

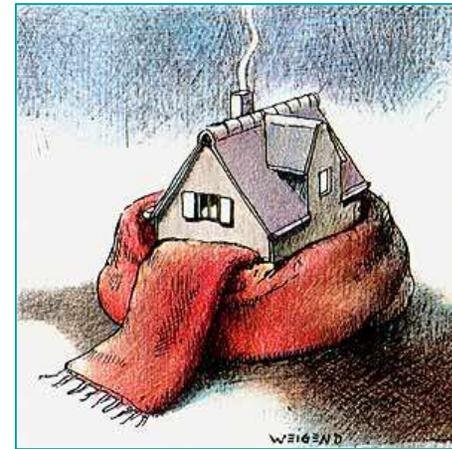


# Employment Impacts of a Large-Scale Deep Building Energy Retrofit Programme the case of Hungary

CENTER FOR CLIMATE CHANGE  
AND SUSTAINABLE ENERGY POLICY



CENTRAL EUROPEAN UNIVERSITY



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June 21, 2010, Toledo

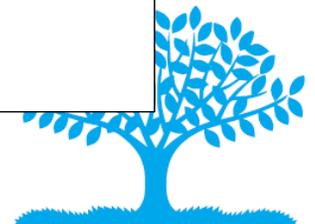
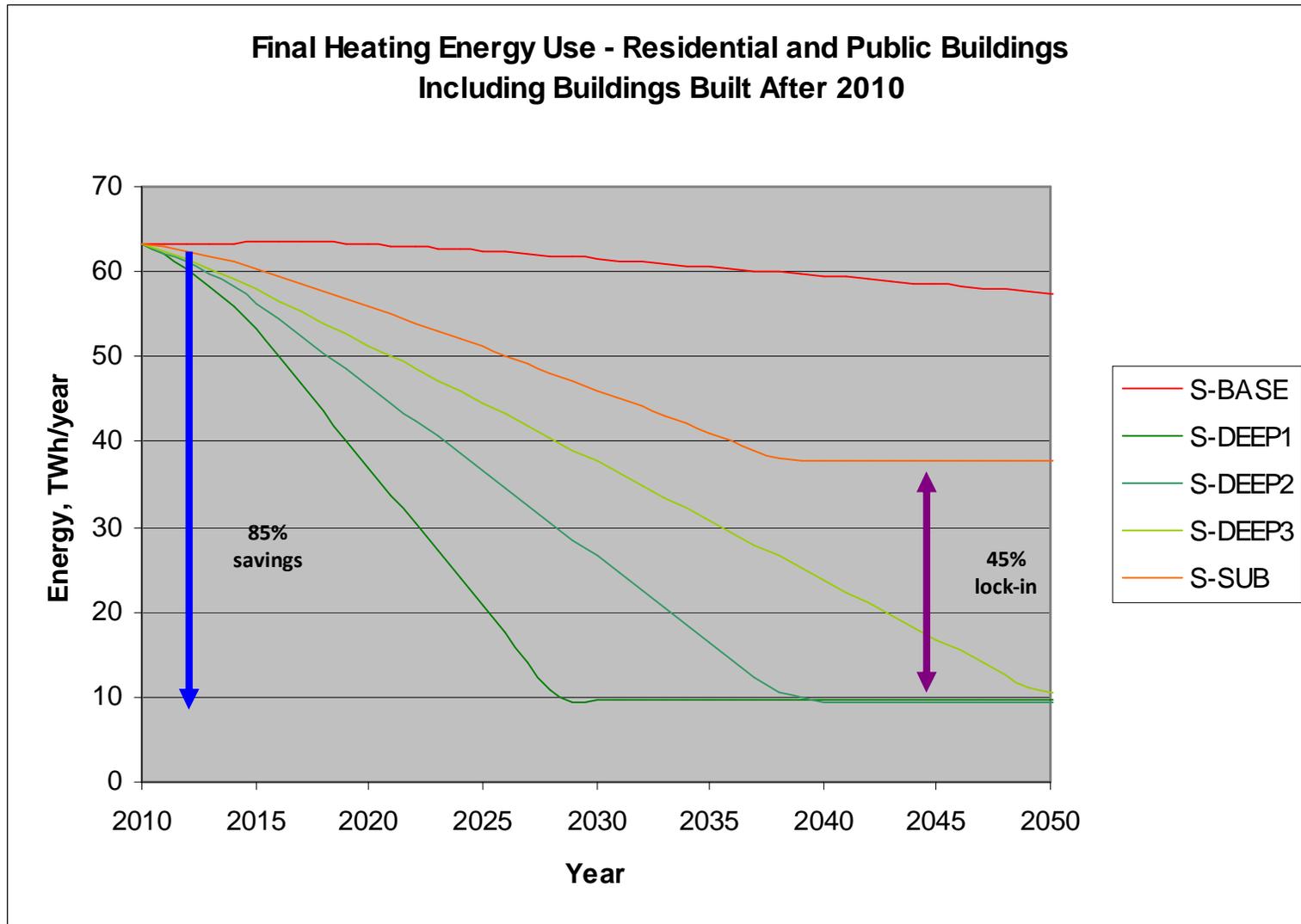
# Key findings: energy and CO2 savings



- ❖ Up to **87%** of Hungarian heating/cooling energy use and the corresponding CO2 emissions can be avoided by a wide-spread **deep** retrofit programme (saving 75 – 90% of e)
  - ❑ A suboptimal scenario (saving only 40% of energy use) **locks in 45%** of 2010 building heating-related emissions at the end of the programme
  - ❑ This makes medium-term national emission reduction targets (75 – 85%) very difficult and expensive to achieve



# Energy and CO2 emission reductions until 2050: 45% locked in by suboptimal renovations



# Key findings: fuel poverty and energy security

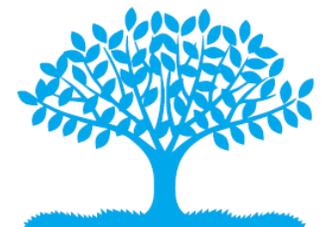
- ❖ Since passive buildings need little if any heating E, the program **eradicates fuel poverty**
- ❖ A deep retrofit programme can reduce significantly Hungary's natural gas import dependence (in % of 2006-2008 average NG imports):
  - ❖ **Up to 39% annual import needs** by 2030
  - ❖ **Up to 59% of the January import** needs (the most critical month for energy security)
- ❑ A suboptimal retrofit programme would lack the same strength
  - ❖ Only 10% of natural gas imports saved in 2030
  - ❖ Peak (January) savings reduced to 18%



# Employment benefits

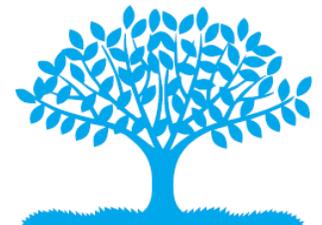


- ❖ **Up to 131,000 net jobs created** by 2020 in Hungary alone, including the losses in the energy supply sector
  - ❑ This value is **184,000** in 2015
  - ❑ 38% of this value: indirect and induced effects in other sectors than construction
  - ❑ Suboptimal scenario: 43,000 jobs
- ❖ Deep renovation activities are much more labour intensive than other economic recovery activities
  - ❑ e.g. 5 times more jobs are created than with the same investments in road construction
- ❖ Jobs are mostly distributed evenly throughout the country
  - ❑ Fostering regional development



# Recommendations

- ❖ Similarly significant **employment, energy saving, climate, fuel poverty and energy security benefits** are expected in all EU MSs by wide-scale, deep renovation programs
- ❖ However, governments should **not** support **suboptimal renovations** (saving less than app. 70% of energy) to avoid the lock-in effect



# Thank you for your attention

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*They just keep promising this global warming; but they won't keep this promise of theirs either...*

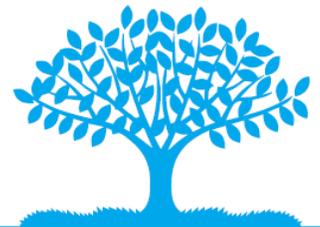
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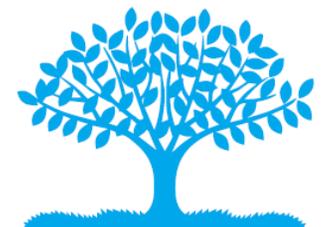
Email: [vorsatzd@ceu.hu](mailto:vorsatzd@ceu.hu)

# Supplementary slides



# Summary: Recommendation

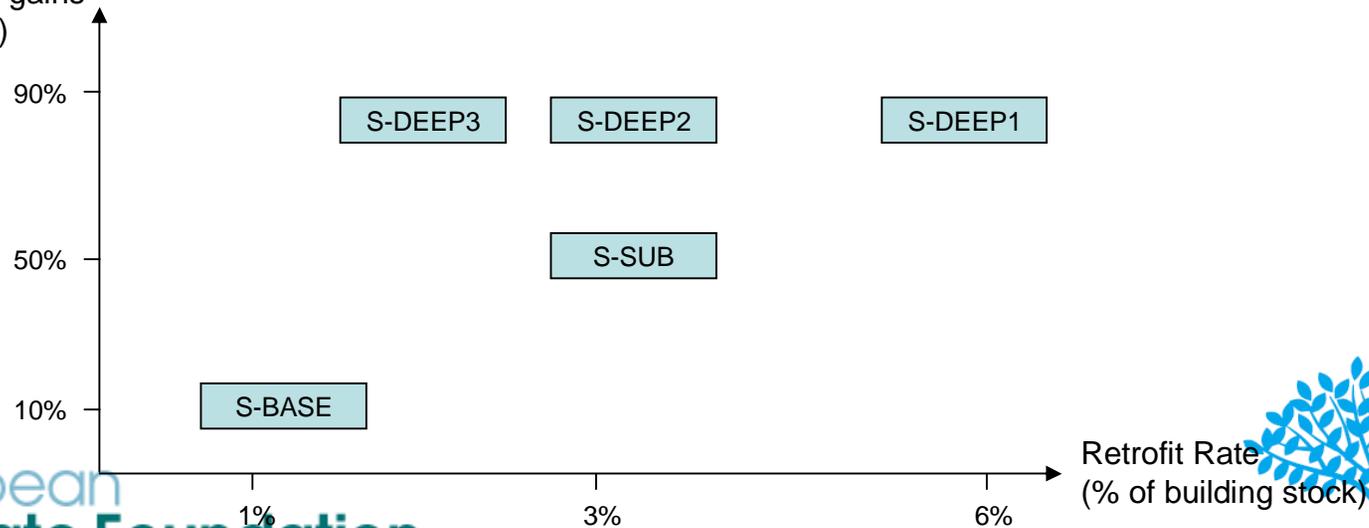
- ❖ Recommendation: deep renovation programme with more gradual implementation
  - ❑ App. 8 million sqm per year, 2.3% of the floor area, 100,000 dwellings-equivalent
  - ❑ 52,000 jobs created by 2020
  - ❑ Initial costs peak at 2 Bln EUR per year, and are reduced to less than 1 Bln EUR in the final phases of the programme
    - ❖ Take advantage of the initial learning period
- ❖ App. 1 billion Euros public funds per year could potentially be made available
  - ❑ Partly from EU funding
  - ❑ Partly from redirecting current energy subsidies
- ❖ Pay-as-you-save schemes and other innovative financing schemes also relieve the financing burden
- ❖ More gradual implementation means less shock for the labour market
- ❖ For all scenarios:
  - ❑ Employment created is long-term
  - ❑ New jobs will be distributed across the country
- ❖ Public administration should be heavily involved
  - ❑ To the achievement of deep savings through deep renovations
  - ❑ To reduce the risks of supply bottlenecks



# Scenarios considered

Name	Scenario	Retrofit rate	Type of retrofits	Forecasted completion
<i>S-BASE</i>	Baseline scenario: no intervention	1.3% of the total building stock (around 4.5 million square metres a year, equivalent to 55,000 dwellings)	"Business as usual" retrofits	N/A
<i>S-DEEP1</i>	Deep retrofit with fast implementation rate	Around 20 million square metres (equivalent to 5.7% of floor area, 250,000 dwellings) per year	Deep retrofits	17-18 years
<i>S-DEEP2</i>	Deep retrofit with medium implementation rate	Around 12 million square metres (equivalent to 3.4% of floor area, 150,000 dwellings) per year	Deep retrofits	26-28 years
<i>S-DEEP3</i>	Deep retrofit with slow implementation rate	Around 8 million square metres (equivalent to 2.3% of floor area, 100,000 dwellings) per year	Deep retrofits	39-41 years
<i>S-SUB</i>	Suboptimal retrofit with medium implementation rate	Around 12 million square metres (equivalent to 3.4% of floor area, 150,000 dwellings) per year	Suboptimal retrofits	26-28 years

Energy efficiency gains  
(% of kWh/sqm/y)



# Key findings – Employment impacts

- ❖ Employment benefits
  - ❑ Up to 131,000 net jobs created by 2020, including the losses in the energy supply sector
    - ❖ This value is 184,000 in 2015
    - ❖ 38% of this value: indirect and induced effects in other sectors than construction
  - ❑ Suboptimal scenario: 43,000 jobs
- ❖ Deep renovation activities are much more labour intensive than other economic recovery activities
  - ❑ e.g. 5 times more jobs are created than with the same investments in road construction
- ❖ The corresponding investment needs are also higher
  - ❑ For the most ambitious programme (5.7% floor area/yr): 4.5 Bln EUR/year initially, and 2.8 Bln EUR/year towards the end
  - ❑ For the more gradual programme: 2 bln/year (2.3% floor area renovated/year), declining to 1 bln/year
- ❖ Employment effects are geographically distributed in the country and durable (the programme lasts 20-30 years)



# Total net employment impacts: snapshot in 2020

- ❖ The figure summarises direct, indirect and induced impacts
  - Up to 131,000 jobs are created by 2020 with the most ambitious programme
  - 52,000 jobs created by 2020 with the more gradual programme

