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The EU 2030 Framework: Targets and Coordination

Stefan P. Schleicher

Wegener Center for Climate and Global Change
University of Graz



My agenda

- **The design**

- **How to specify targets?**

- **The Framework**

- **What has shaped the 2030 Framework?**

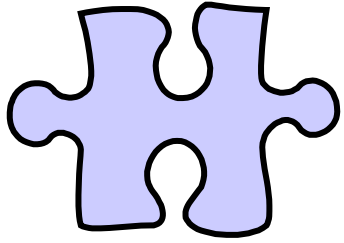
- **The assessment**

- **Will the Framework deliver?**

- **The questions**

- **Do we understand breakthrough technologies?**





The design

How to specify targets?



The basic identity

Used for understanding the causes of emissions

Emissions = Emissions Intensity x Energy Intensity x GDP

$$C = (C / E) \cdot (E / Q) \cdot Q$$

C Emissions
E Energy
Q GDP

$$E = E^{\text{fos}} + E^{\text{res}} + E^{\text{nuc}}$$

E^{fos} Fossils
 E^{res} Renewables
 E^{nuc} Nuclear

$$(C / E) = \gamma \cdot [1 - (E^{\text{res}} / E) - (E^{\text{fos}} / E)]$$

γ

Carbon intensity of fossils



Target design 1

Based on emissions cap

(1)
Emissions

(2)
Renewables

(3)
Efficiency

$\text{Emissions} = \text{Emissions Intensity} \times \text{Energy Intensity} \times \text{GDP}$

$$C = (C / E) \cdot (E / Q) \cdot Q$$

C
E
Q

Emissions
Energy
GDP

- Stringency of emissions target depends on GDP
- One target for emissions only provides no incentive for efficiency
- Two targets (emissions and renewables) determine efficiency (and thus energy)
- Three targets are redundant

Target design 2

Based on total emissions intensity

(1)
Total Emissions Intensity

(2)
Renewables

(3)
Efficiency

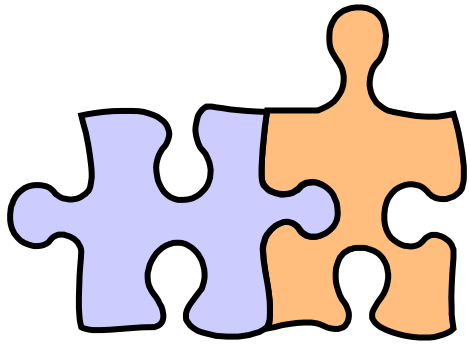
Total emissions Intensity = Emissions Intensity x Energy Intensity

$$(C / Q) = (C / E) \cdot (E / Q)$$

C
E
Q

Emissions
Energy
GDP

- Stringency of total emissions intensity target is independent of GDP
- One target for total emissions intensity only provides no incentive for efficiency
- Two targets (emissions and renewables) determine efficiency (and thus energy)
- Three targets are redundant



The 2030 Framework

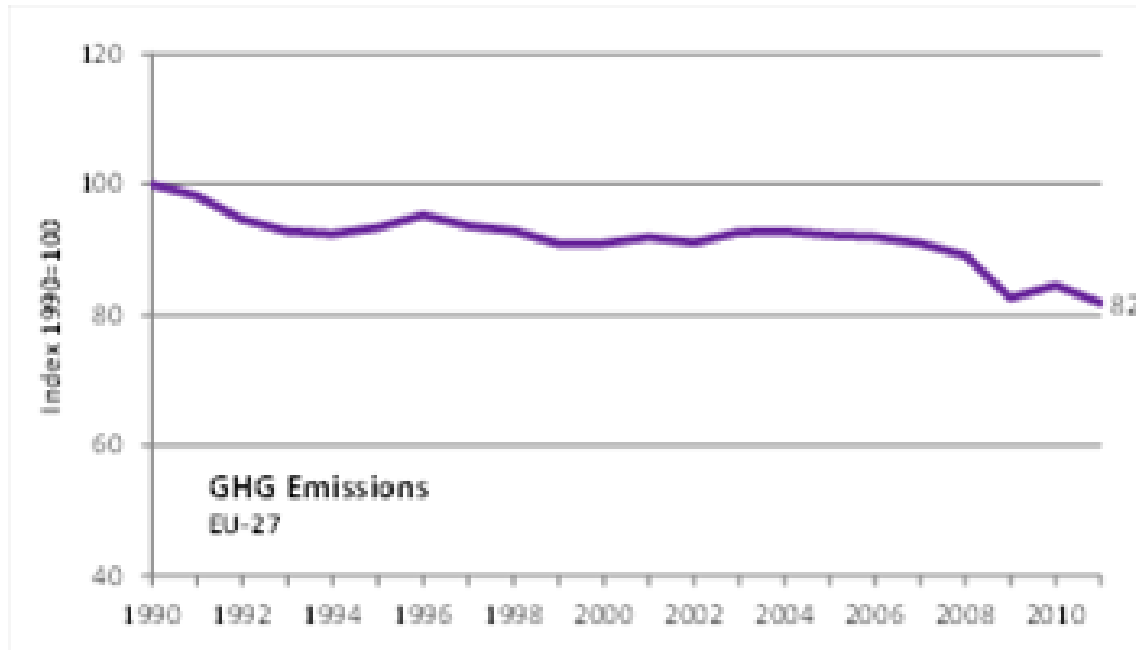
What has shaped this Framework?



The evidence of ongoing structural changes in the energy system



What were the drivers for GHG reductions so far?



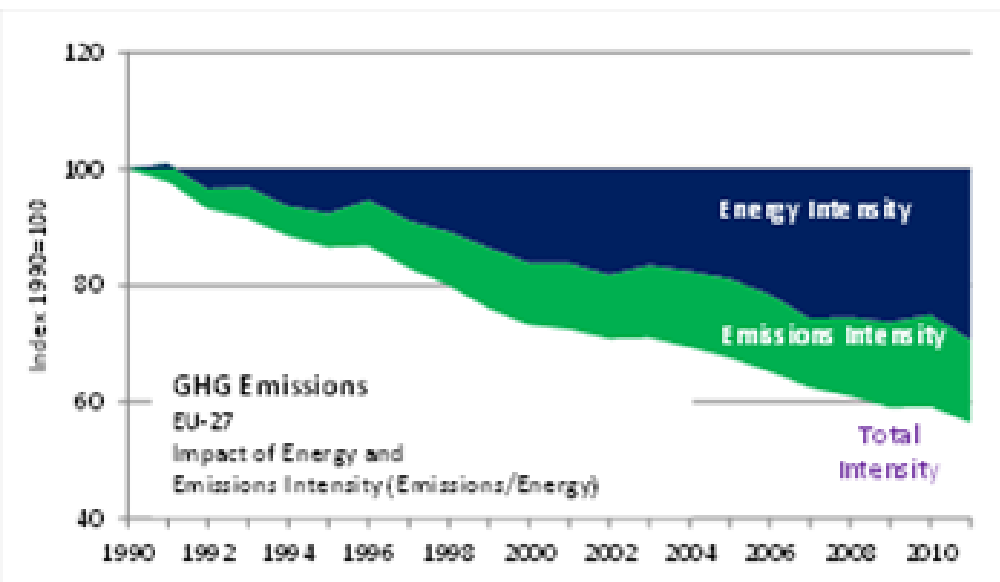
C Emissions
(GHG)
E Energy
(final or gross)
Q GDP
(volume)

(C / E) Emissions intensity of energy
(impact of renewables)

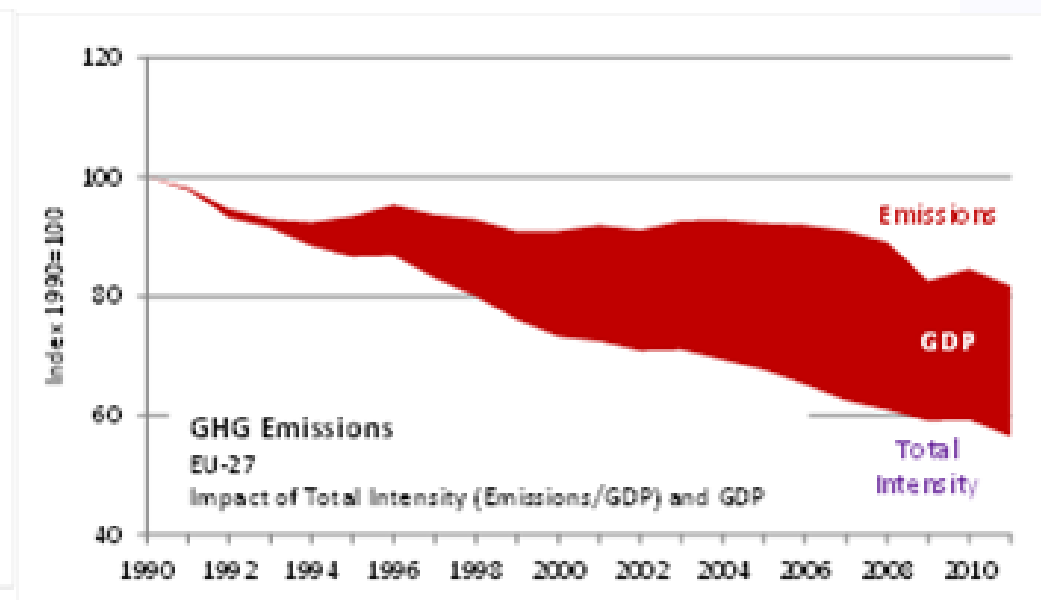
(E / Q) Energy intensity of GDP
(impact of energy efficiency)

Q Economic activity
(Impact of GDP)

The impact of total emissions intensity and economic activity



- Persistent long-run decline of total emissions intensity



- Strong impact of economic slow-down since 2008

The suggestions by the Commission for a 2030 Framework



Target 1: Cap on emissions

■ EU target for 2030 (binding)

Reduction of 40% over 1990 without international offsets

➤ 32% over 2005

Stringency depends mainly on economic activity

➤ Target sharing for 2030 over 2005

– 43% ETS (EU)

– 30% N-ETS (EU)

Distribution might be reconsidered

➤ Target sharing among MS for N-ETS

– Proposals in IA

Different approach based on opportunities should be considered

➤ EU ETS

– Reduction path after 2020 2,2% p.a.

– Market Stability Reserve after 2020

– Free allocations after 2020

„if other major economies do not take comparable climate action“

Stringency depends on elimination of current surplus



Target 2: Renewables

- **EU target for 2030**
27% share of renewables in gross final energy consumption
- **„Flexibility“ as to MS targets**
- **No target for transport after 2020**

**Stringency depends mainly
on mobilization of
cost-efficient opportunities**

**Requires new
business models**



Target 3: Efficiency

■ No EU target for 2030

➤ **Would be redundant anyway**

➤ **References to supporting policies**

– **Ecodesign and labeling**

– **Car emissions (from currently 137 g/km to 95 g/km in 2021)**

– **Energy Performance of Buildings Directive**

This is a reasonable decision

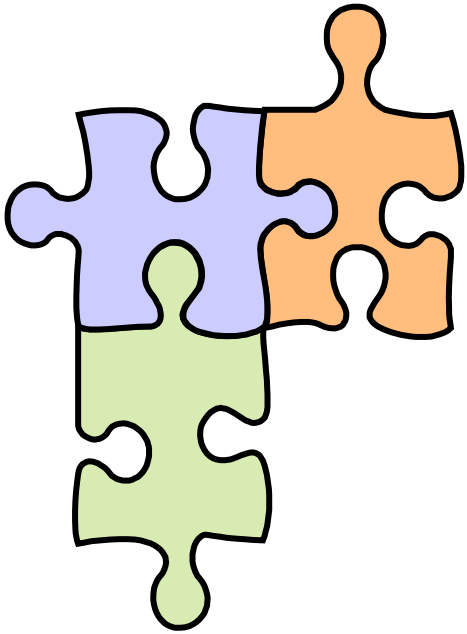


New mechanisms for governance

- MS develop „plans“ which will be subject to an iterative process in order to obtain consistency with overall EU targets

➤ „well before 2020“

This sounds like a refined system of pledges



The assessment

Will this Framework deliver?



Proposed economic impacts

- Additional investments of €38 bill p.a.
 - ↗ about half for buildings
- Increase of energy costs of 0,15%
- Decrease of energy imports of 11%
- Impacts of GDP over reference scenario
 - ↗ -0,45 to +0,55 percent difference in GDP in 2030
- Cost efficiency

Rather revealing the deficiencies of the models used than evaluating actual economic impacts

Much too low

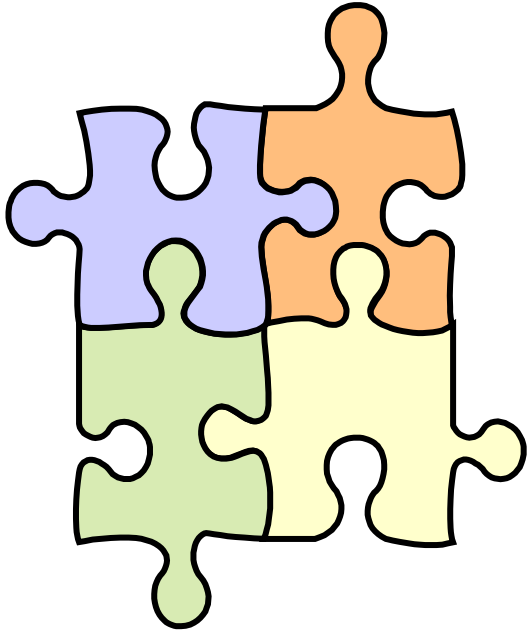
Needs clarification

Could be higher because of efficiency effect

Reflects paradigm of models used

Cost concepts need to be discussed in detail
Only user costs of energy services can be compared





The questions

**Do we understand
breakthrough technologies?**



We need to get prepared for breakthrough technologies

Most of our current energy technologies can be compared with the mobile phone technologies of 1980



1980



1995



2010



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The new mobility

An inter-modal system

- Self-driving cars
- Highly increased energy productivity
- Radically new designs



The new buildings

Energy self-sufficient or even net-producers of energy



- Buildings will become the new infrastructure of the energy system

- Renewables
- High-efficient co- and poly-generation



The new business models

e.g. NRG Energy

David Crane - CEO of NRG Energy,
the biggest power provider to US utilities,
at the MIT Energy Conference 2013

**“Consumers are realizing they don’t need
the power industry at all”**

- **NRG started investment programs for
homes and businesses**
 - **Mini and micro generation systems**
 - **PV panels**



Thank you.

Stefan P. Schleicher

Wegener Center for Climate and Global Change
University of Graz

Stefan.Schleicher@uni-graz.at
+43 (316) 380-7512

@SPSchleicher

