Wuppertal Institut

International Ruhr Energy Conference 2020

Some reflections on the role of CO_2-prices as major element for achieving GHG neutrality

Presentation:

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Introductory remarks – setting the broader scene

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- Paris agreement and related policy decisions at European and German level set the scene for action (GHG neutrality by 2050)
- GHG neutrality strategies face various major challenges which have to be taken into consideration as a whole during the implementation phase (complex transition strategy)
- Overcoming challenges requires more than economic incentives - CO_2-price is absolutely important as guiding (leading) instrument but not sufficient (complementary sector instruments needed particularly in the Non-ETS sectors: policy mix)
- Many sector instruments are well known but impact assessment still missing or ongoing (e.g. border tax adjustment) and interaction between various instruments complex and partly not very well understood
- No blueprint available for GHG neutrality strategy - keeping the balance between reliability (key for investment security) and flexibility required
- Reflective and adaptive policy needed - requires paradigm shift in policy routines/thinking

GHG neutrality strategies face various major challenges – overcoming challenges requires more than economic incentives

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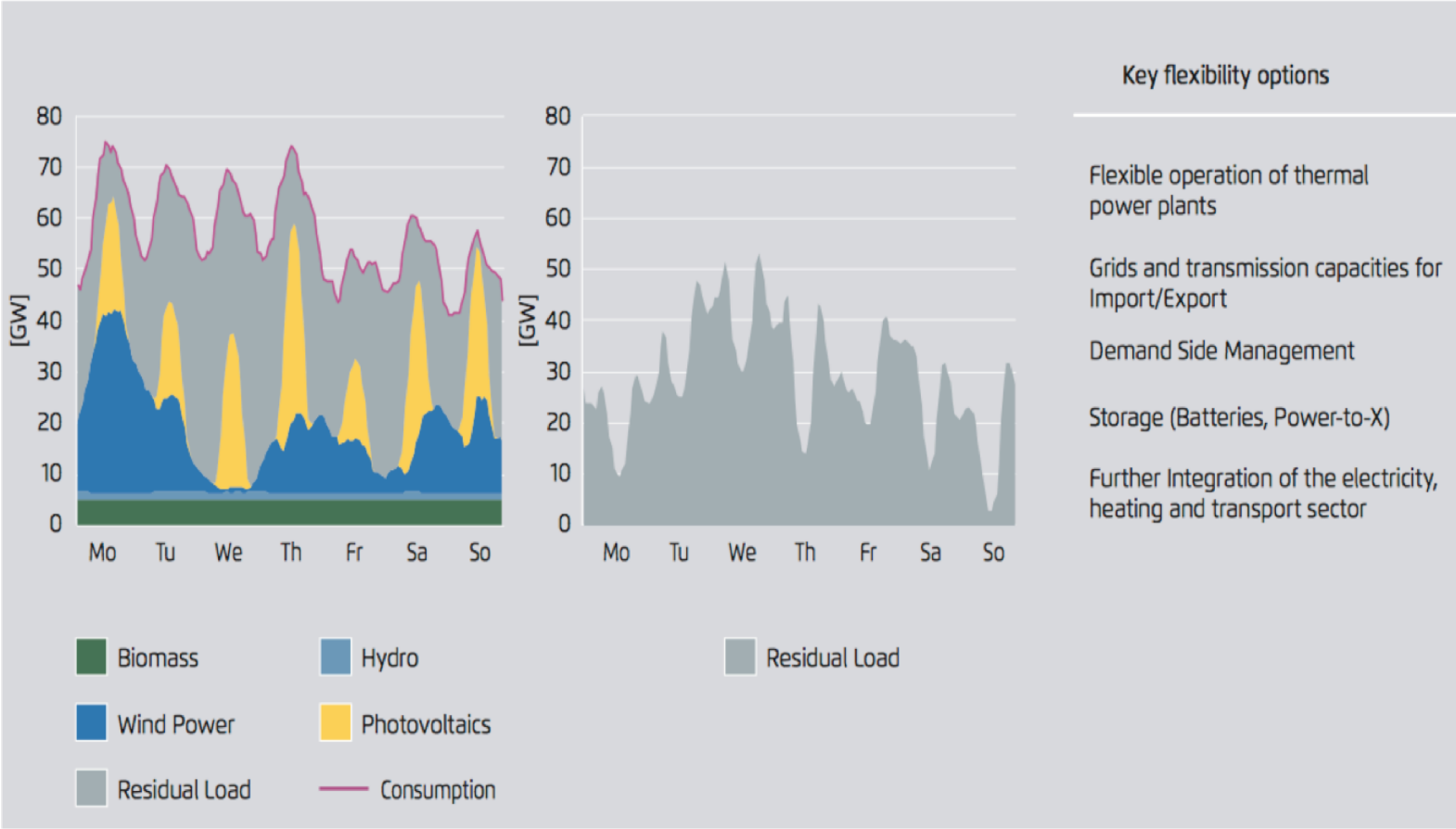
- **Technological challenge** (system integration of volatile renewable energy supply, guaranteeing energy system and grid stability)



Source: Agora Energiewende 2019

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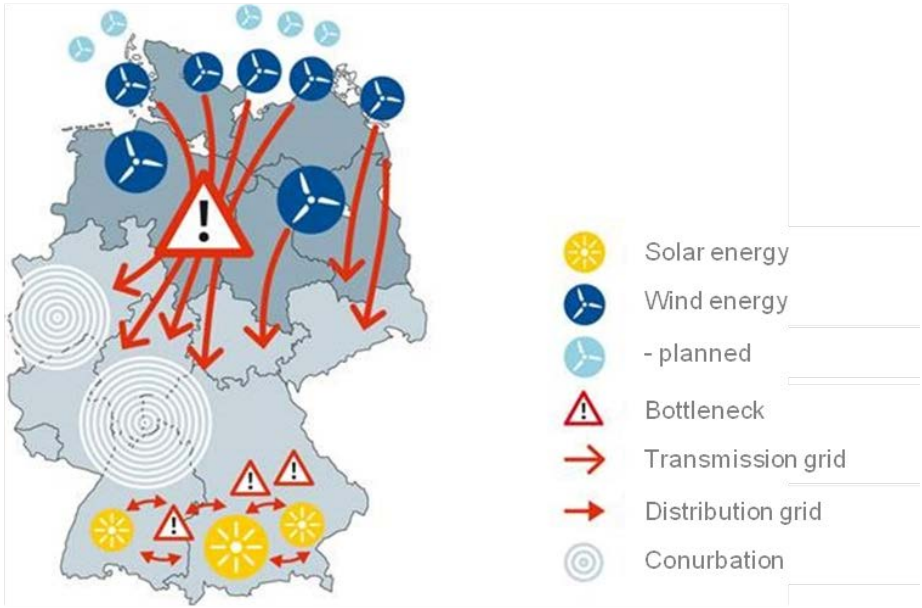
- **Technological challenge** (system integration of volatile renewable energy supply, guaranteeing energy system and grid stability)
- **Compatibility challenge** (suitable cooperation scheme between conventional and new technology options, provision of appropriate market structure and investor incentives)
- **Infrastructure challenge** (further development of appropriate infrastructures: electricity, district heat, natural gas, hydrogen, CO_2)



Source: DUH (2014).

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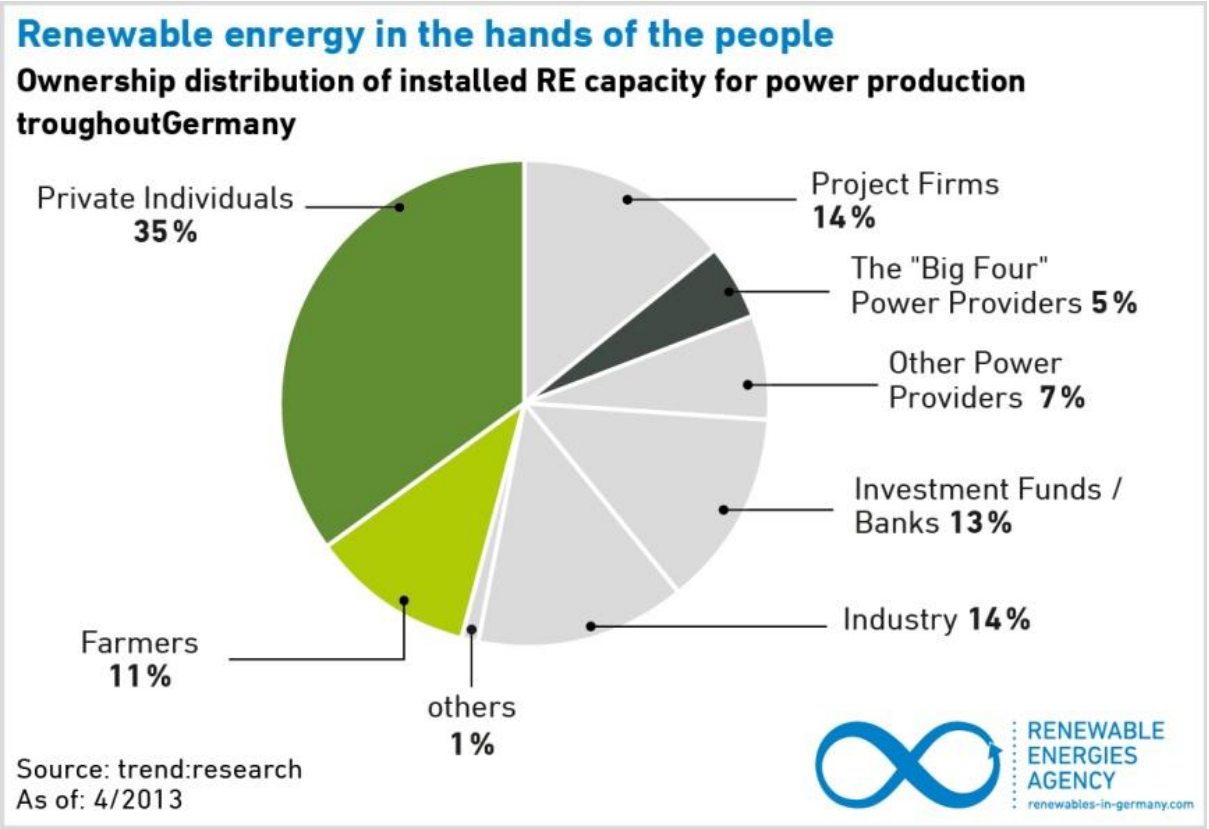
- **Investment challenge** (sufficient incentives to steer capital in the necessary direction; create willingness to invest – to motivate private sector investments planning reliability is key)

A high willingness to invest could be observed for private investors in the past while commercial utilities played a minor (but now increasing) role

Now big utilities (e.g. RWE) belong to the big investors



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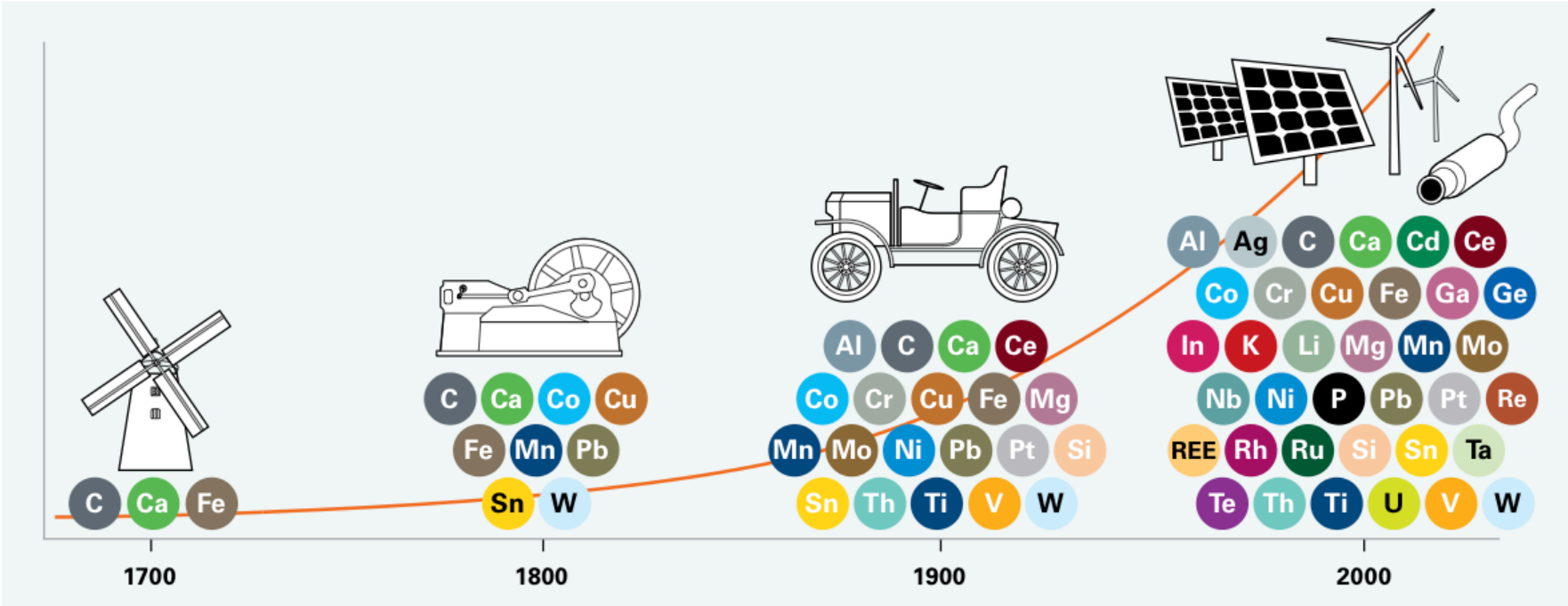
- **Resource challenge** (avoid potential future bottlenecks through negative resource impacts (e.g. critical resources))



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- **Stakeholder challenge** (overcome persistence forces of established stakeholder, set appropriate impulses to support structural changes on corporate level)

Stiftung 2 Grad > **Decarbonization Initiative**

Decarbonization Initiative

At the UN climate conference in Paris in 2015 (COP 22), Foundation 2° and the supporting businesses started the decarbonization initiative "Toward a 2° Economy." With this initiative, businesses are calling for obligatory political measures to achieve a carbon-neutral economy.

"Sustainable climate policy enables a huge number of our companies good chances to benefit from a growing global market for climate friendly products, processes and services."

Dieter Kempf, President of the Federal Association of the German Industry (BDI)

BDI

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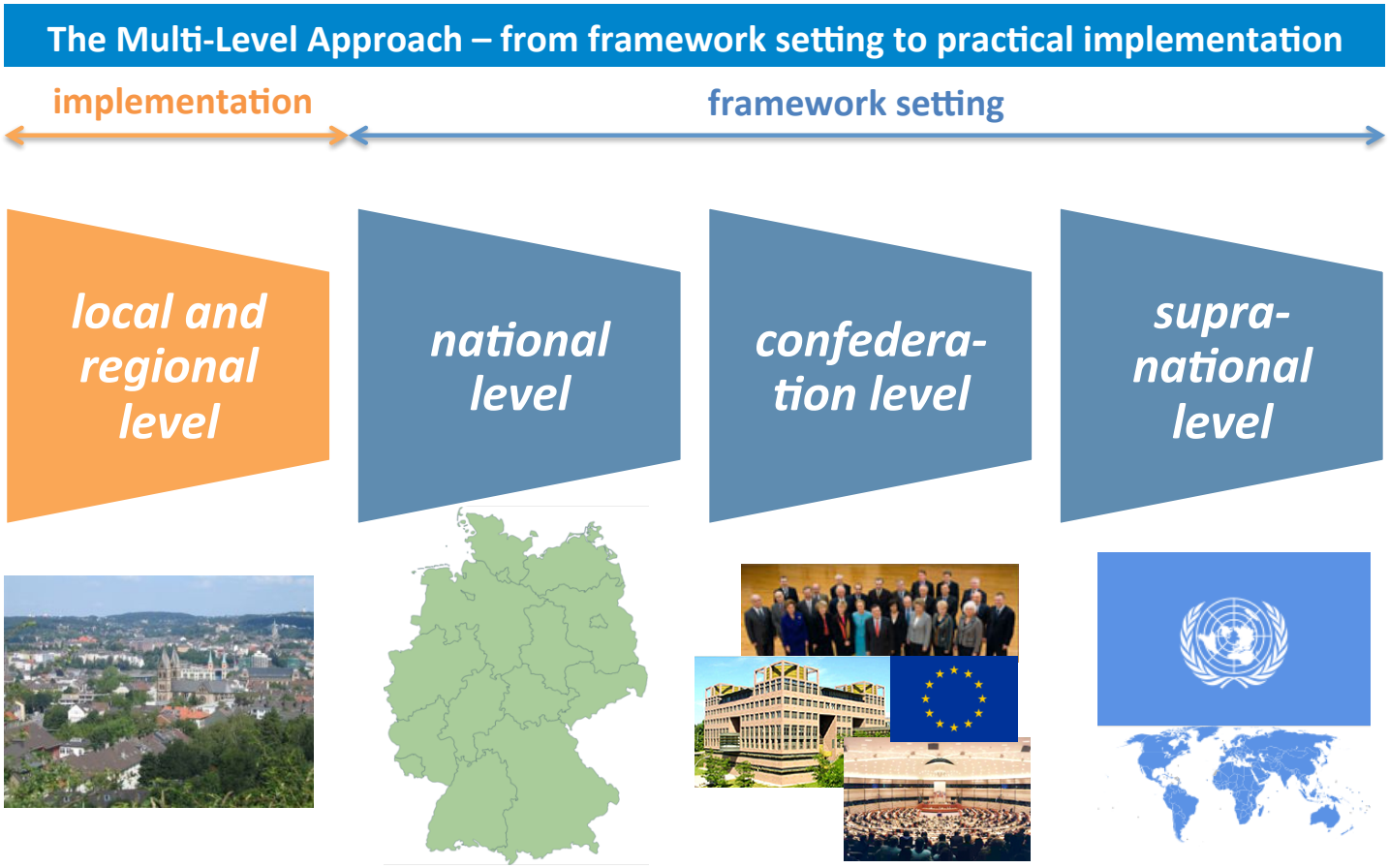
- **Policy challenge** (integrated regional, national and international policy initiative needed (multi-level policy approach); reflective and adaptive policy regime (combination of appropriate monitoring process with the courage to adapt existing policy regime/measures)



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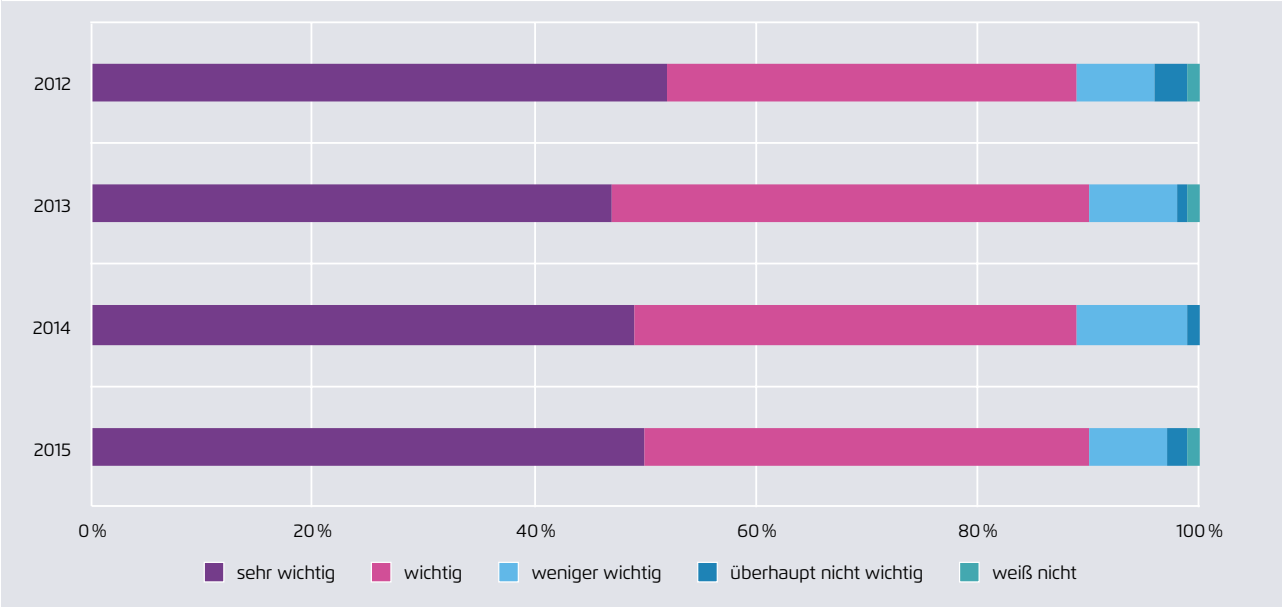
- **Social challenge** (public perception and societal acceptance of renewable energies and associated infrastructures)



A stable share of 90% of the population supports energy transition at a general level (survey results between 2012-2019) but that does not solve the important NIMBY problem

Source: beinghere.net, amapola.it

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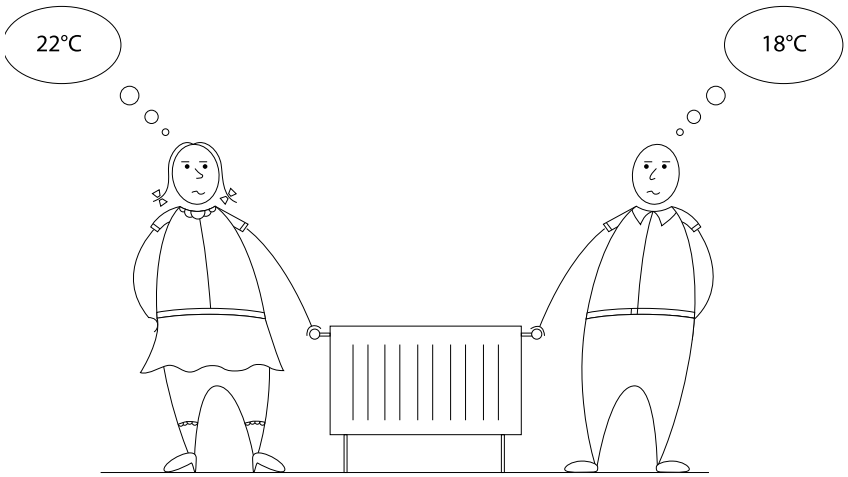
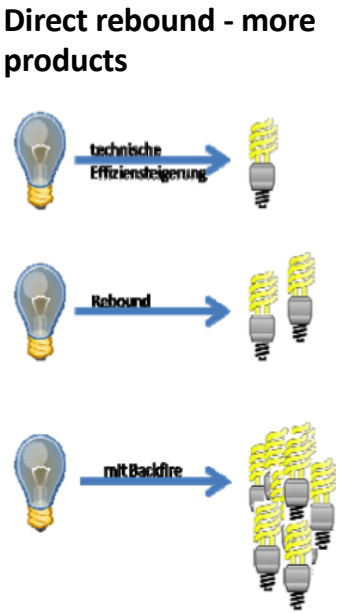
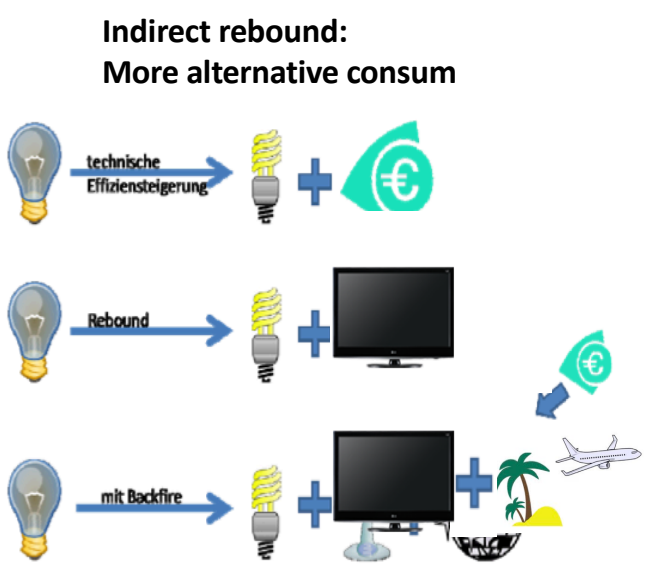
- **Social challenge**
  - Public perception and societal acceptance of renewable energies and associated infrastructures
  - Guarantee compatibility with social concerns (e.g. energy poverty)
  - Foster participation (in terms of decisions taking and investments)
  - Foster sustainable life styles and avoid rebound effects - **reflecting the role of consumer behaviour**







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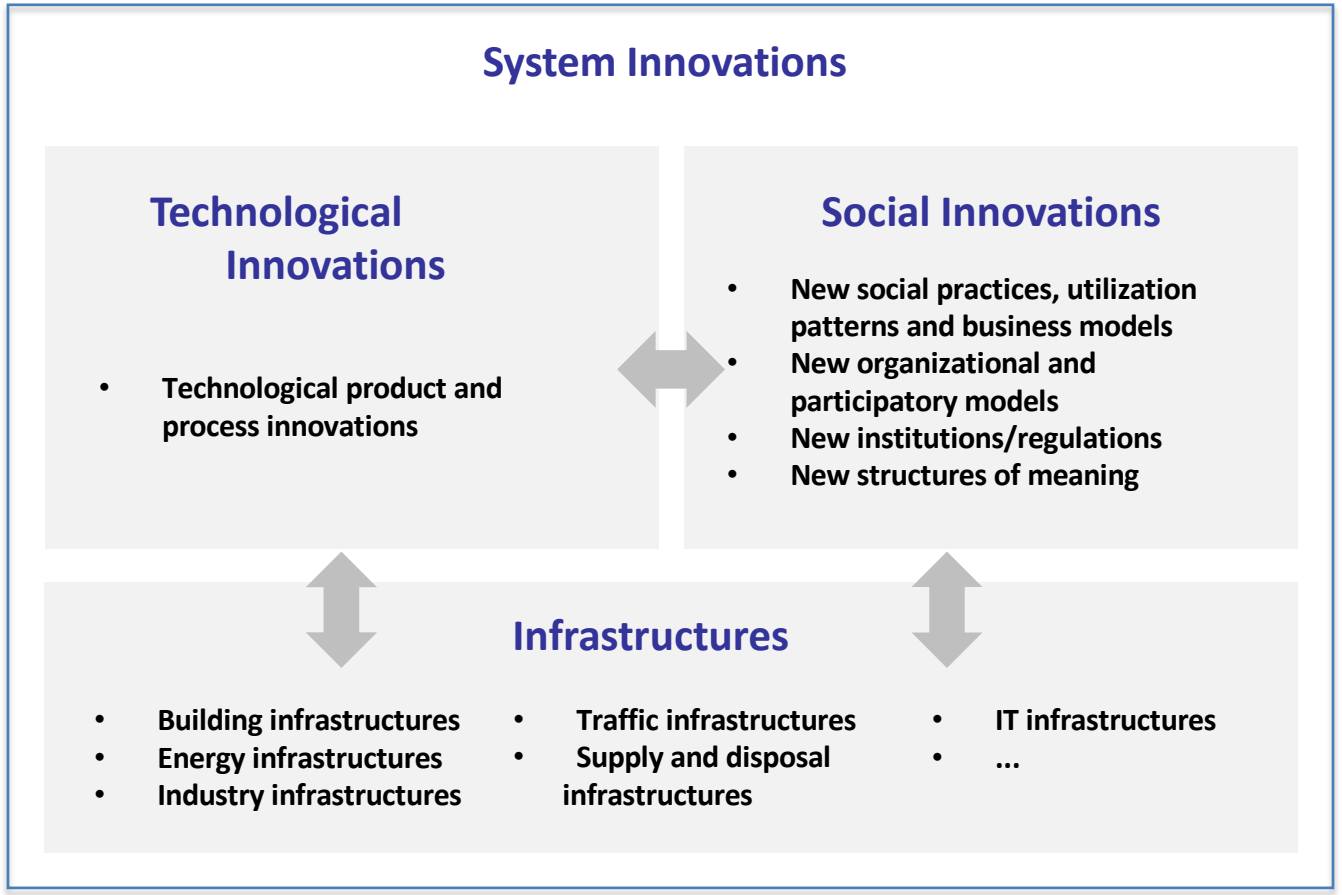
- **Innovation Challenge** (system innovations needed - combination of technological innovations with appropriate and smart infrastructures as well as social innovation
  -> Successful technologies require an appropriate institutional, cultural, political and social environment (“embedded technologies”)



Overcoming challenges requires more than economic incentives - CO_2-price is absolutely important as guiding (leading) instrument but not sufficient (complementary sector instruments needed particularly in the Non-ETS sectors: policy mix)

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Two simple examples

Typical middle class car with 140 g CO_2/km

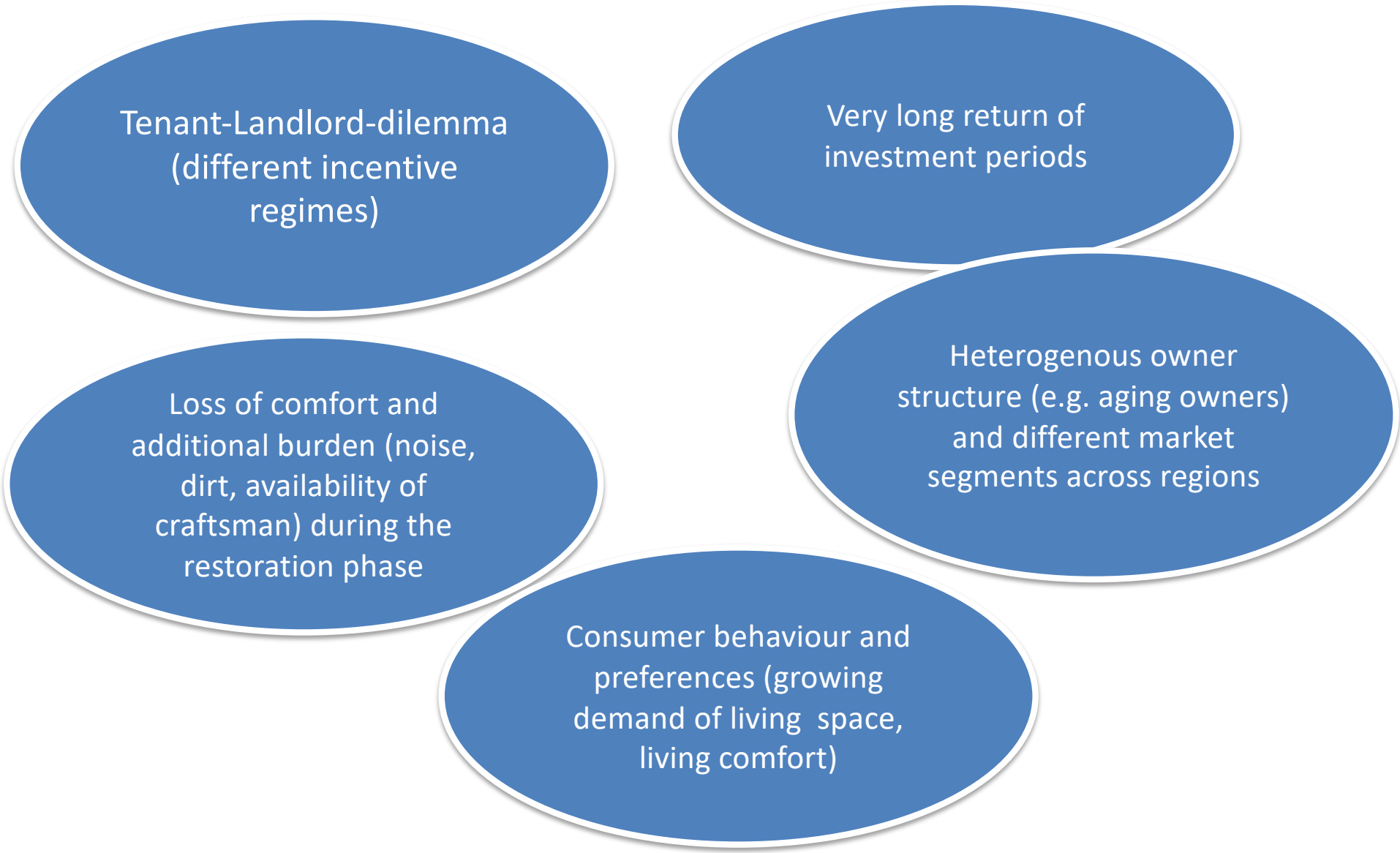
- CO_2 price of 180 €/t CO_2 leads to cost increase of 2,5 € per 100 km
- Does this change mobility behaviour significantly?
- Probably not!

Intercontinental flight Düsseldorf <–>Sydney (via Dubai): 5,373 kg CO_2 (from which 1,829 kg direct CO_2-emissions)

- CO_2 price of 180 €/t CO_2 leads to cost increase of approx. 330 € (direct emissions) and 970 € (including indirect emissions; water vapour climate effect at higher atmospheric layers)
- Does this change mobility behaviour significantly?
- Most likely!

However it depends on the question if and how a rebate system is implemented

Overcoming challenges requires more than economic incentives - Transformative challenges in the building sector (selected examples for restoration of buildings))



Strategy and policy mix for the building sector
Regulation, incentives, standards, as well as empowerment (information und consultancy measures) required

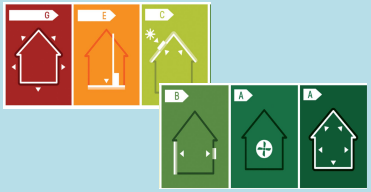
Policy Instrument Mix

Sufficiency


- **Reduce demand on living space through smart and flexible use (e.g. exchange of houses/apartments)**

Efficiency/Consistency

- **Further development of regulation and incentives for restoration measures**
  - Make occasion-related energetic restructuring an obligation (e.g. for inheritance)
  - Prohibition of heating systems based on fossil fuels (Phase Out)
  - Increase financial incentives and adapt them to target groups
  - Polluter- and socially equitable, effective CO_2 pricing
  - Fair burden sharing



- **Holistic restructuring control and monitoring**
  - Binding renovation roadmap
  - Support for establishment of One-Stop-Shops

- **Qualification and communication offensive**
  - Using digitisation (e. g. serial renovation / PreFab, 3D-Printing)
  - Making renovation a tangible experience (e.g. demonstration, exchange of experiences)
  - Education and qualification offensive in the craft trades

Concluding remark

How to deal with future challenges
Concluding remark

„Confidence is before you encompass the problem!“
Woody Allen {American filmmaker, comedian, author}

Source: telegraph.co.uk

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Thank you for your attention!