futile experiments by freshmen**
- 2. Global commons: nested approaches & polycentric governance; respect & deploy DIVERSITY**
- 3. Top-down (gothic cathedral) ⇔ Bottom-up (favela): Urban Planning = lightweight common framework & decentralize construction works**
- 4. Incentivize interests:**
  - \* **boost National Budget Reforms (levies & subsidies)**
  - \* **yearly transfers based on GDP/person & measured progress in mastering emission drivers**

14

**3. Is climate policy complex?**

**National Budget Reform: 4 factors to measure "climate policy \$ pressure"**

	"Goods"	"Bads"
Levies, charges, taxes	<b>B1-</b>	<b>B2+</b>
Subsidies, support, feed-in tariffs	<b>B3+</b>	<b>B4-</b>

**$NBR (\$) = (B2 + B3) - (B1+B4)$**   
**Ratio (.) =  $NBR / \text{total national budget}$**

15

**4. ETS: Flagship or leaking balloon?**

**ET is Hybrid of Levies and Permits:  
 What colour has the chameleon?**

**Type of Assignment of permits**

<b>LEVIES</b>	<ul style="list-style-type: none"> <li>• Yearly full auction (renting)</li> <li>• Open auction every few years</li> <li>• Auction of futures and options</li> <li>• Partly auctions / partly gifts</li> </ul>
<b>PERMITS</b>	<ul style="list-style-type: none"> <li>• Assign permits to <math>MAC_i = \lambda</math></li> <li>• Grandfathering</li> <li>• Gifted along expected emissions</li> </ul>



#### 4. ETS: Flagship or leaking balloon?

##### The mantra of EU ETS superiority (example Muys et al. p.22-23)

The ETS "has been an important step-up"... "But with a carbon price having dropped below 3 euro per tonne, the scheme is *now* effectively *halting firm efforts* to reduce CO2 emissions"

"The ETS in its present form essentially failed as a result of active lobbying on the part of large-scale old-generation industries at the expense of new sustainable more decentralized and lateral businesses."

"Does the cap-and-trade system still has a future now? Yes, because it is *the only system in place* that has *shown a certain effectiveness*."

"What about the alternative of levying a CO2 tax on all products and services as the way forward to bring the transition on track? *In theory*, paying the correct price for environmental damage, and allowing a tax reduction of labour and human creativity, will re-orient societal evolution towards a sustainable future."

"But carbon taxation in Europe without global agreement would lead to massive leakage. For this reason we recommend an improved ETS as the best option under the current setting."

17

#### 4. ETS: Flagship or leaking balloon?

##### The mantra of EU ETS superiority Muys et al. Truncated Logic

1. An economic instrument is effective in reducing CO<sub>2</sub> emissions when it sets a "real price of carbon"

2. When Europe applies a real carbon price, and the other countries don't, carbon leakage occurs.

3. Muys et al. consider the ETS free of leaking, although the other countries neither apply a real carbon price

4. Muys et al. should then finish as: By being free of leaking, the ETS sets no carbon price, i.e. the ETS is ineffective.

18

## 4. ETS: Flagship or leaking balloon?

### EU-ETS: A few basic questions

#### 1. Market-based instrument?

**Never seen an economic policy instrument with more meddling & muddling by politics and officials**  
**The 'market' risk is the political process ('regulatory' risk)**

#### 2. When AUCTIONS:

**What type of auctions? Who sells to whom (property rights on the atmosphere!)?**  
**Who is obliged/ allowed to buy? How to organize 'partial' auctions with efficient & fair allocation of free permits? Who gets the revenues (climate money)? etc....**

#### 3. Why should actors - refusing Carbon Taxes - accept correctly Auctioned Emissions Trading?

**How naïve is politics' belief the corporate sector is naïve?**

#### 4. What administration can successfully construct & control a global, artificial, multi-billion market?

**See EU record in regulating electricity sector**

19

## 5. Science or Stories?

### Science for Sustainable Development

Levidow (2008): "dominant paradigms that generally succeed in keeping resources and power, while pre-empting alternative futures." "Academics therefore should give voice to alternative paradigms and critically evaluate dominant ones." **I fully agree**

Gibbons et al. (1994): "Mode-1 science is strictly academic, mono-disciplinary and technocratic, and able to make predictions in certain contexts. But as sustainability challenges are inherently uncertain, a shift to mode-2 science is needed, in which *scientists co-produce knowledge with stakeholders* in a process of collaborative learning". **I firmly disagree**

**My experience is that common, but ungrounded convictions that serve the interests of the strongest and cleverest stakeholders, get the aura of scientific, what makes them easier selling to the media and the public.**

**The involvement of stakeholders in politics, and increasingly in science and in the institutions of science, universities, is alarming.**

**Independency is a prerequisite for academics.**

20