THE ROLE OF ENERGY EFFICIENCY POTENTIALS IN A 2030 TARGET SYSTEM FOR CLIMATE AND ENERGY POLICY

eceee annual policy seminar
13 November 2013
Brussels

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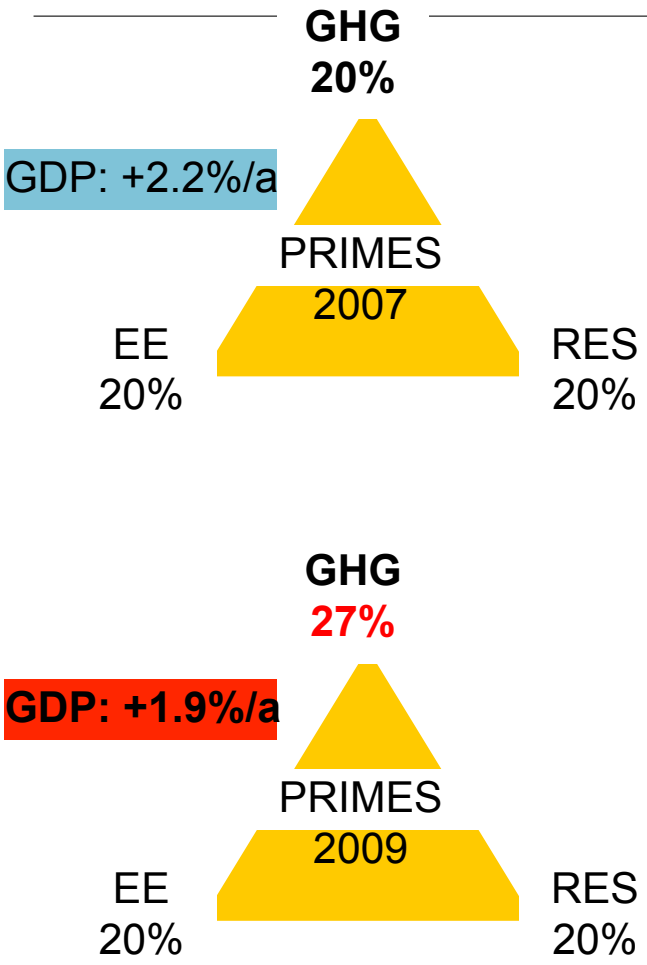
Outline

- Lessons from the 2020 target system
- Fraunhofer ISI studies on energy efficiency potentials up to 2030/2050
- Design options for a 2030 target system
- Main messages for a 2030 target system

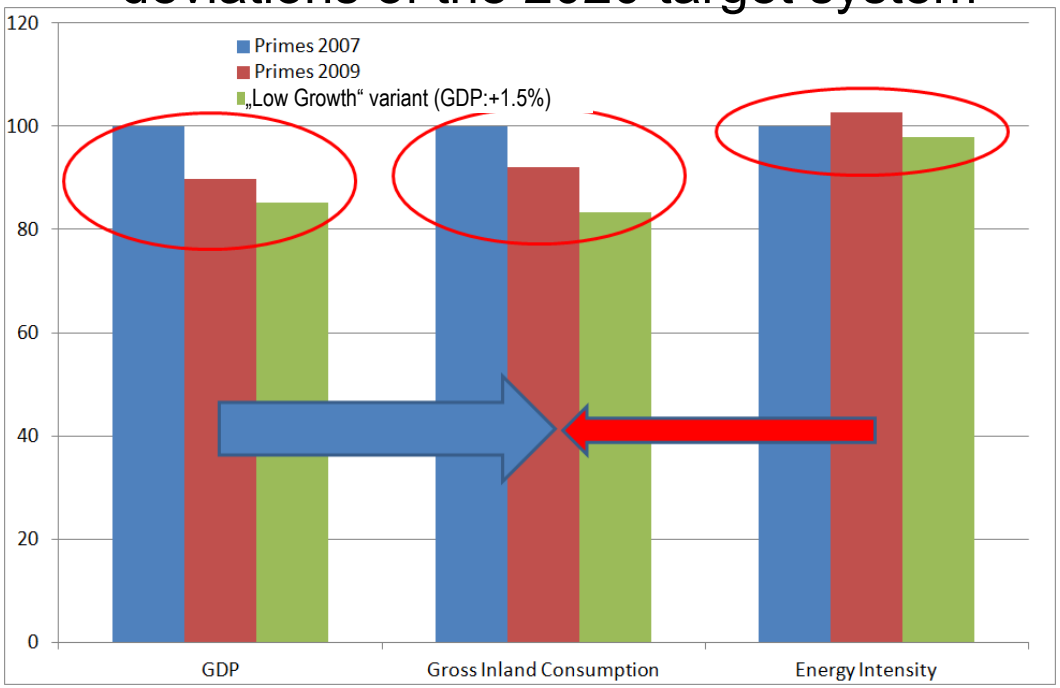
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Lessons from the 2020 target system



Different growth of GDP explains most of the deviations of the 2020 target system



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What lessons can be learned for the design of a target system until 2030?

- Any target system will most likely become inconsistent over time as reality (nearly) always evolves differently over time as projections
  - Dynamic versus static formulations of target systems
  - Periodic or dynamic adaptations of target systems
  - Stability of the system versus dynamic features and flexibility
- Targets formulated in an absolute manner are much more subject to deviations from the projections than target systems formulated in terms of intensities or absolute savings.
- But: intensity and savings targets impose other problems
  - They both do not guarantee that consumption is indeed lowered in absolute terms
  - Targets formulated in energy savings have led to huge difficulties in the monitoring process in the past in the EU

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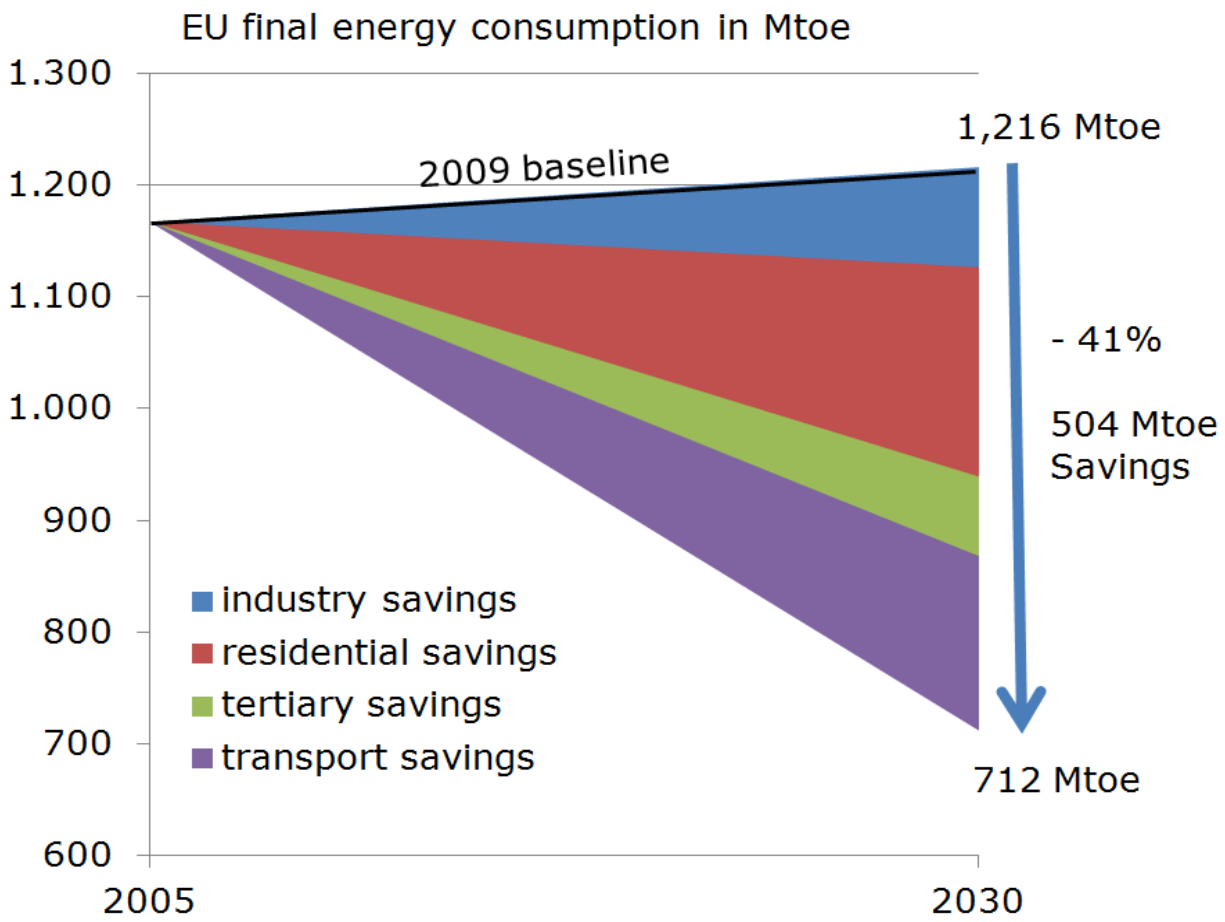
Fraunhofer ISI Studies on Energy Efficiency Potentials up to 2050

- Result from Fraunhofer ISI Studies from 2012/2013:
  EU has **41%** cost-effective end-use energy savings potential for 2030 (comp. to PRIMES 2009 GDP growth).
- Research is based on a bottom-up modelling assessment of the energy savings potential in individual sectors:
  - Industry: **21%**
  - Residential: **61%**
  - Tertiary: **38%**
  - Transport: **41%**
- Multiple verifications of these potentials with stakeholders.
- Realizing this potential results in **€239bn/year net savings** on energy bills for households and industry.

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Results of a bottom-up modelling of cost-effective saving potentials by sector



Cost-effective savings = Savings realized through energy efficiency measures that deliver net financial benefits over their lifetime for the individual investor assuming

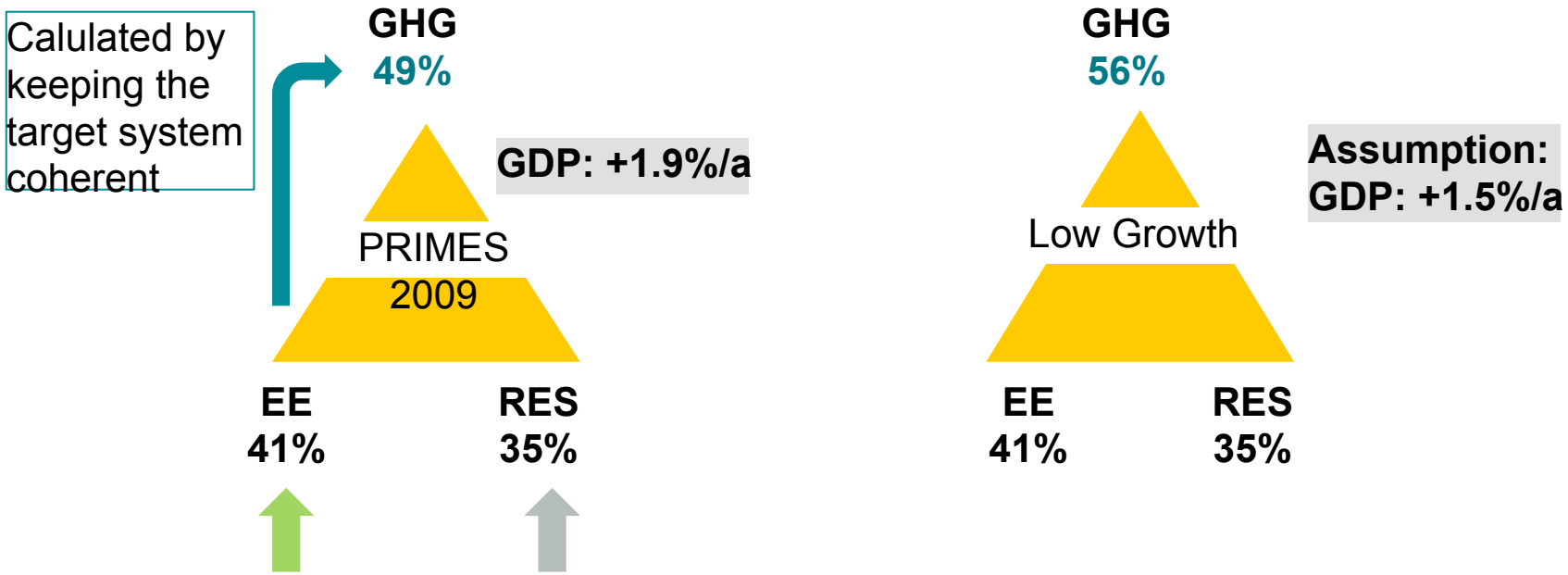
- normal discount rates
- normal investment cycles
- only use of commercially available technologies
- removal of key barriers to energy efficiency

Not included are **additional macro-economic benefits** of energy efficiency on competitiveness, growth and employment!

Source: Calculations Fraunhofer ISI 2013

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Design option 1: A coherent 2030 target system based on economic energy efficiency (EE) potentials

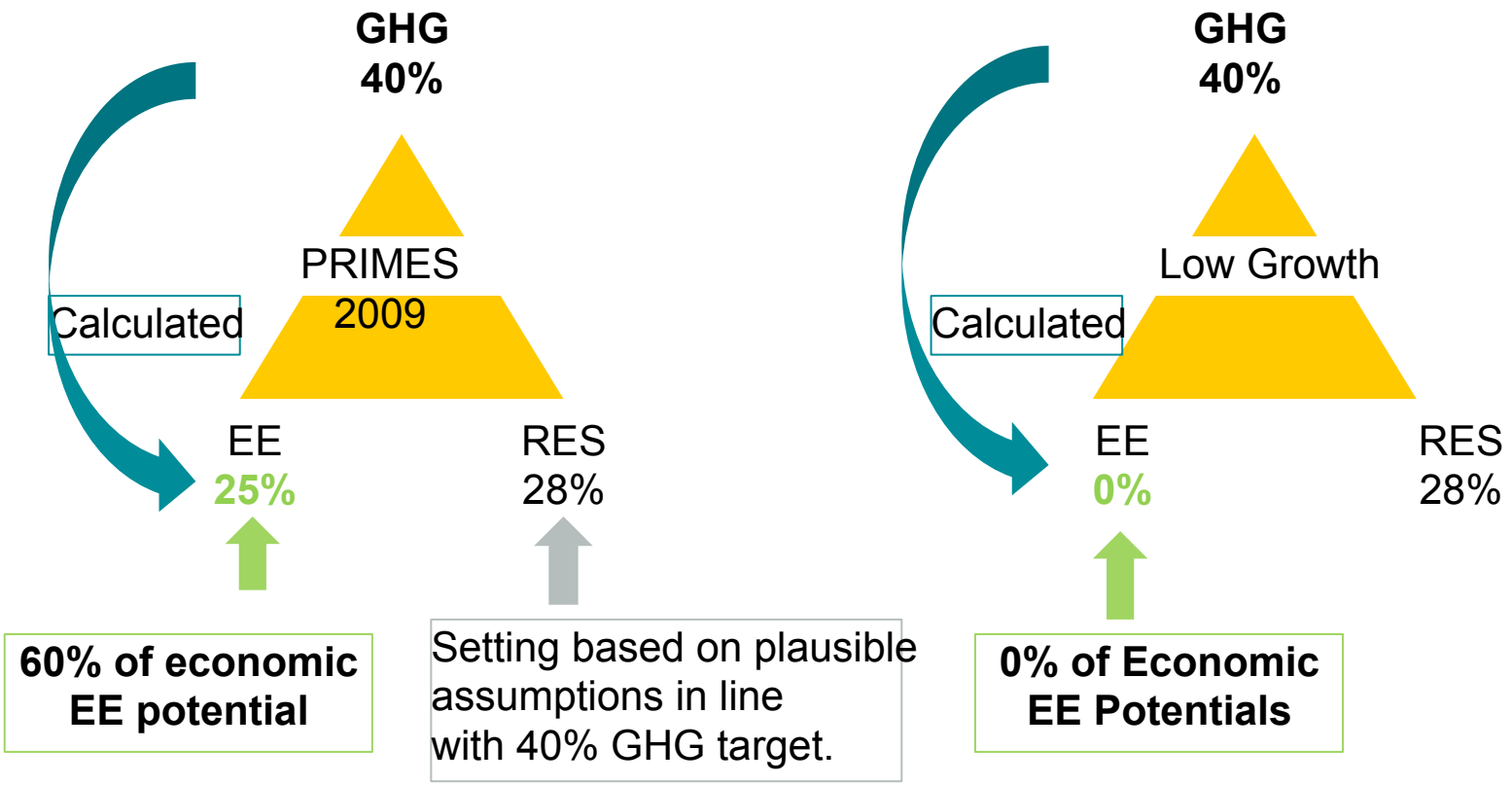


Ambitious energy efficiency targets are a guarantor for ambitious GHG targets

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Design Option 2: A coherent 2030 target system based on a 40% GHG target



The 40% GHG target combined with low economic growth implies no additional energy savings by 2030

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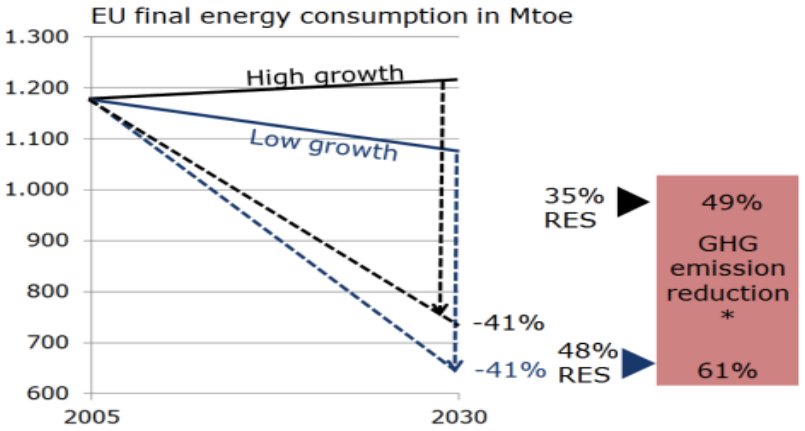
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Interaction between energy savings and GHG emission reductions

A. Full realisation of a 41% energy savings potentials with

- High growth and 35% renewable energy share
- Low growth and 48% renewable energy share

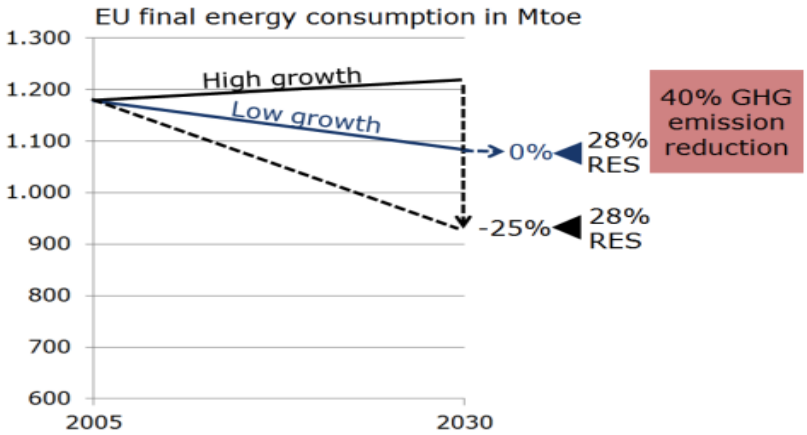
⇨ **Results in at least 49 to 61% greenhouse gas emissions reductions compared to 1990**



B. Reducing greenhouse gas emissions by 40% compared to 1990 levels with

- High growth and 28% renewable energy share
- Low growth and 28% renewable energy share

⇨ **Requires no additional savings and could lead to increasing wastage of energy**



25% savings are already delivered by existing policies
0% savings would actually mean decreasing energy efficiency and increasing energy wastage.

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Main messages for a 2030 target system

- Ambitious energy efficiency targets are a guarantor for ambitious GHG targets
- A GHG target as only headline target will not exploit all cost-effective energy saving potentials – unless it is formulated very ambitiously (-50% until 2030)
- The 40% GHG target combined with low economic growth (+1.5%/a) implies no additional energy savings by 2030 (no additional EE policies beyond 2020)
- Dynamic elements to adapt the target system to deviations in economic growth and structural changes should be part of the design of a target system (in case of absolute targets, but also relevant for energy intensity targets).
- At least a periodic target adaptation should be foreseen
- A target formulated in energy saving terms would be less sensitive to changes in the economic framework conditions. But: monitoring is more demanding and it cannot guarantee that consumption is indeed lowered in absolute terms.
- A wide exploitation of cost-effective energy saving potentials has positive macroeconomic side-effects on GDP growth, trade balance, economy restructuring, employment and competitiveness which should not be neglected.

Thank you for your attention

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