



EU CO₂ 80/50

350 European stakeholders develop consensual roadmaps for mitigation



Brüssel



Frankfurt



Glasgow



Hamburg



Helsinki



Madrid



Neapel



Oslo



Paris



Porto



Rotterdam



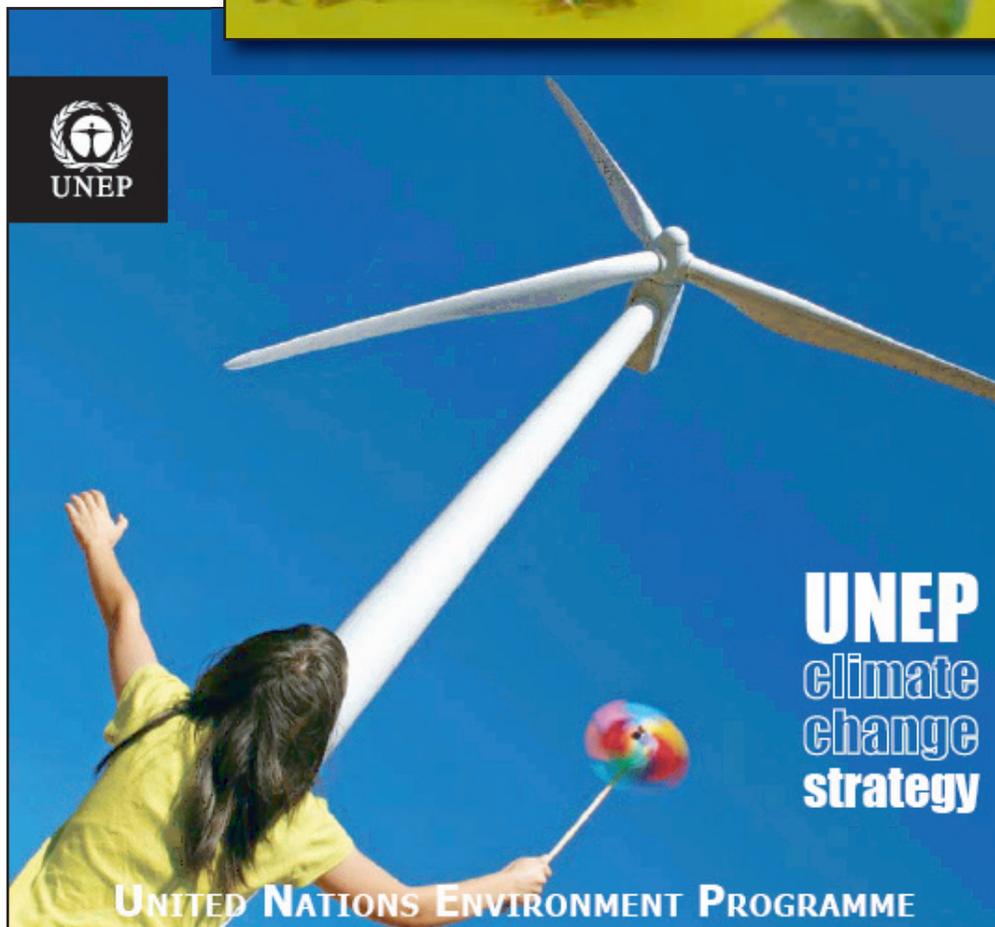
Stockholm



Stuttgart



Turin



Everywhere in the world, cities, regions and nations are developing mitigation strategies.

There is a big danger to take for reality what you write down on a paper.

The best programs and goals do not use anything, if the decision makers in the large cities and regions do not join in from the very beginning.

Worldwide, metropolitan regions are responsible for 75% of the CO₂ emissions.
Mitigation is an urban task.
EUCO2 80/50 incorporates regional stakeholders into the strategy finding process.





Initiative born within METREX*

**Partners:
14 Metropolitan regions**

**Coordination:
Hamburg Metropolitan Region**

**Industrial partner:
General Electric**

**Project methodology recommended
by the Covenant of Mayors**

**Academic partner:
University of Manchester**

*METREX = Organisation of European Metropolitan Areas

From a mere technical point of view, CO₂ reduction by 80% until 2050 is possible.

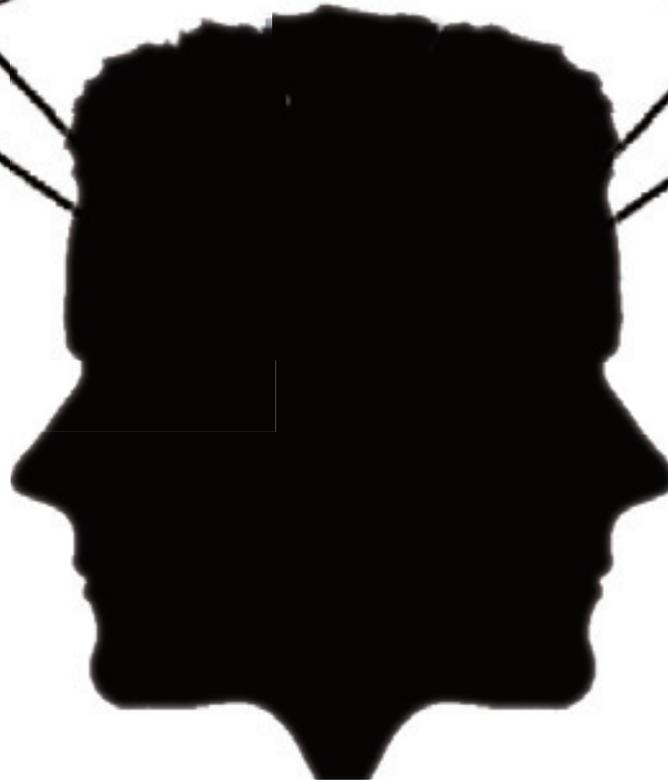
The main problem consists in transferring knowledge into tangible politics.

Everywhere in Europe you meet stakeholders showing a mentality like god Janus.



In the interest of future generations we have to make effective laws to combat climate change!

But not too strong laws since this might provoke protest and I want to be reelected!





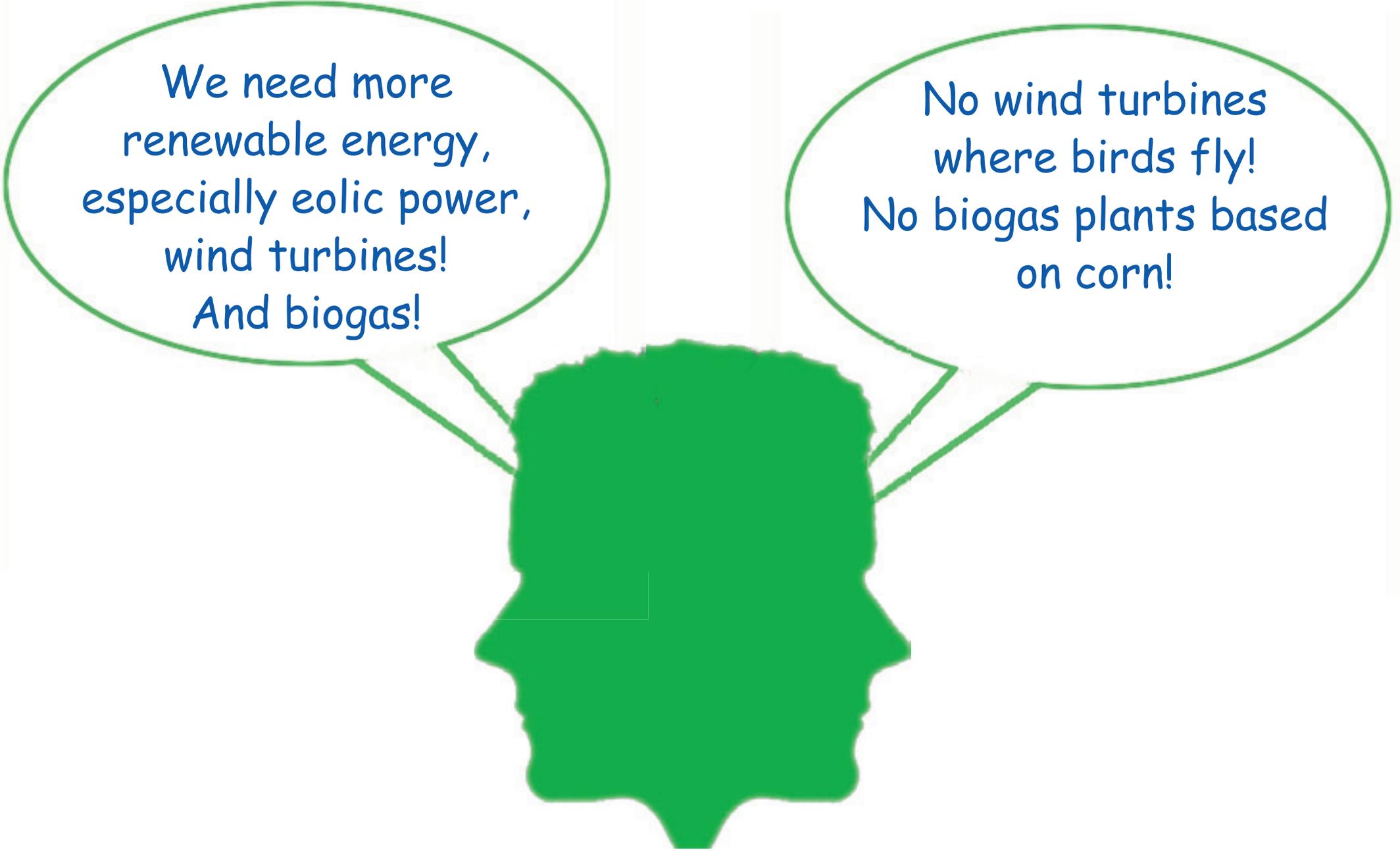
We will invest in efficiency - this is our obligation. And it increases our competitiveness!

We cannot invest too much since this could endanger our competitiveness!



We are fighting against climate change in the interest of future generations...

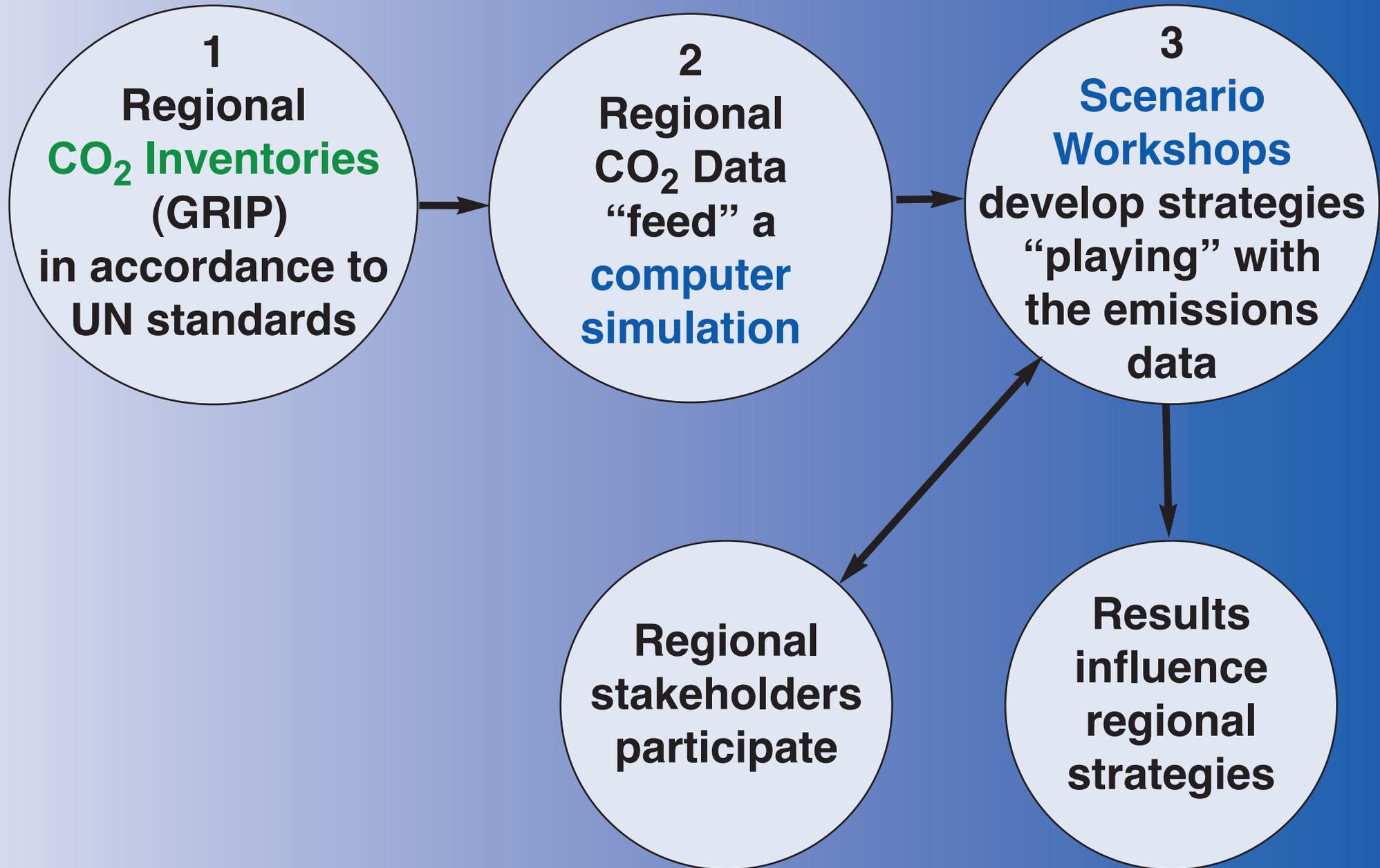
If climate protection laws endanger our jobs, we will do everything to combat them...

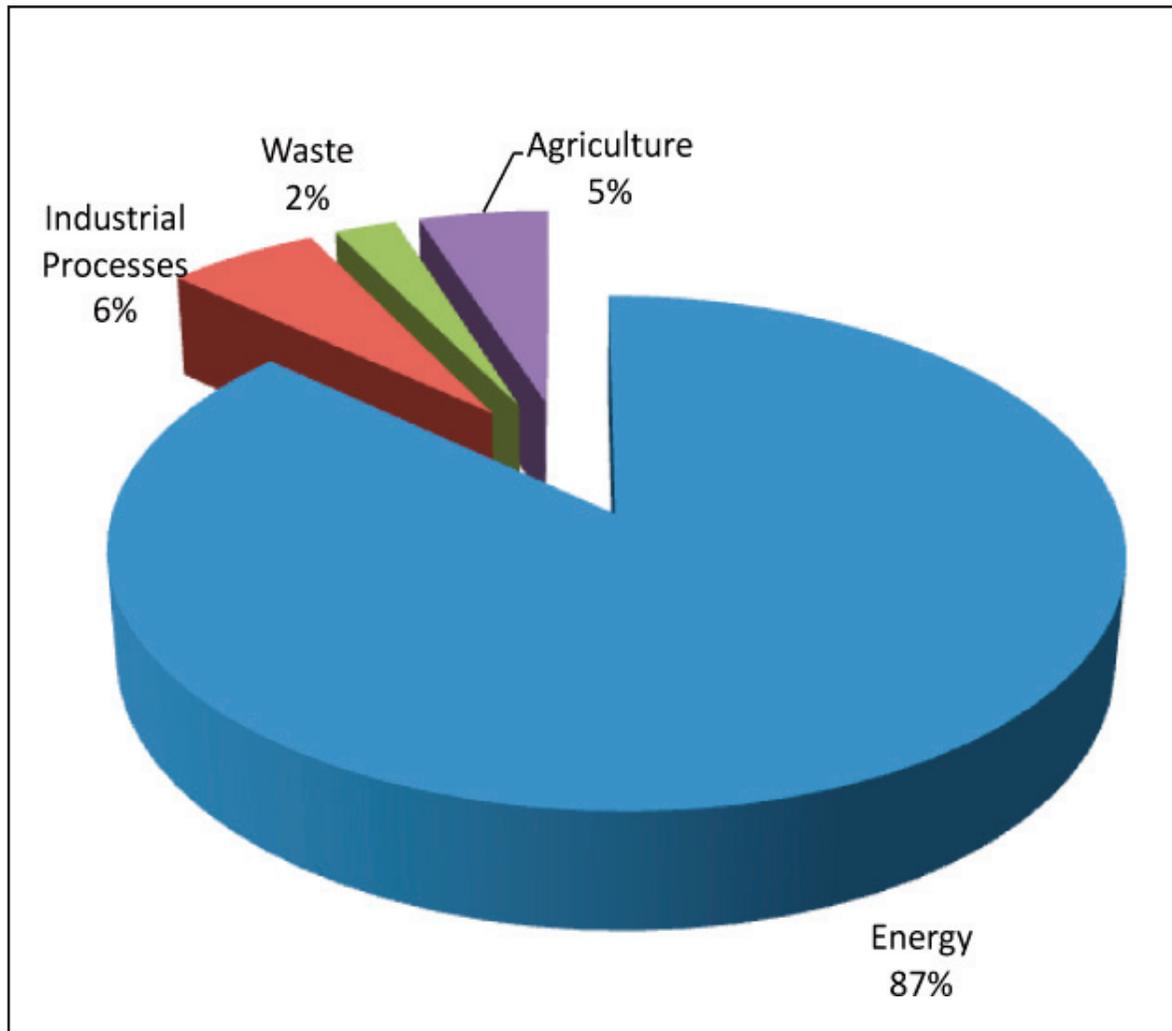


We need more
renewable energy,
especially eolic power,
wind turbines!
And biogas!

No wind turbines
where birds fly!
No biogas plants based
on corn!







Average distribution of the emission sectors in the 14 partner regions (CO₂e)

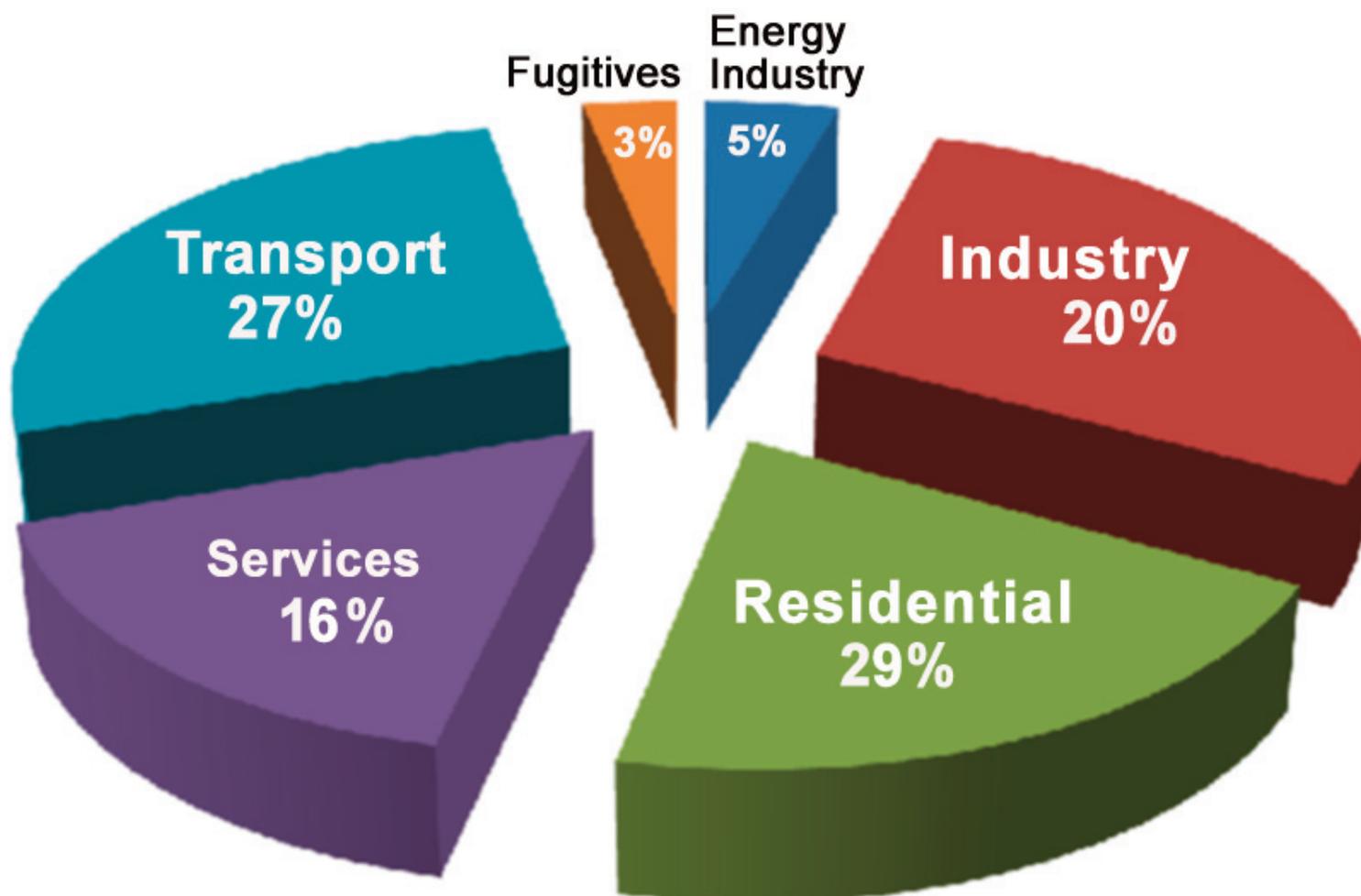
Emission sectors

- **Agriculture**
- **Industrial processes**
 - **Waste**
 - **Energy**

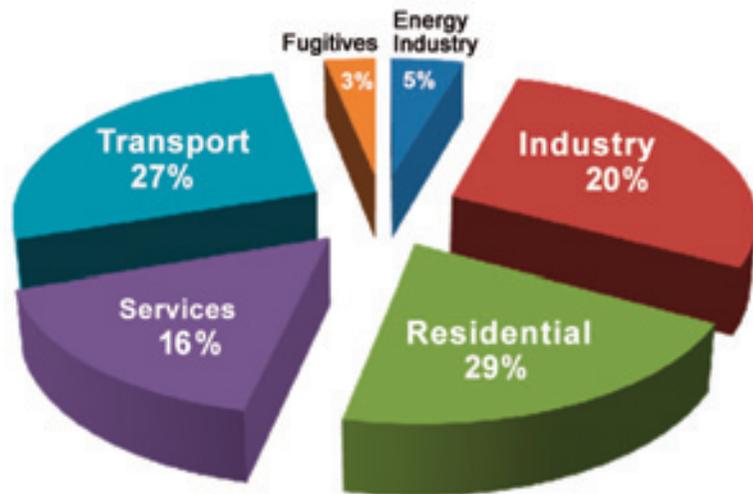
Result 14 regions:

87% of emissions in the energy sector

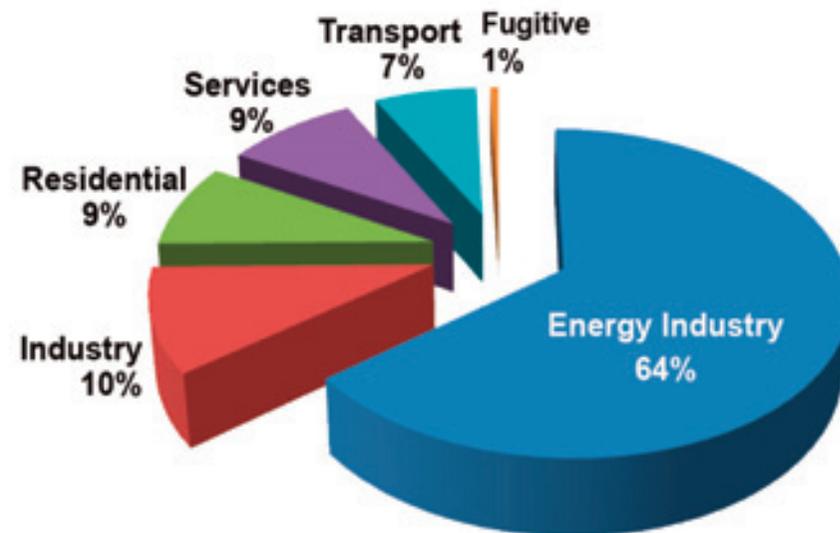
GRIP concentrates on energy



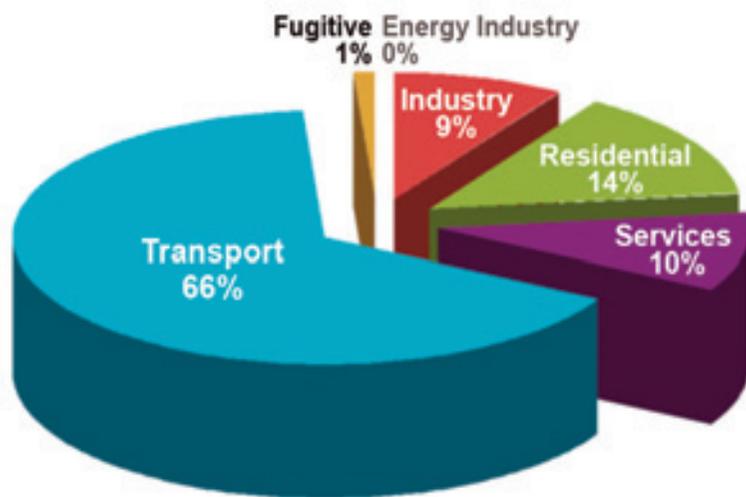
**Average emissions in the energy subsectors in the
14 partner regions (CO₂e)
(GRIP Inventories 2009)**



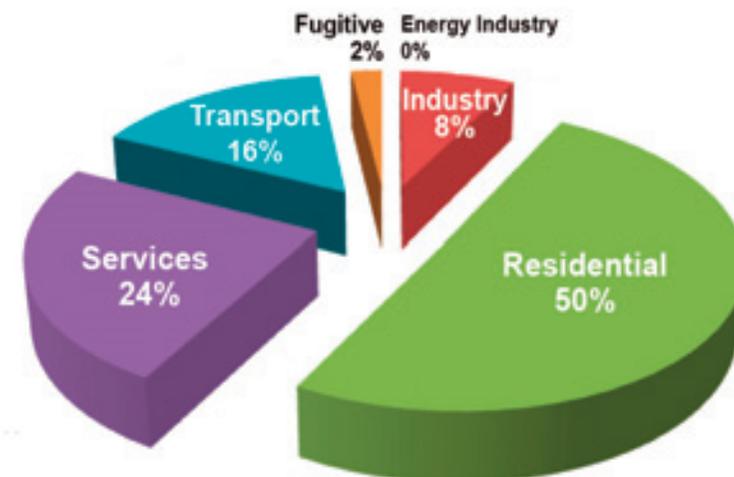
Average of all 14 EUCO2 partners



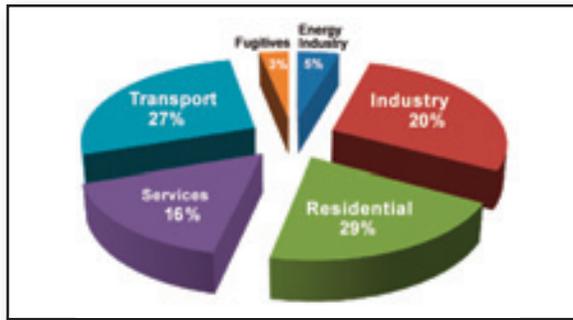
Rotterdam



Oslo



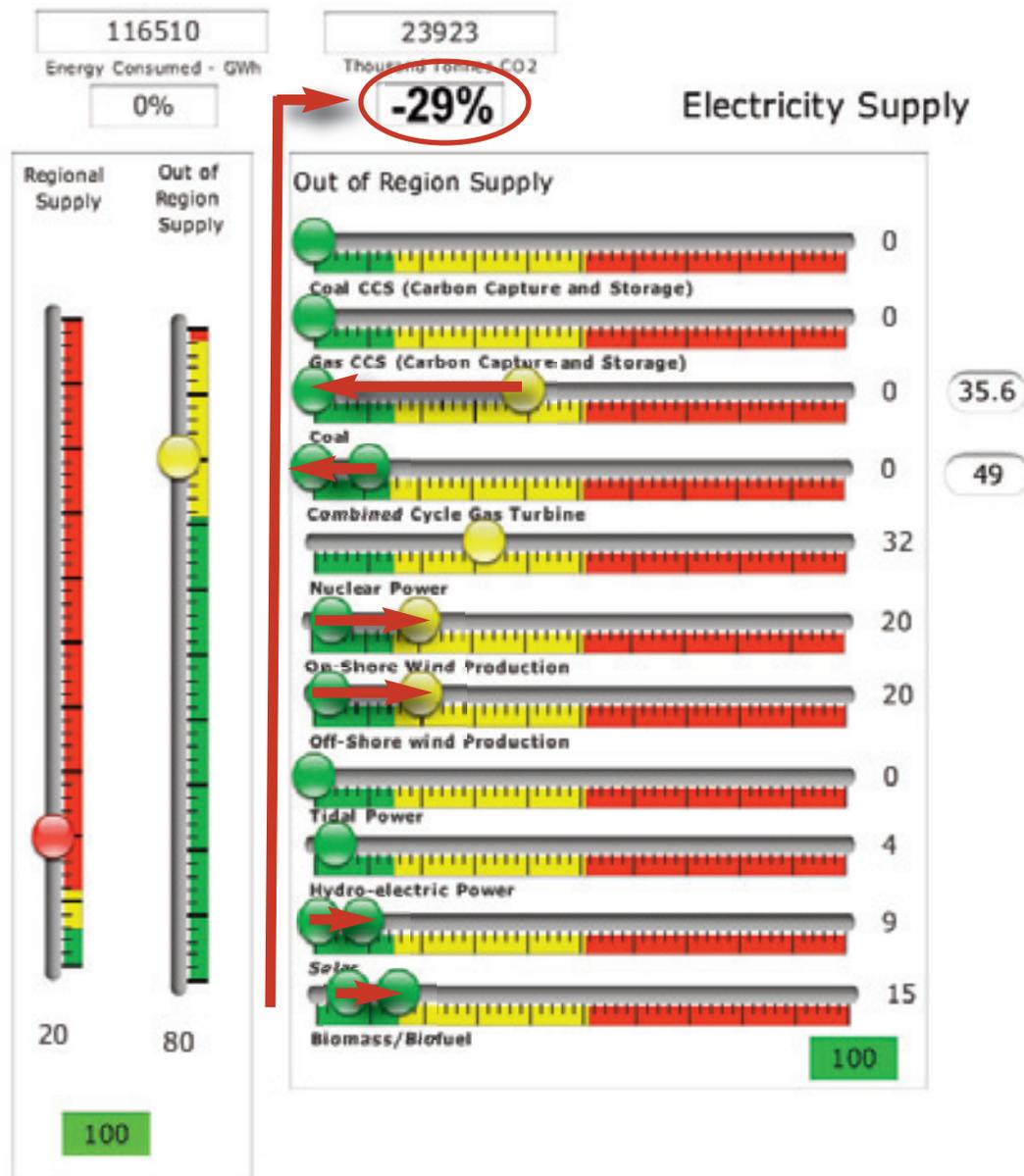
Brussels



Energy consumption data
+ energy supply data
+ economic & demographic data



For the scenario workshops, the regional CO₂ data are transferred into the scenario program. Stakeholders from politics, economy, administration, science and NGOs “play” with the data and see instantly the effects of their assumptions.

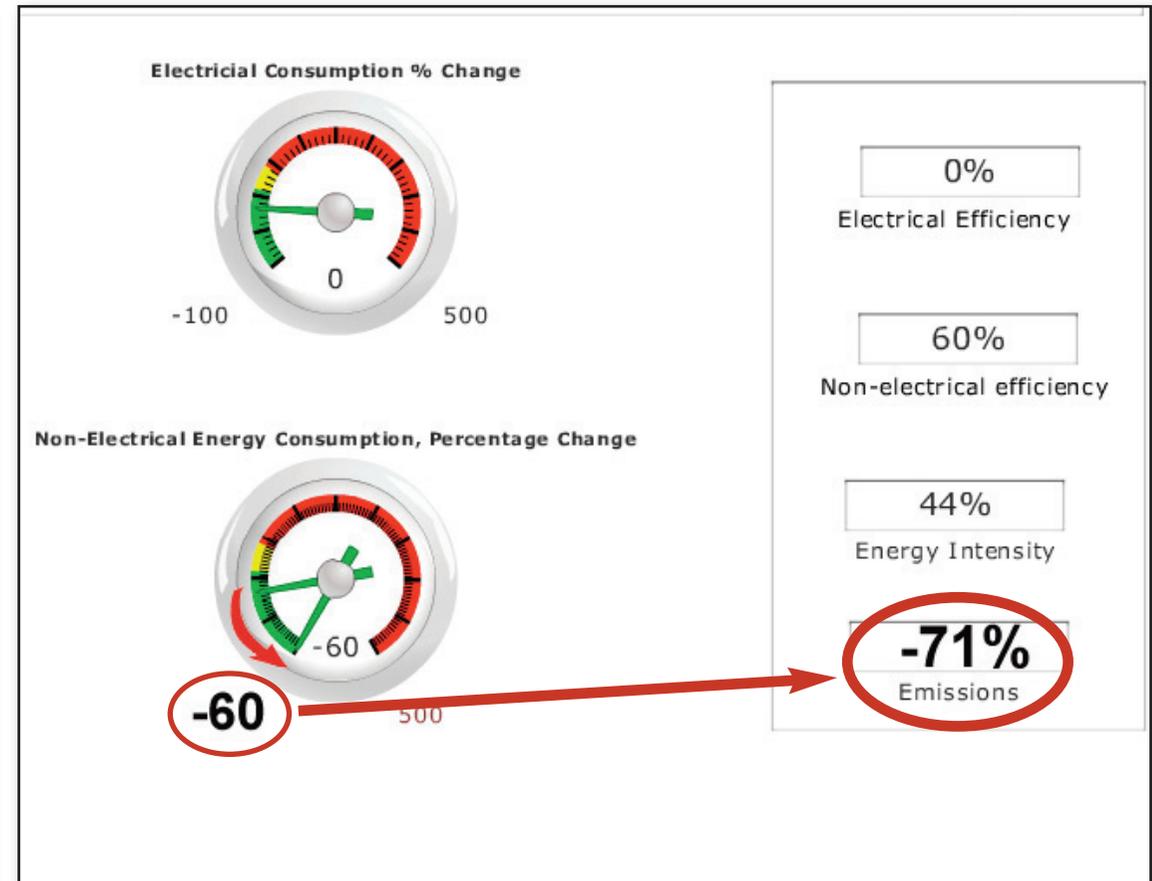
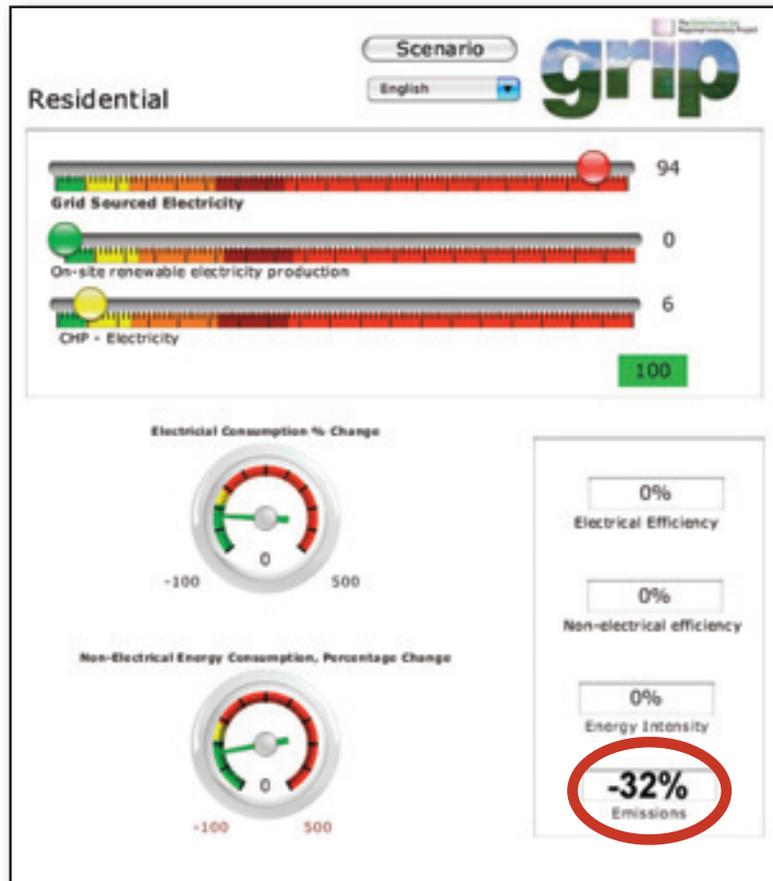


Assumption in Hamburg: A carbon free grid in 2050

In the scenario tool, the stakeholders can insert their assumptions.

If you substitute coal and gas by renewables, the overall regional emissions decrease by 29%.

This value is different in the partner regions depending on the current share of renewables in the electrical grid.



An overall carbon free electrical grid would decrease the emissions from electrical energy consumption in the residential sector by 32% (in Hamburg). If you make the assumption that you can decrease the consumption of non-electrical energy by 60%, the CO₂ reduction in the residential sector sums up to -71%.



Effects of a carbon free grid:

-32%

Higher energy efficiency by insulation:

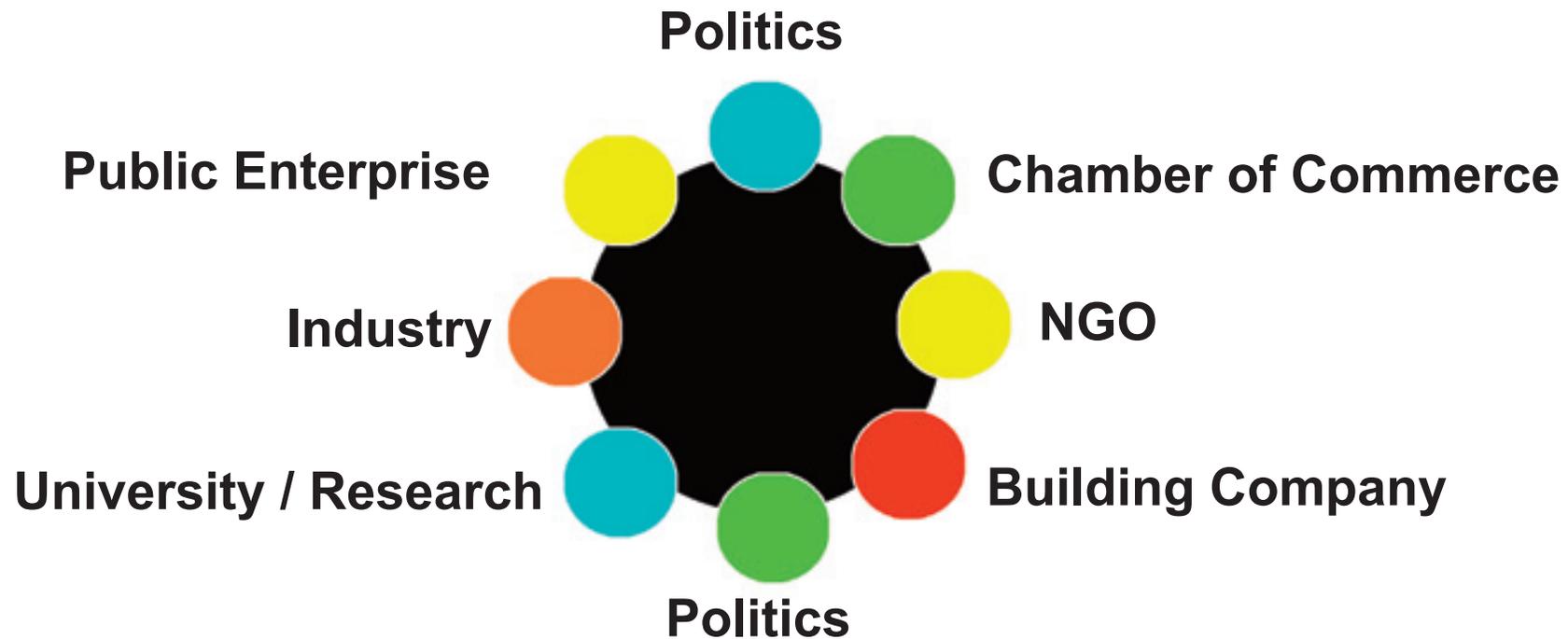
-39%

More renewables in the non-electrical energy mix

-9%

-80%

If you change the non-electrical energy mix (by solar thermal installation or wood heating), you find the resting 9% of CO₂ reduction to reach the 80% goal.



In the 14 partner regions, 50 scenario workshops took place with the participation of 350 regional stakeholders.

The stakeholders included ministers, state secretaries, representatives of the Chambers of Commerce, CEOs from the industrial, housing and service sectors, senior academics, heads of public administration and scientists.



Never before, so many regional European stakeholders have worked together in order to anticipate and plan the European energy future in a consensual process.



Hamburg, Scenario Day 2



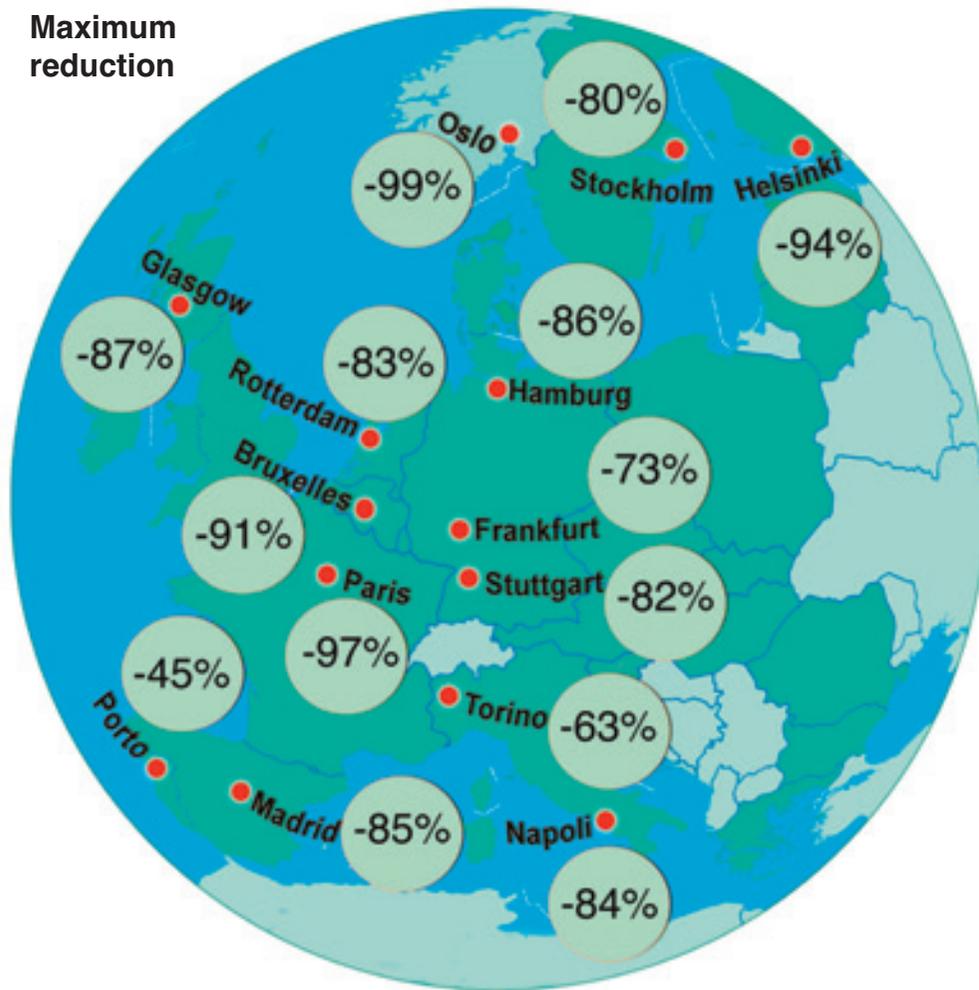
Naples, Scenario Day 3

The results are not a forecast. They tell us:

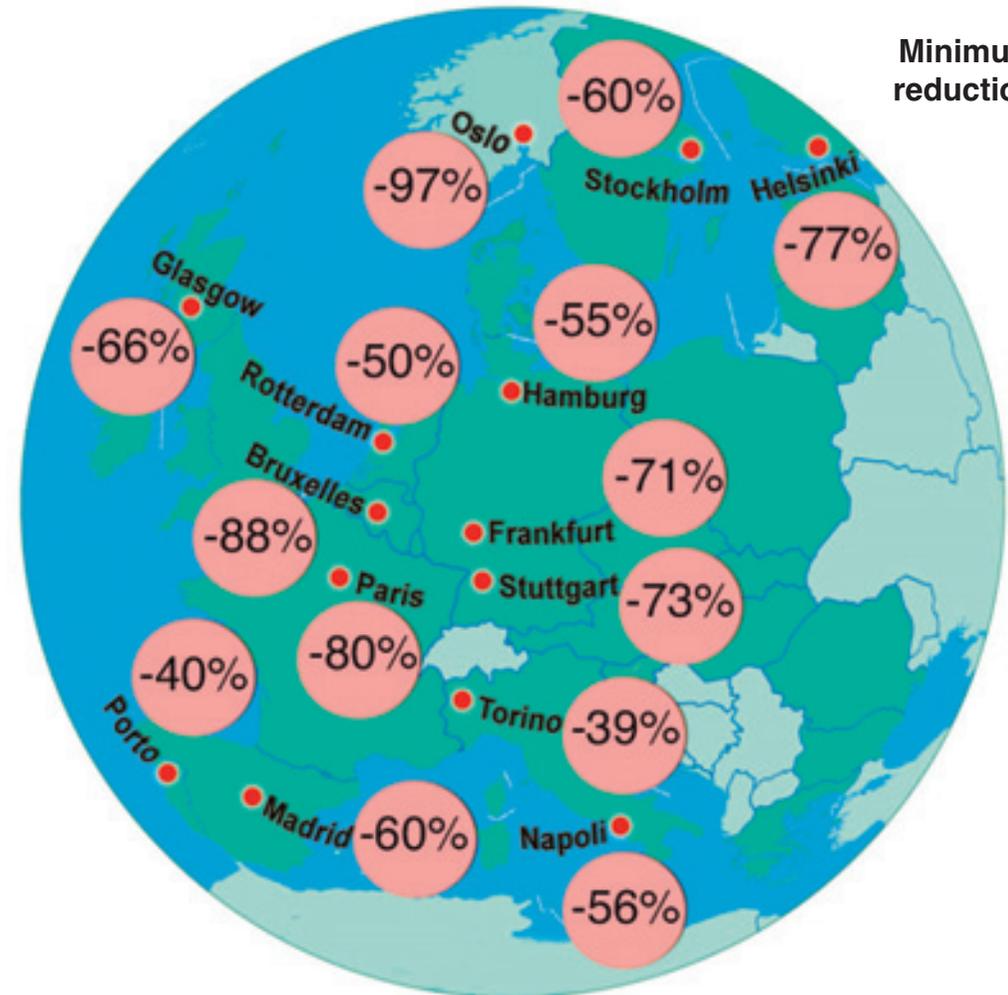
- **how 350 regional stakeholders see the energy future**
- **which mitigation measures they believe to be realistic**
- **what are the most promising measures.**

The results help us to plan our steps for mitigation.

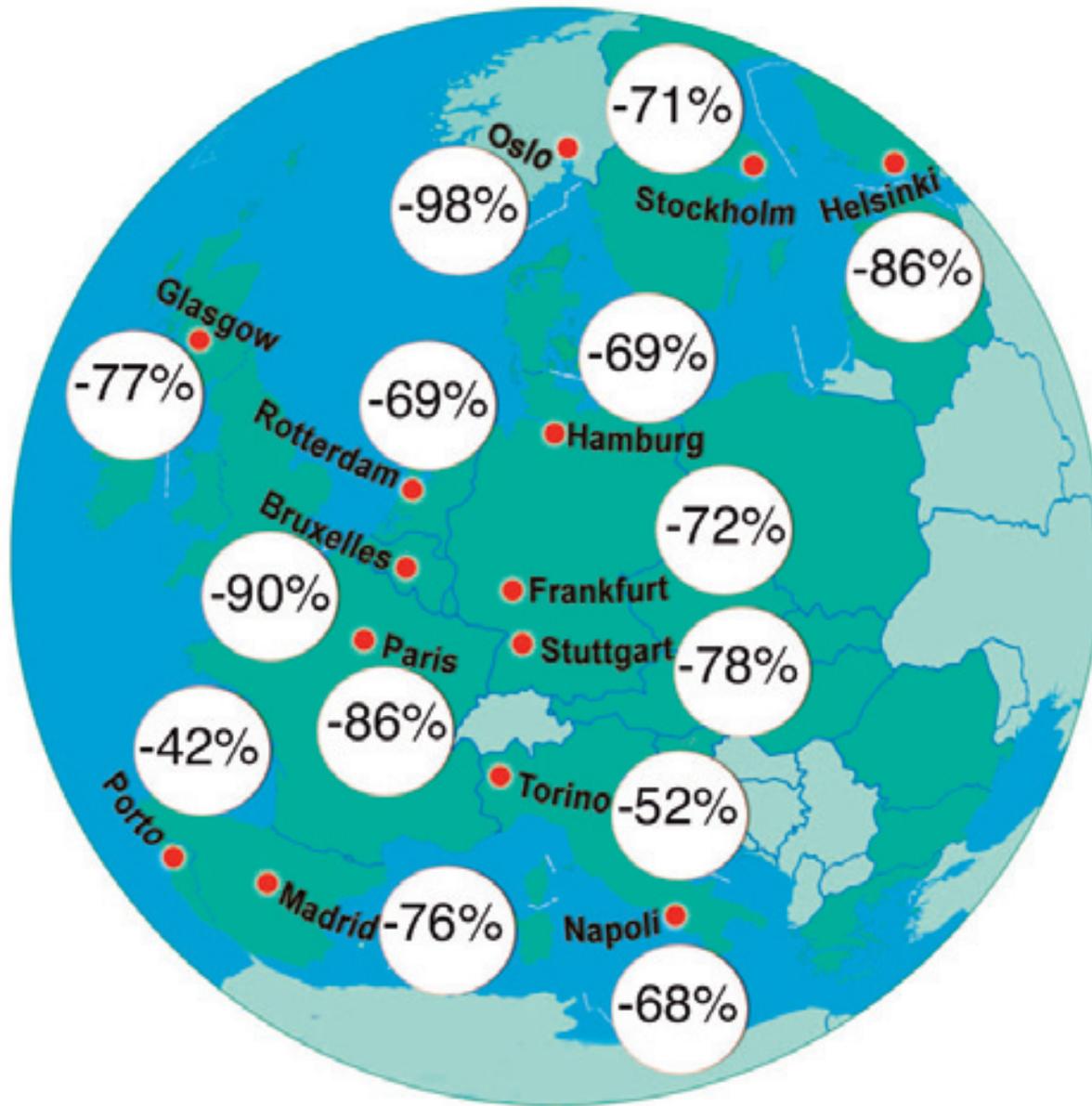
Maximum reduction



Minimum reduction



The CO₂ reductions of the scenario sessions varied slightly between the participating metropolitan regions with lower reduction levels in southern Europe.



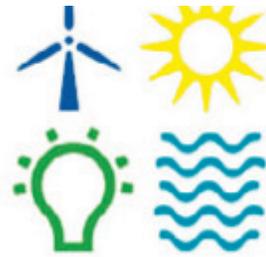
Average CO₂ reduction in the partner regions

The majority of the partner regions failed to achieve the 80% goal.

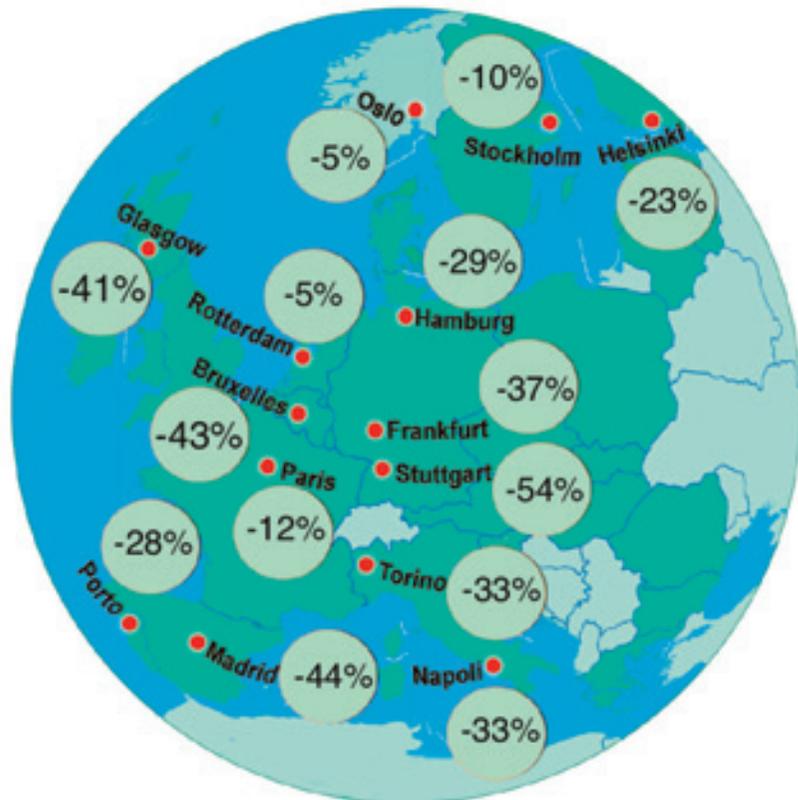
Only 35% of the scenarios achieved this goal.

This shows a lack of information among regional stakeholders.

Renewable grid



≈ -25%*

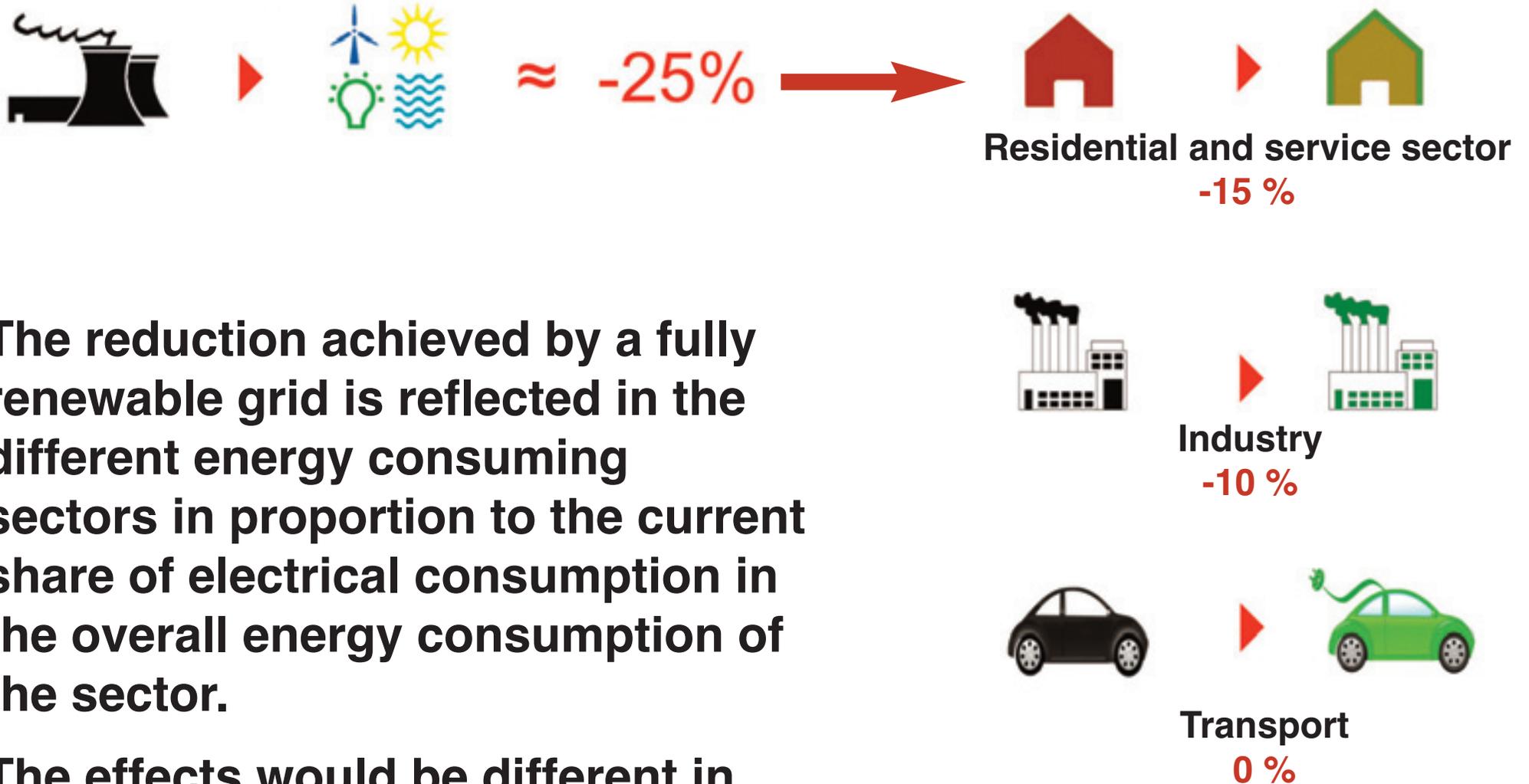


Regional effects of a decarbonised grid

A 100% decarbonised European grid decreases the overall CO₂ emissions by “only” 25%.

The regional effects vary a lot.

Renewable grid



The reduction achieved by a fully renewable grid is reflected in the different energy consuming sectors in proportion to the current share of electrical consumption in the overall energy consumption of the sector.

The effects would be different in the different regions.

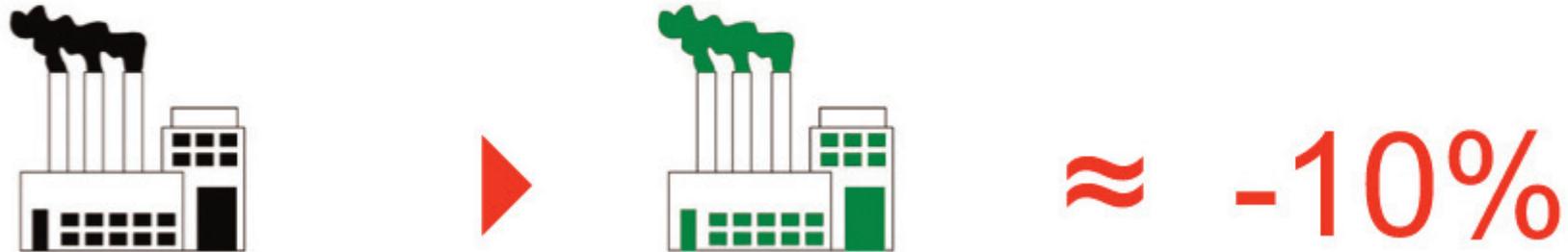
Reduction potential in the residential and services sectors



The residential and the services sectors can reduce their consumption of non-electrical energy by efficiency increases in their buildings sectors, contributing thus 25% to the overall CO₂ reduction.

(Emission reductions by electricity savings in these sectors are reflected, in proportion to their consumption of electrical energy, in the overall 25% CO₂ emissions reduction of the carbon-free power grid postulated on page 14.)

Higher efficiency in Industry



The representatives of the industrial sector in the scenario workshops assumed that at least 50% of the industrial CO₂ emissions can be avoided by increasing energy efficiency.

An additional assumption was that many refineries would close down because of a future reduced use of fossil fuels.

Switch to electromobility and hydrogen



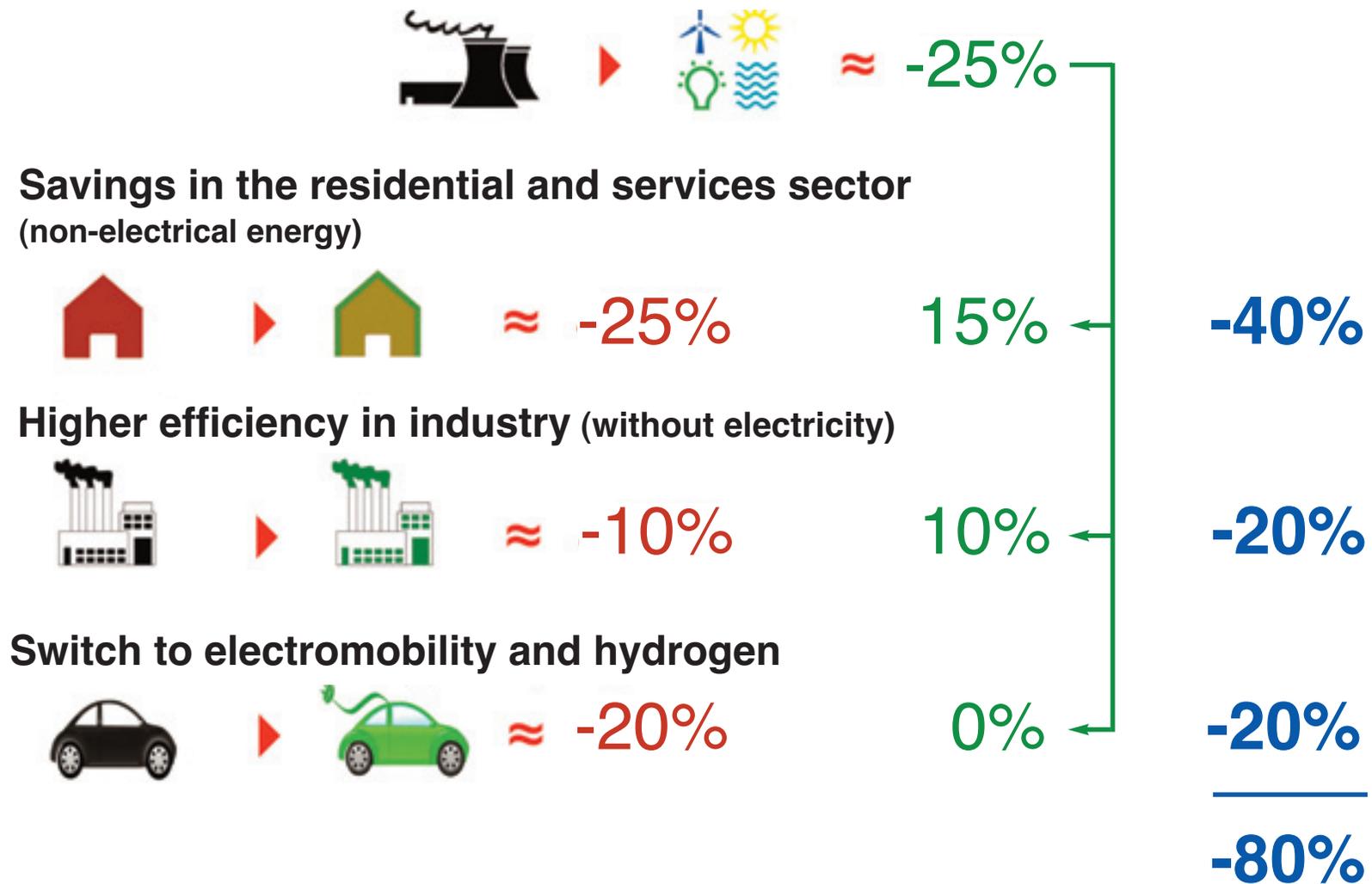
The switch to electromobility and hydrogen will decrease the overall CO₂ emissions by 20%.

Two conditions:

1. Electrical energy has to be saved in other energy consuming sectors in order to answer the new demand in the transport sector.
2. Electric cars must weigh less than cars that use fossile fuels.

Common key findings of EUCO2 80/50

Effects of a renewable grid



Coordination / Lead Partner EUCO2°80/50

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