

---

# A path towards global decarbonization

Based on

Presentation to Energy Summit in Flumserberg, Sept. 26, 2019; and  
Spreng & Spreng (2019) “Paris is not enough”, in  
Energy Research & Social Science 50 (2019) 66–72

# 'Net zero' is a laudable concept and goal, but in its current usage it is insincere and incomplete

---

- The problem is massive.
- The realization and push for a solution is increasing.
- Laudable call and commitment by some states and organizations for 'net zero' by 2050.

'Net zero' typically means reducing direct emission to net zero, allowing for compensating actions of different types. Natural sinks (generally a good idea) or compensation projects in developing countries (generally a bad idea).

All of this is good. But not nearly enough.

# 'Net zero' goals by countries and organizations tend to have two huge shortcomings

---

1. Embodied energy
  - For example, in Switzerland 2/3 (!) of all CO<sub>2</sub> emissions are indirect, through the embodied energy of imported goods.
  - What does 'net zero' mean in this context?
2. Insistence on territorial sovereignty: mismatch for a global problem
  - Is the state the right level and unit for the measurement of emissions and for major decisions on corrective actions/policies?
  - International differences (including current efforts towards 'net zero') are important drivers for the export of energy intensive productive capacity to developing countries, and with it the export of energy-relevant innovation, decisions, and authority.

## These gaps are even more serious for UNFCCC negotiations (Paris Agreement)

---

- ***The goal of internationally binding treaties was dropped.***  
Main mechanism: Nationally Determined Contributions (NDCs); these are unlikely to be met by all and are certainly insufficient.
- ***Differences between countries is massive.***  
Many countries lack the economic and institutional preconditions to rapidly reduce emissions; and many are longing for long-awaited economic progress, facilitated by cheap energy.
- ***The private sector is ‘mobilized’,***  
but only as a supporting actor within the structures that are based on territorial sovereignty.

## “Success” of the 2050 ‘net zero’ coalition may well have negative consequences

---

- ***Accelerated relocation of energy intensive production*** from countries with, to countries without strict carbon emission policies.
- Reduction in the demand of fossil fuels among the ‘coalition of the willing’ may well lead to a **relative price reduction of fossil fuels and increased competitiveness of fossil fuel energy** among countries without carbon emission policies.
- Shift of productive capacity and greater reliance on global value chains implies **more maritime freight transport**; its energy demand is likely to surpass that of land transport (even with optimistic assumptions regarding technical innovation).

# Climate change policy is faced with an institutional dilemma

---

- Internationally, continued insistence on **territorial sovereignty**.
- Many countries are **unwilling and/or unable to alter carbon emission policies** to a degree necessary to induce rapid decarbonization.
- Rich countries cannot escape the **responsibility for carbon emissions along the full value chain**, also for emissions generated in the production of goods imported from ‘unwilling’ countries.
- Mechanisms for the transition to ‘net zero’ should never be assessed in isolation of the realities in developing countries. To summarize:
  1. ‘Net zero’ is only sensible, if embodied energy is included.
  2. Global value chains offer a potential path toward a global solution.

# Is there a way out?

## Transnational, global climate change policy?

---

- Importing embodied energy implies that we are connected through complicated value chains. I.e. **consumers have (globally relevant) market power – and responsibility.**
- Among public administrations across the globe, variance in capacity for implementing complicated emission policies is massive ...
- ... but differences within the private sector are much smaller. Multinational corporations are continuously seeking to (internally) standardize quality and controlling across countries.

Since countries are – collectively – unable and/or unwilling to act, is it possible to use the market? Also as a way to address emissions from embodied energy?

# Transnational climate change policy has to be based on 3 core principles

---

If climate change policy is not directed by national governments or international treaties, but compliance is enforced through the market:

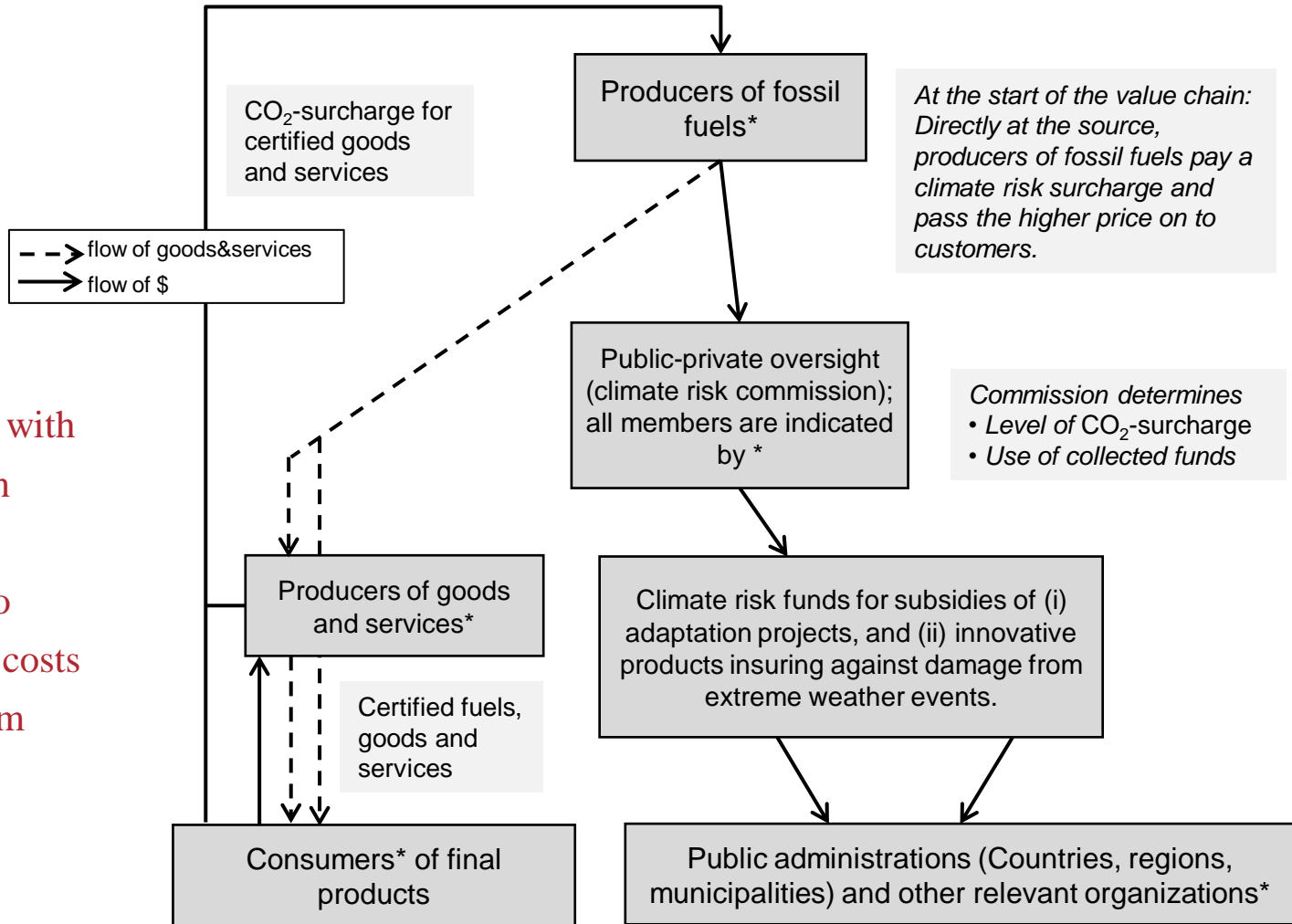
- 1. Gradual expansion** of the system and its rules  
i.e. 2 kinds of energy and embodied energy have to be differentiated (e.g. trademarked “GoodClimate” certification along full value chain)
- 2. Economic incentives** are drivers and disciplining forces  
i.e. CO<sub>2</sub>-surcharge has to be collected at the source; a fundamentally different approach than emission-compensation for final products
- 3. CO<sub>2</sub>-surcharge is directly connected to external costs**  
i.e. guided by public-private oversight, raised funds can be directed towards subsidies for insurance products and adaptation projects



# «GoodClimate» certification:

## What are the criteria?

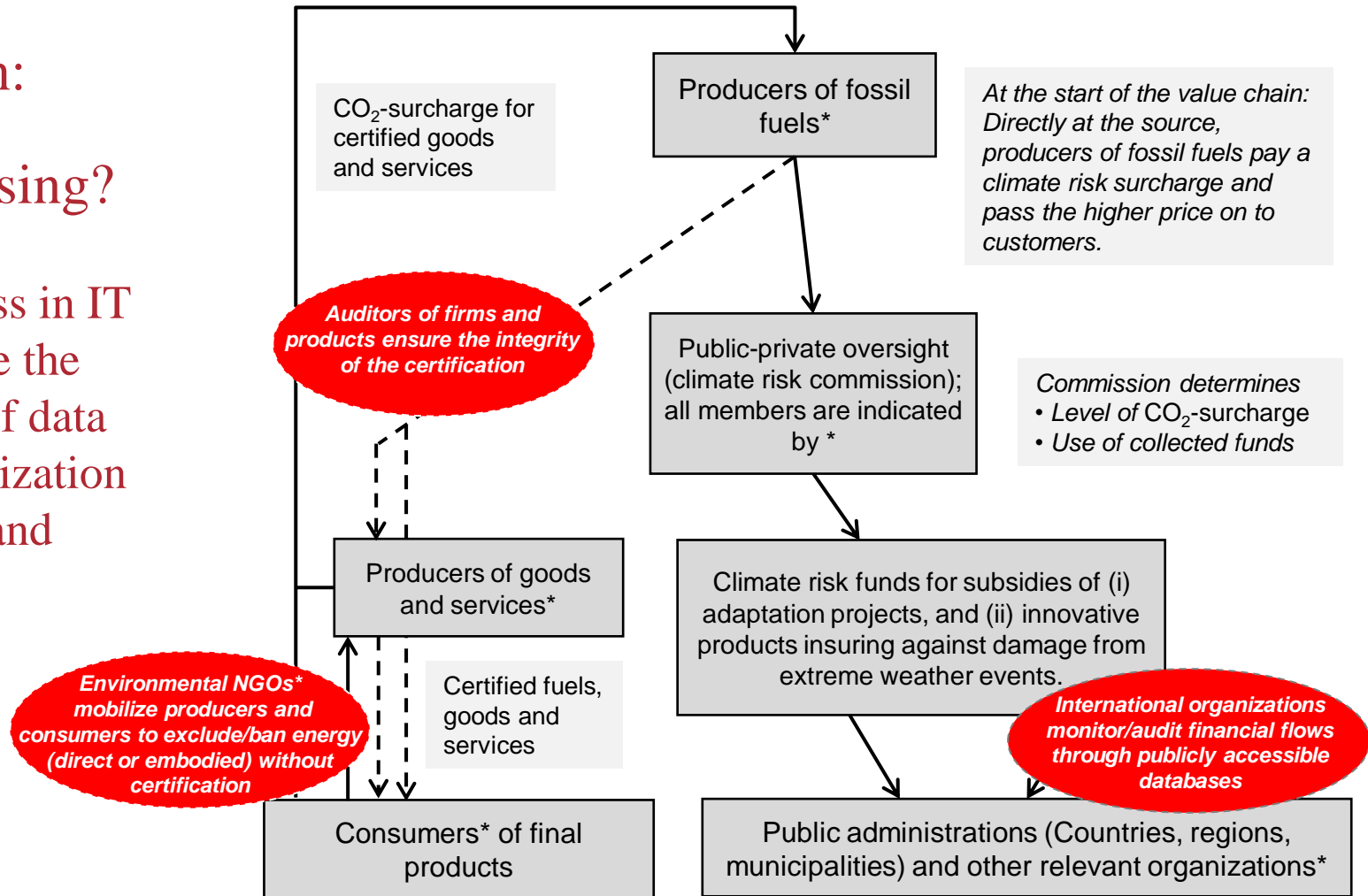
The incentive to comply with the criteria? Certification allows access to a new, growing market. Costs to comply are smaller than costs from being excluded from this market.



# Certification:

## What is missing?

Recent progress in IT makes possible the management of data volume, mobilization of advocates, and monitoring.



# Development and initiation of a certification system, possible within reasonable startup costs

---

Result of a recently completed ETH Zurich-EPFL study:

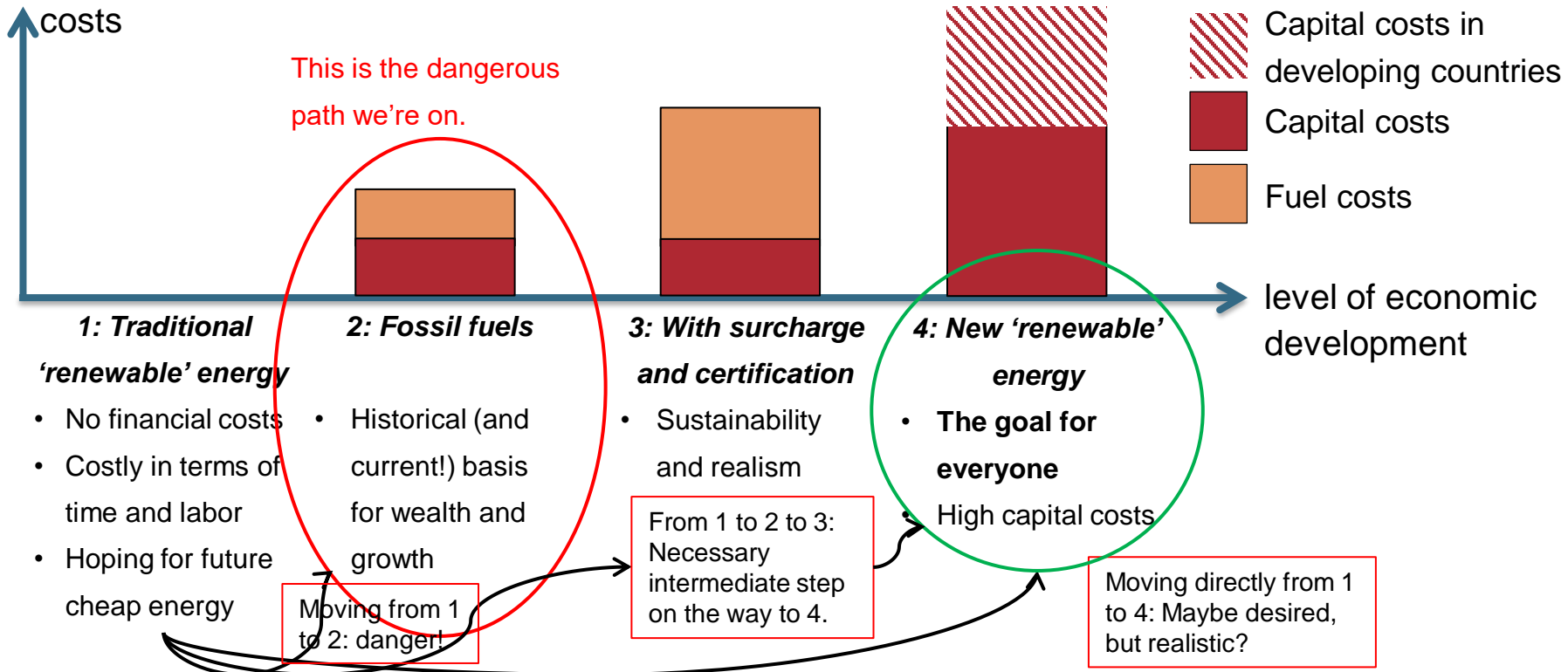
- Oversight of such a trademarked label and its certification process by a **trusted institution** is critical, as is public-private collaboration and protection of the public interest.
- **Certification of products or product lines** is possible (existing approaches as possible models; blockchain can help) ...
- ... but especially the **certification of firms**. Ongoing efforts by many firms are not accessible to external parties (e.g. internal carbon pricing by Microsoft). **Combined system of certification** is possible.
- **Collection of CO<sub>2</sub>-surcharge at the beginning of the value chain**, at the source, is the key driver. Fundamentally different than compensation at the end of the value chain (popular, but ineffective).

# Is such trademarked certification beneficial and feasible?

---

- In many rich countries lots of initiatives and activities are underway, many of them based on the Paris Agreement. *E.g. push for 'net zero'.*
- Why not expand efforts to **include customers' responsibility for emissions from embodied energy**? Are there institutional stakeholders with vision and courage (e.g. sub-national administrations and other large organizations)?
- Possible approach: Institutional consumers and fossil fuel industry, in collaboration with NGOs, support externally accessible certification.
- Some resistance is to be expected
  - National governments don't want to lessen their authority
  - Collaboration across different actors is not easy

# CO<sub>2</sub> emissions: a story of hardship and achieved or hoped for economic development



# Without an intermediate step, there is no ‘net zero’ and no decarbonization of global value chains

---

- Ambitious goals to eliminate direct emissions are important, but not sufficient.
- International treaties will not offer solutions, but a transnational and global approach is possible and realistic.
- Politics in emerging markets is unable and unwilling to enforce a direct shift to modern renewable energy, but producers will not want to miss out on a lucrative and climate friendly market (accessible only to certified producers).
- Embodied energy has to be included in ‘net zero’ goals. Methods for such calculations were developed back in the 70’s.
- Technical innovation alone will not offer a sufficiently robust solution. Institutional innovations are needed. As consumers, we should and can exercise our influence to demand the internalization of emissions’ external costs along all value chains.