

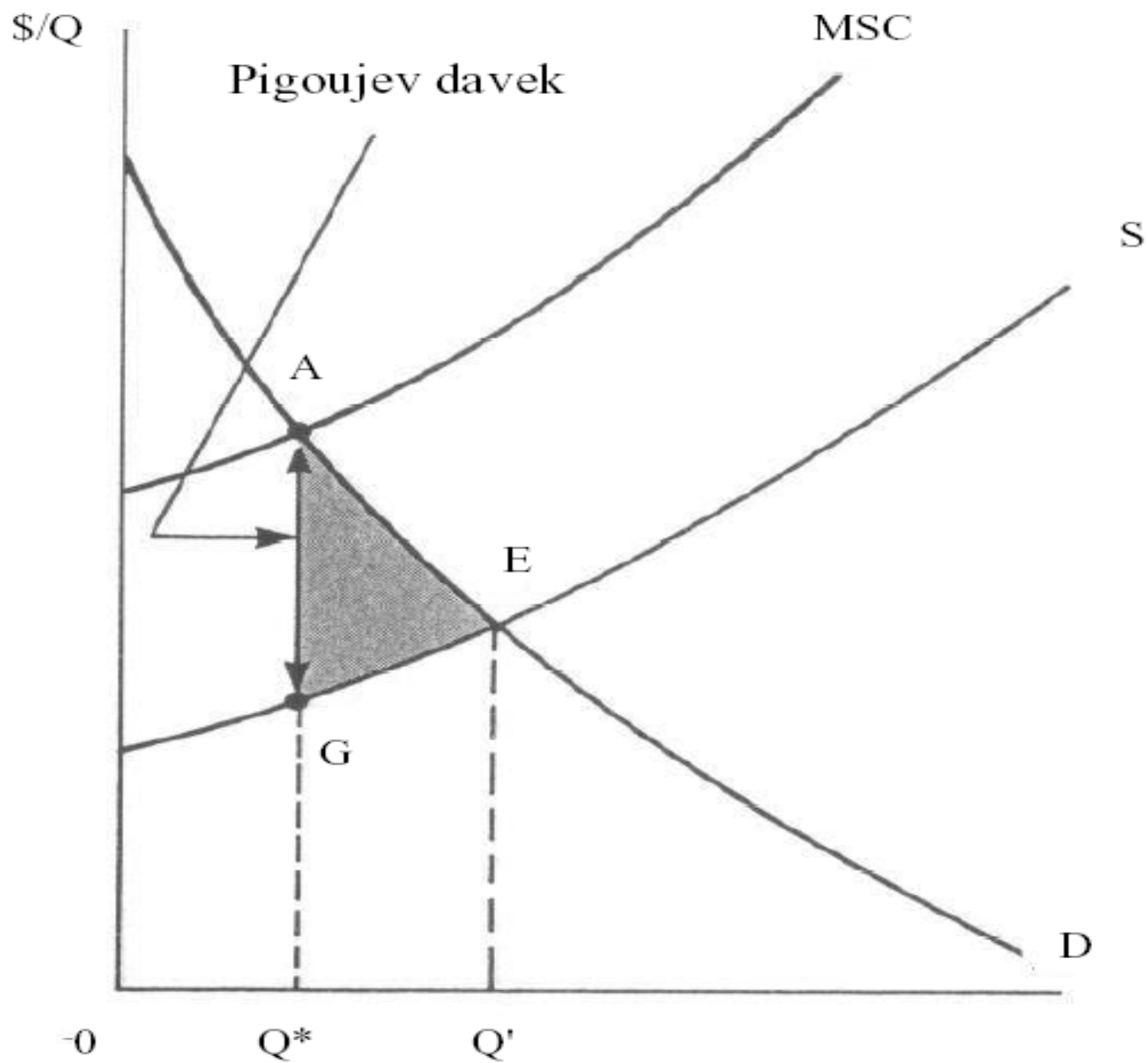


# Blaženje podnebnih sprememb: strošek ali razvojna priložnost ?

mag. Mojca Vendramin

# Okoljska Kuznetsova krivulja





MSC – družbeni mejni stroški  
 MSB – družbene mejne korist  
 S – ponudba  
 D – povpraševanje



## Neposredni vpliv različnih cen CO<sub>2</sub> na cene energije

| Cena tone CO <sub>2</sub> | Nafta<br>/na sodček | Motorno gorivo<br>/na liter | Električna energija              |                             |
|---------------------------|---------------------|-----------------------------|----------------------------------|-----------------------------|
|                           |                     |                             | elektr. na<br>premog,<br>/na kWh | elektr. na plin,<br>/na kWh |
| 30 EUR                    | +15 EUR             | +0,07 EUR                   | +0,03 EUR                        | +0,009 EUR                  |
| 50 EUR                    | +25 EUR             | +0,12 EUR                   | +0,05 EUR                        | +0,015 EUR                  |
| 80 EUR                    | +40 EUR             | +0,19 EUR                   | +0,08 EUR                        | +0,024 EUR                  |

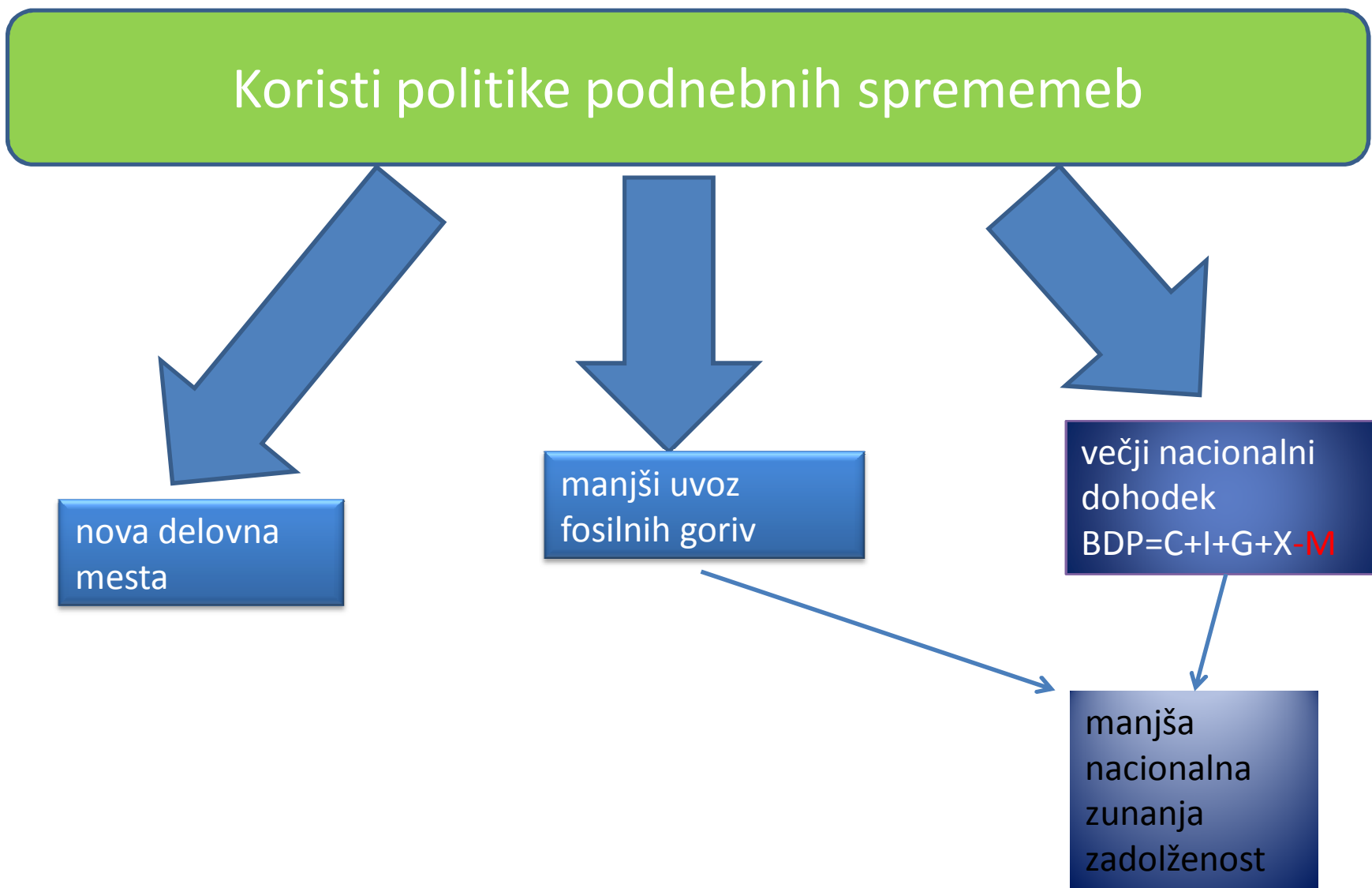
# Koristi politike podnebnih sprememb

nova delovna mesta

manjši uvoz fosilnih goriv

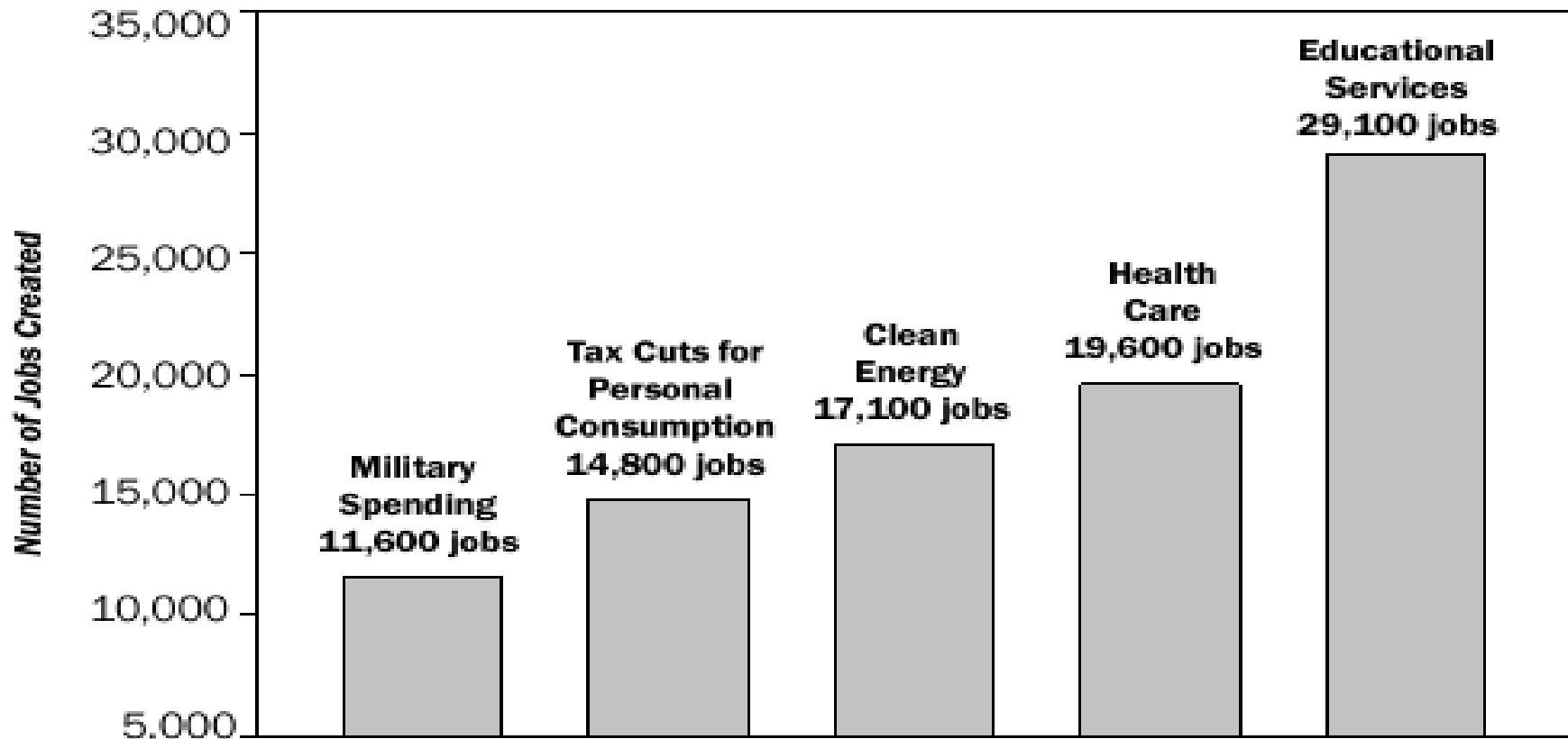
večji nacionalni dohodek  
 $BDP=C+I+G+X-M$

manjša nacionalna zunanja zadolženost



Spending \$1 billion on personal consumption, clean energy, health care, and education will each create significantly more jobs within the U.S. economy than would the same \$1 billion spent on the military.

**Figure 1.**  
**Job Creation in the U.S. through \$1 Billion in Spending**



Note: Employment estimates include direct, indirect, and induced jobs.

Naložbe v OVE in URE ustvarijo **2-4 krat več delovnih mest** kakor primerljive naložbe v oskrbo z energijo

Strošek proizvodnje 1 kWh = **2** x strošek za prihranek 1 kWh

2000 delovnih mest za vsak 1 mio toe prihranjene energije

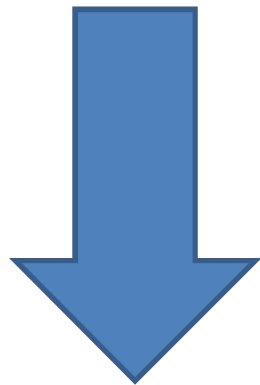
Vir: Zelena knjiga o energetske učinkovitosti, 2005, in A Climate for Recovery, HSBC Global Research, 2009.



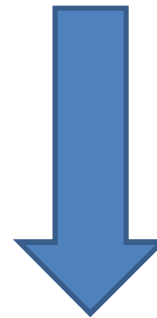
S povečanjem energetske učinkovitosti povprečno gospodinjstvo v EU lahko privarčujevalo na leto **med 200 in 1000 evrov** (Zelena knjiga ..., 2005).

Učinkovita raba  
energije

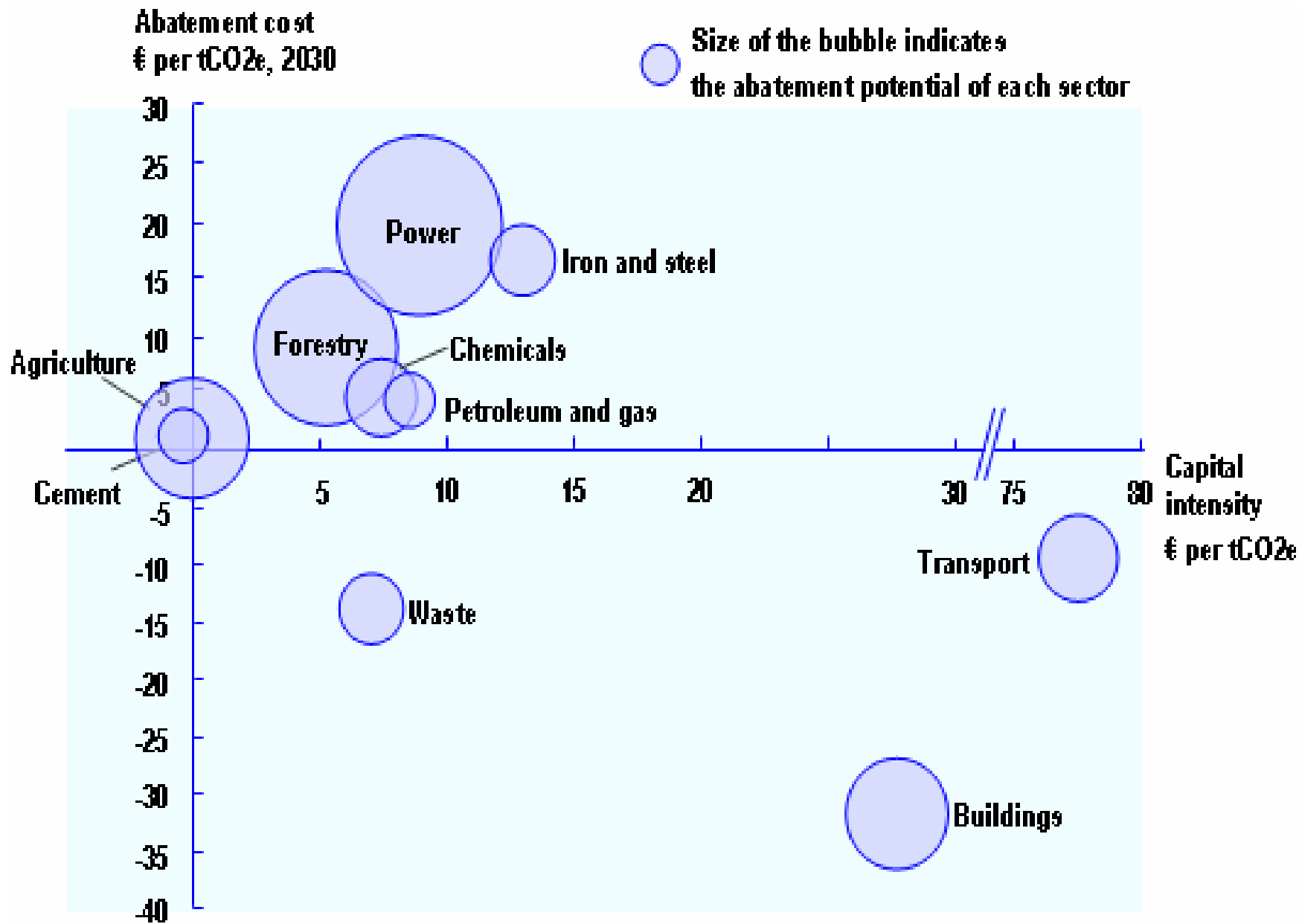
učinek naložb



učinek finančnih  
prihrankov

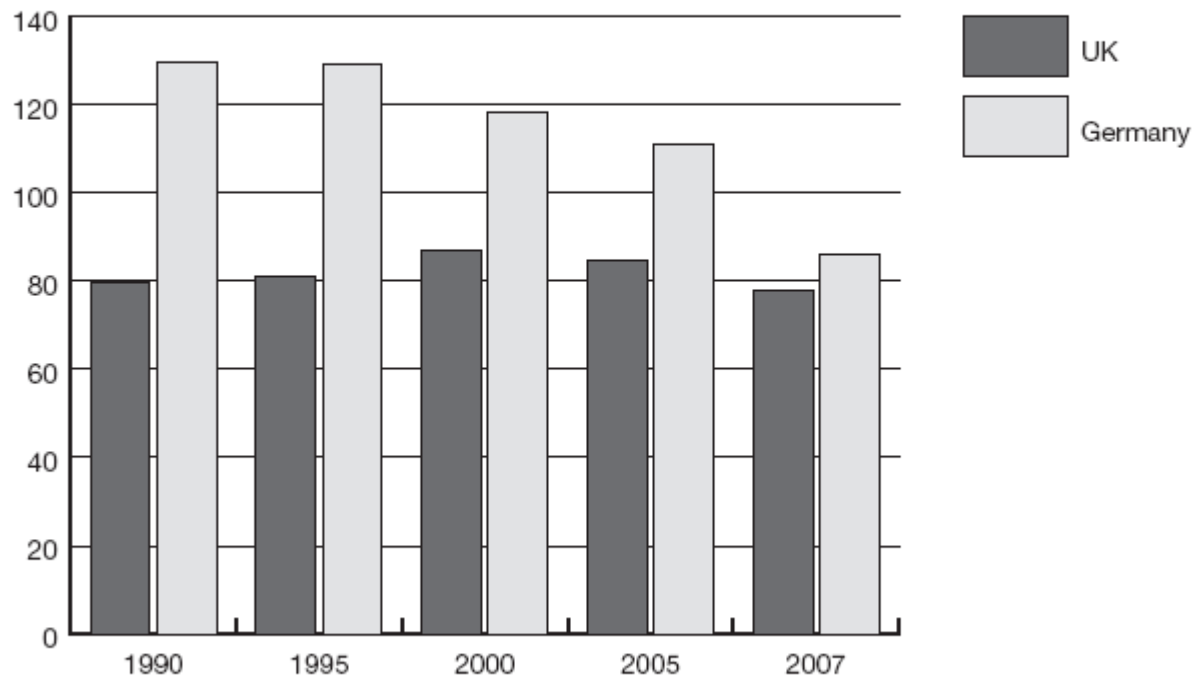


**zaposlenost**



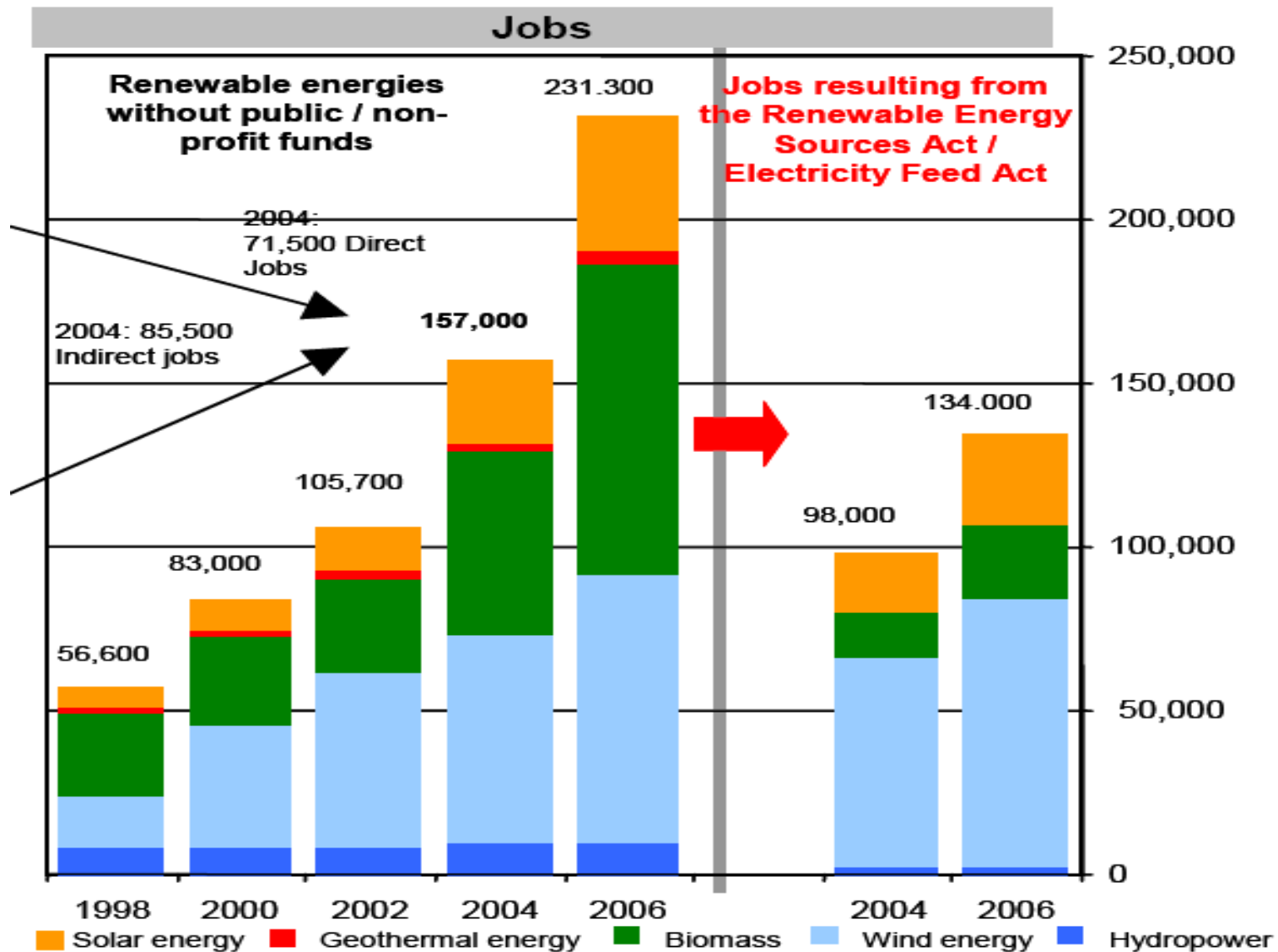
Support for energy-efficient construction and re-development is a special activity of the state-owned bank Kreditanstalt für Wiederaufbau (KfW). An investment of €29 billion was stimulated in 2007 creating or maintaining 480,000 jobs. The average energy saving was about 50% (KfW 2008).

**Figure 1.4**  
**CO<sub>2</sub> emissions (Mt) from the residential sector in UK and Germany 1990–2007**



Source: Ziesing 2009, DEFRA 2009

Berlin, 15.03.2009: **Renewable energies create jobs and economic growth:**  
 renewables sector achieved turnover of around 30 billion euro in 2008 and  
 secured almost 280,000 jobs



## Slovenija: neto uvoz energije

|       | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009<br>ocena |
|-------|------|------|------|------|------|------|------|------|------|---------------|
| % BDP | 4,3  | 3,6  | 2,8  | 3,1  | 3,5  | 4,8  | 5,1  | 4,8  | 6,3  | 3,9           |

# Koristi politike podnebnih sprememb

nova delovna mesta

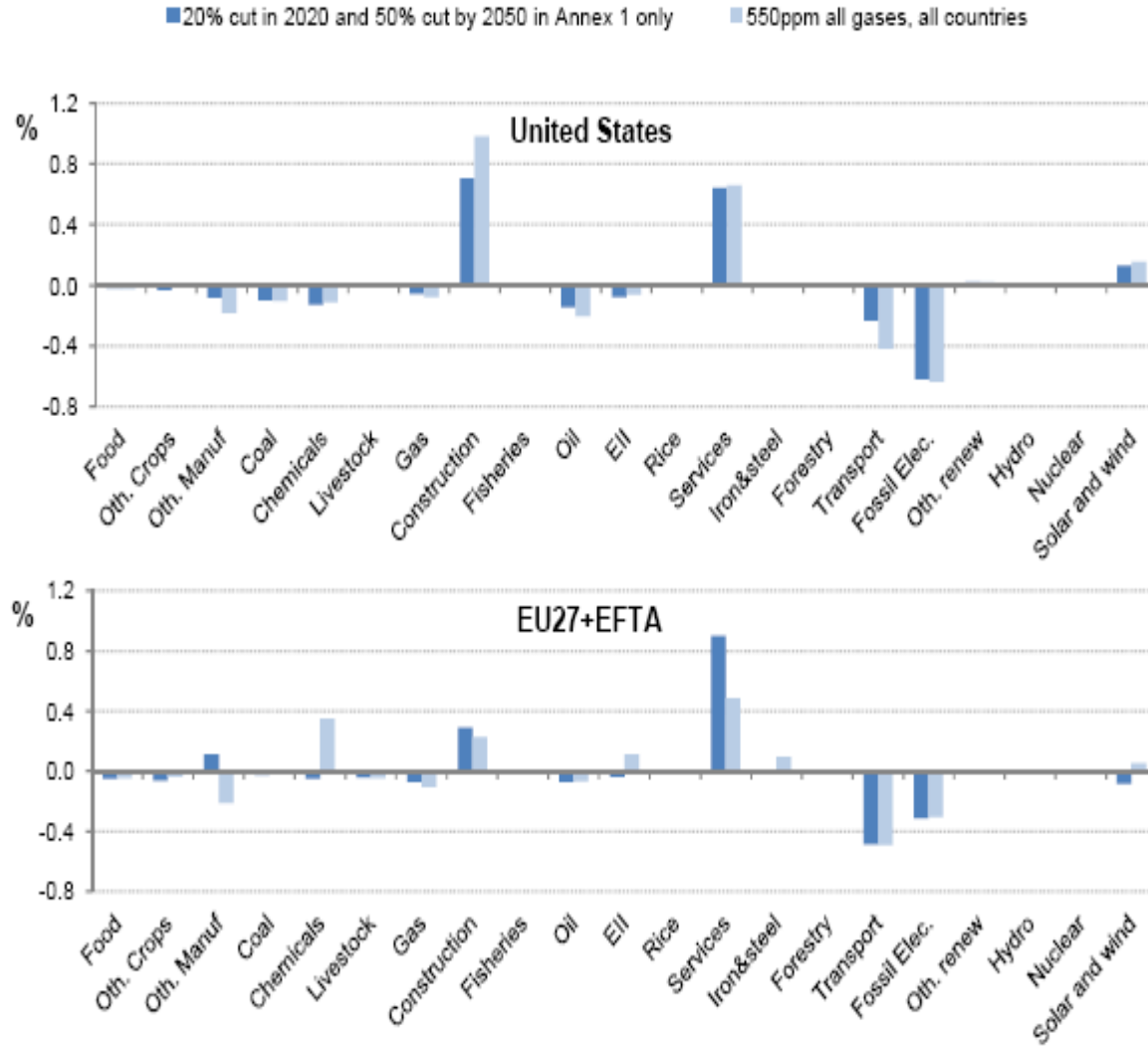
manjši uvoz fosilnih goriv

večji nacionalni dohodek

manjša nacionalna zunanja zadolženost

Figure 9. Impact of emission reductions on sectoral composition of total production

(Difference in the output share of each sector relative to the business-as-usual scenario in 2050)





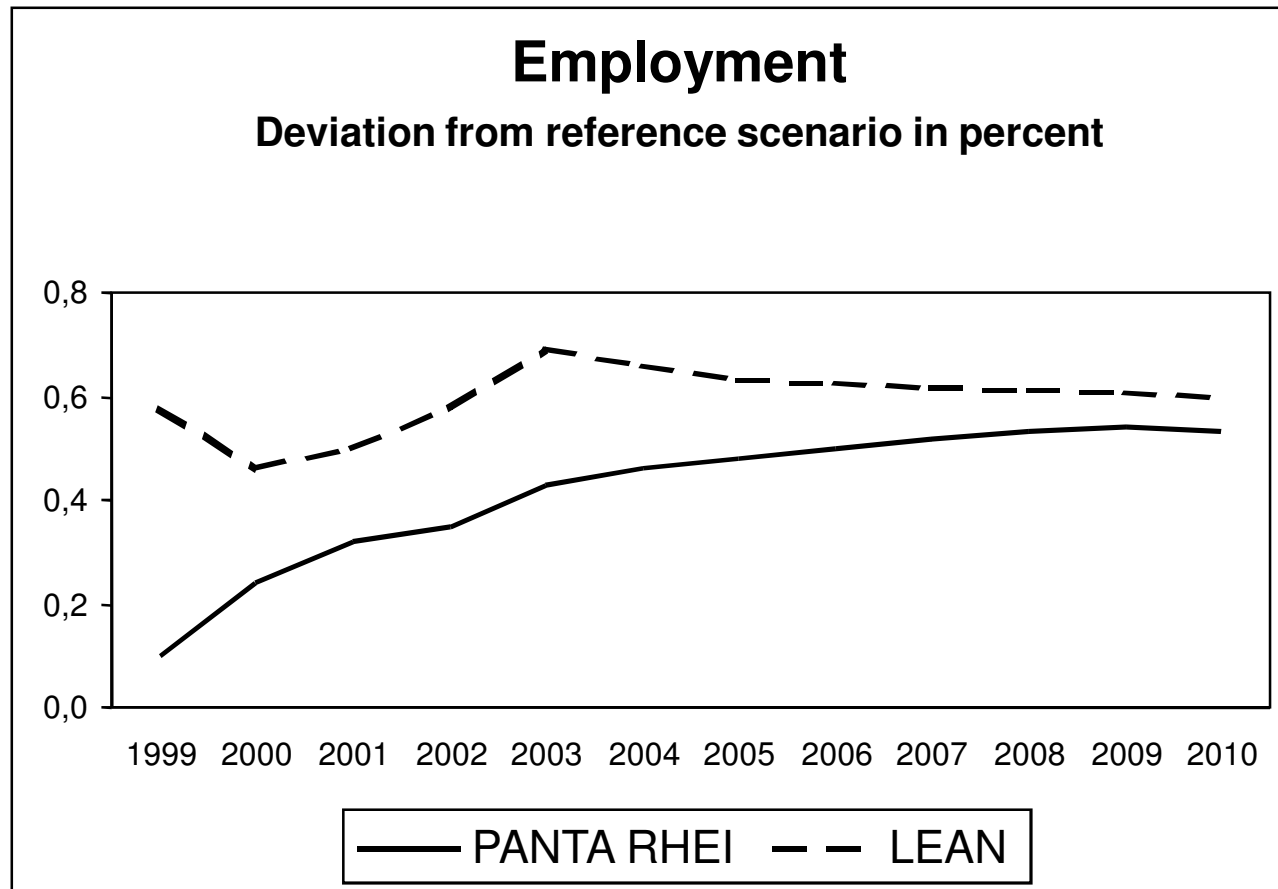
*Stern Review* (Stern, 2007) stroške potrebnih vlaganj v nizkoogljične tehnologije ocenjuje na **1 % BDP** do leta 2050.

Ob odsotnosti blaženja podnebnih sprememb pa ocenjuje, da bodo stroški v prihodnosti, tako ekonomski kakor t. i. netržni (vplivi na naravno okolje, zdravje ljudi..), lahko dosegli od 5 do 20 % svetovne porabe.

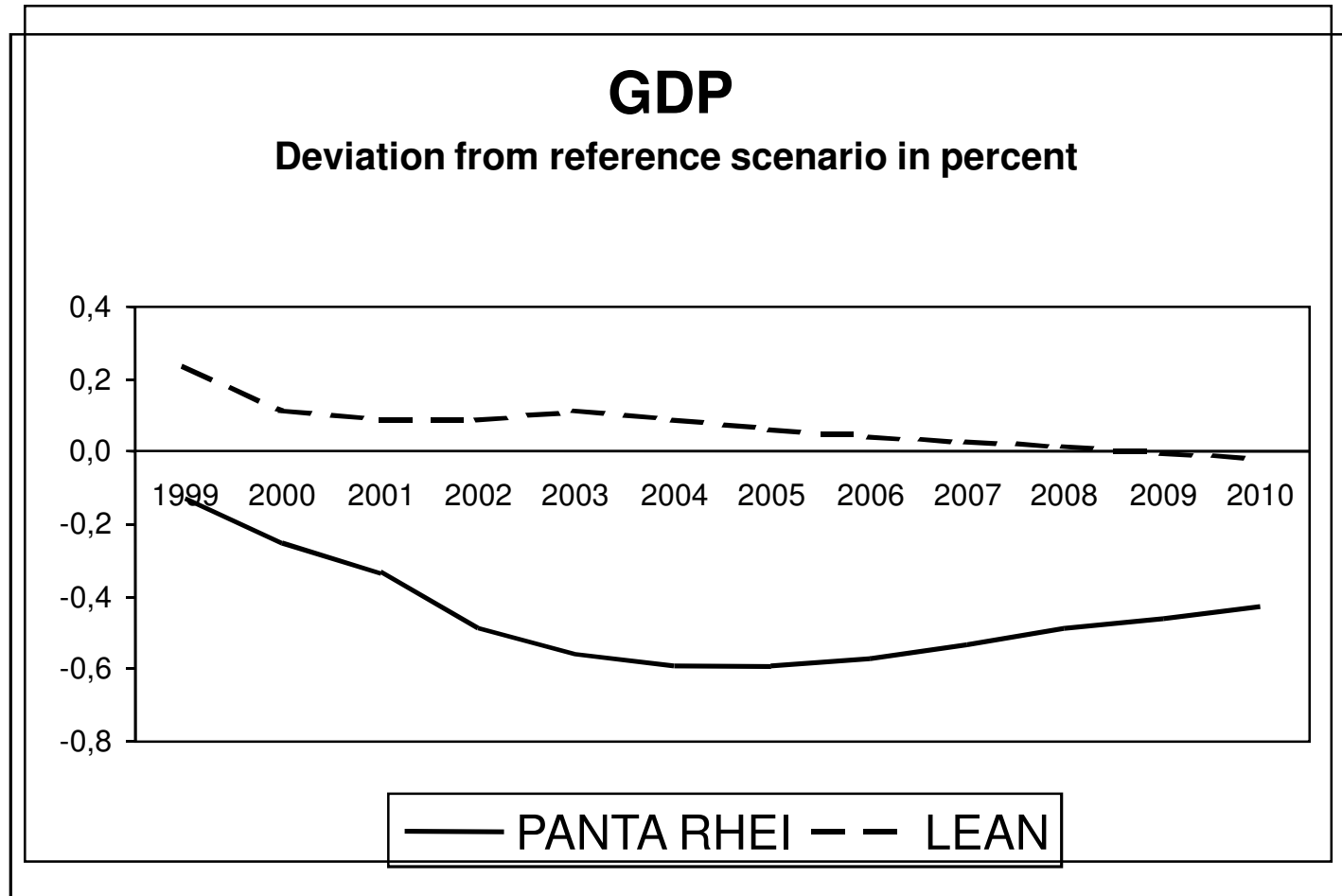
**-0,5 - +4 % BDP**

# Zelena davčna reforma

Slightly increasing employment

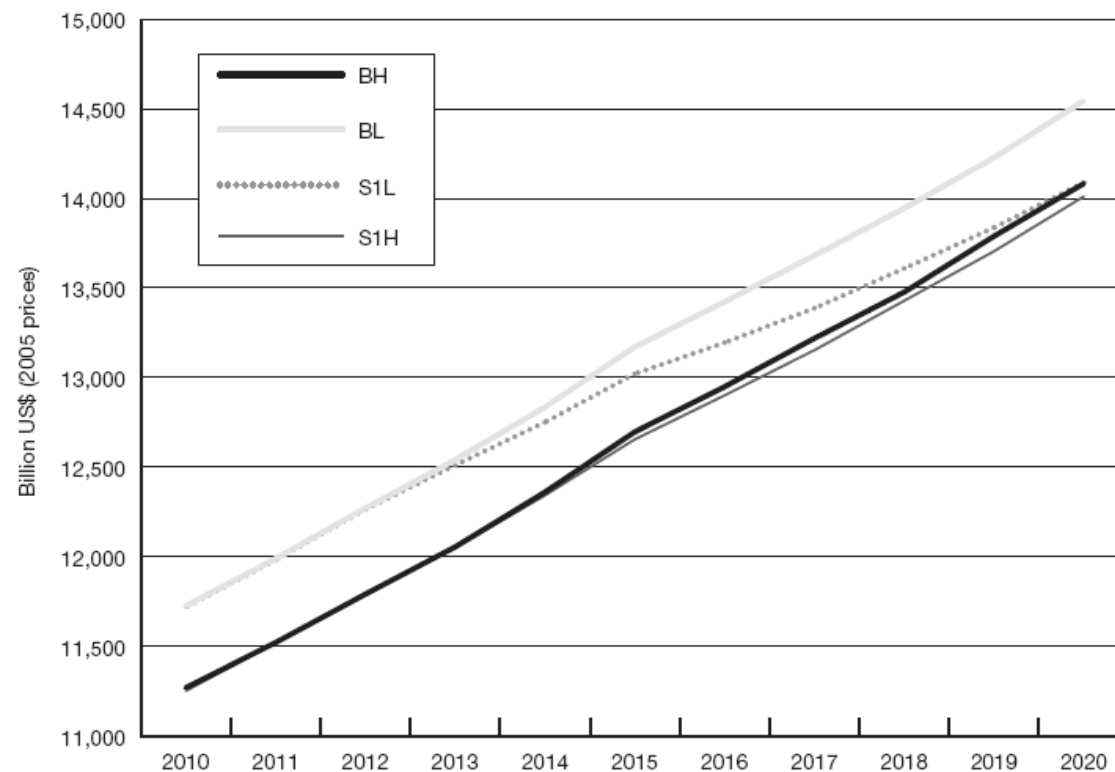


## Little impact on economic growth



nižja cena energije →  
večji učinek CO<sub>2</sub> dajatve

Figure 2.6  
GDP of EU-27 in different scenarios, GINFORS



**Table 2.2****Main results from the different scenarios, GINFORS**

|          | Target<br>in 2020 | CO <sub>2</sub> price | GDP                       |      | Employment                   | CO <sub>2</sub> reduction |                              |
|----------|-------------------|-----------------------|---------------------------|------|------------------------------|---------------------------|------------------------------|
|          |                   | Euro2008/t            | % change<br>from baseline |      | % change<br>from<br>baseline | % change<br>from<br>1990  | % change<br>from<br>baseline |
| Scenario | in year           | 2020                  | 2015                      | 2020 | 2020                         | 2020                      | 2020                         |
| BH       |                   | 18                    |                           |      |                              | -7.2                      | 0.0                          |
| S1H      | 20% GHG           | 68                    | -0.2                      | -0.6 | 0.36                         | -15.1                     | -8.4                         |
| S2H      | 20% GHG           | 61                    | -0.1                      | -0.3 | 0.41                         | -15.2                     | -8.5                         |
| S3H      | 30% GHG           | 184                   | -1.2                      | -1.9 | 0.77                         | -25.0                     | -19.1                        |
| BL       |                   | 18                    |                           |      |                              | 2.8                       | 10.9                         |
| S1L      | 20% GHG           | 120                   | -1.2                      | -3.0 | 0.02                         | -14.9                     | -17.2                        |

Višja cena CO<sub>2</sub> →  
večji padec BDP, večja zaposlenost

**Table 2.2**  
**Main results from the different scenarios, GINFORS**

| Scenario | Target<br>in 2020<br>in year | CO <sub>2</sub> price | GDP                       |      | Employment                   | CO <sub>2</sub> reduction |                              |
|----------|------------------------------|-----------------------|---------------------------|------|------------------------------|---------------------------|------------------------------|
|          |                              | Euro2008/t            | % change<br>from baseline |      | % change<br>from<br>baseline | % change<br>from<br>1990  | % change<br>from<br>baseline |
|          |                              | 2020                  | 2015                      | 2020 | 2020                         | 2020                      | 2020                         |
| BH       |                              | 18                    |                           |      |                              | -7.2                      | 0.0                          |
| S1H      | 20% GHG                      | 68                    | -0.2                      | -0.6 | 0.36                         | -15.1                     | -8.4                         |
| S2H      | 20% GHG                      | 61                    | -0.1                      | -0.3 | 0.41                         | -15.2                     | -8.5                         |
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| BL       |                              | 18                    |                           |      |                              | 2.8                       | 10.9                         |
| S1L      | 20% GHG                      | 120                   | -1.2                      | -3.0 | 0.02                         | -14.9                     | -17.2                        |

Višje cene energije  višje plače

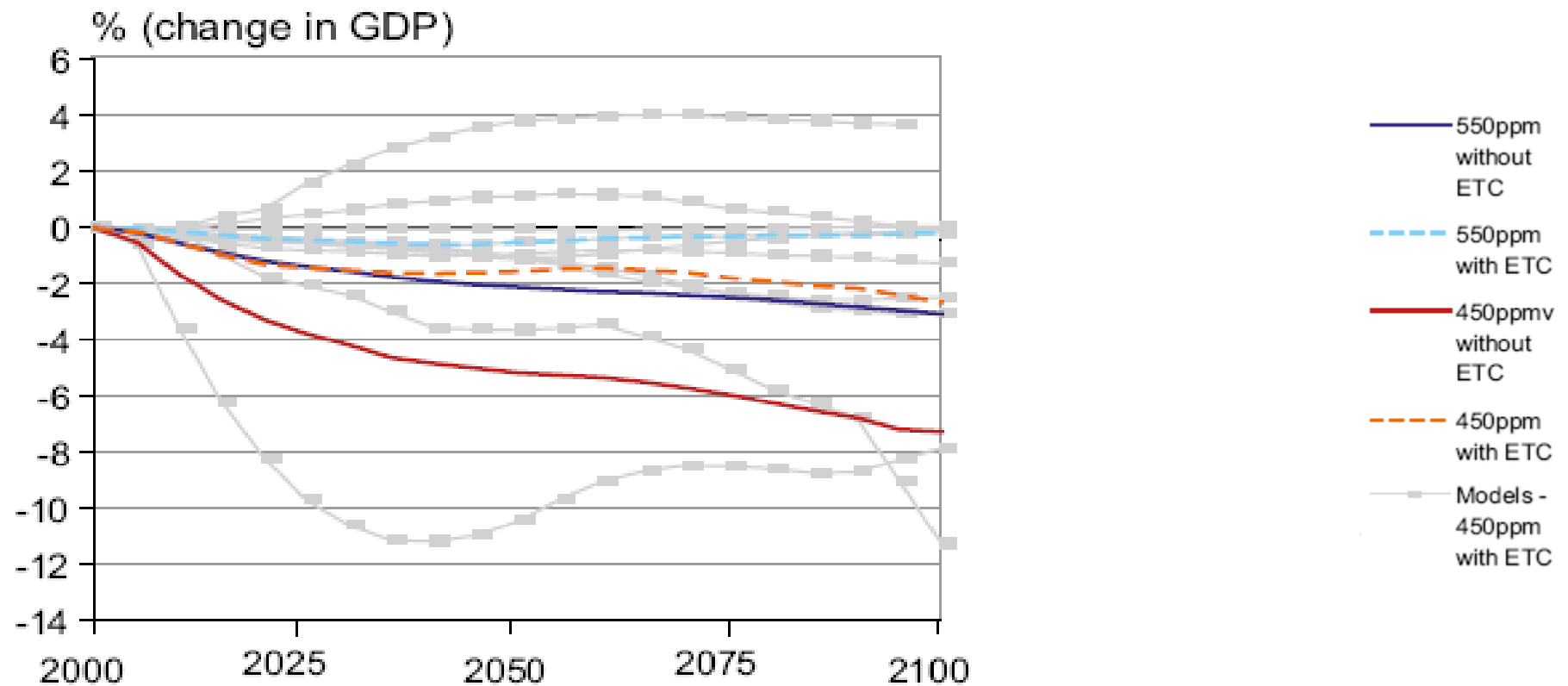
- E3ME : večji izvoz (nove tehnologije), večje povpraševanje
- GINFORS: manjša konkurenčnost

**Table 2.4**

**Simulation results for central macroeconomic variables of E3ME and GINFORS for EU27 in 2020 (percentage deviations from the respective baselines)**

| Scenario   | CO <sub>2</sub> price | GDP                    | Employment             | Labour productivity    |
|------------|-----------------------|------------------------|------------------------|------------------------|
|            | Euro2008/t            | % change from baseline | % change from baseline | % change from baseline |
| <b>S1L</b> |                       |                        |                        |                        |
| E3ME       | 142                   | 0.6                    | 2.2                    | -1.6                   |
| GINFORS    | 120                   | -3.0                   | 0.0                    | -3.0                   |
| <b>S1H</b> |                       |                        |                        |                        |
| E3ME       | 59                    | 0.2                    | 1.1                    | -0.9                   |
| GINFORS    | 68                    | -0.6                   | 0.4                    | -1.0                   |
| <b>S2H</b> |                       |                        |                        |                        |
| E3ME       | 53                    | 0.8                    | 1.1                    | -0.3                   |
| GINFORS    | 61                    | -0.3                   | 0.4                    | -0.7                   |
| <b>S3H</b> |                       |                        |                        |                        |
| E3ME       | 204                   | 0.5                    | 2.7                    | -2.1                   |
| GINFORS    | 184                   | -1.9                   | 0.8                    | -2.6                   |

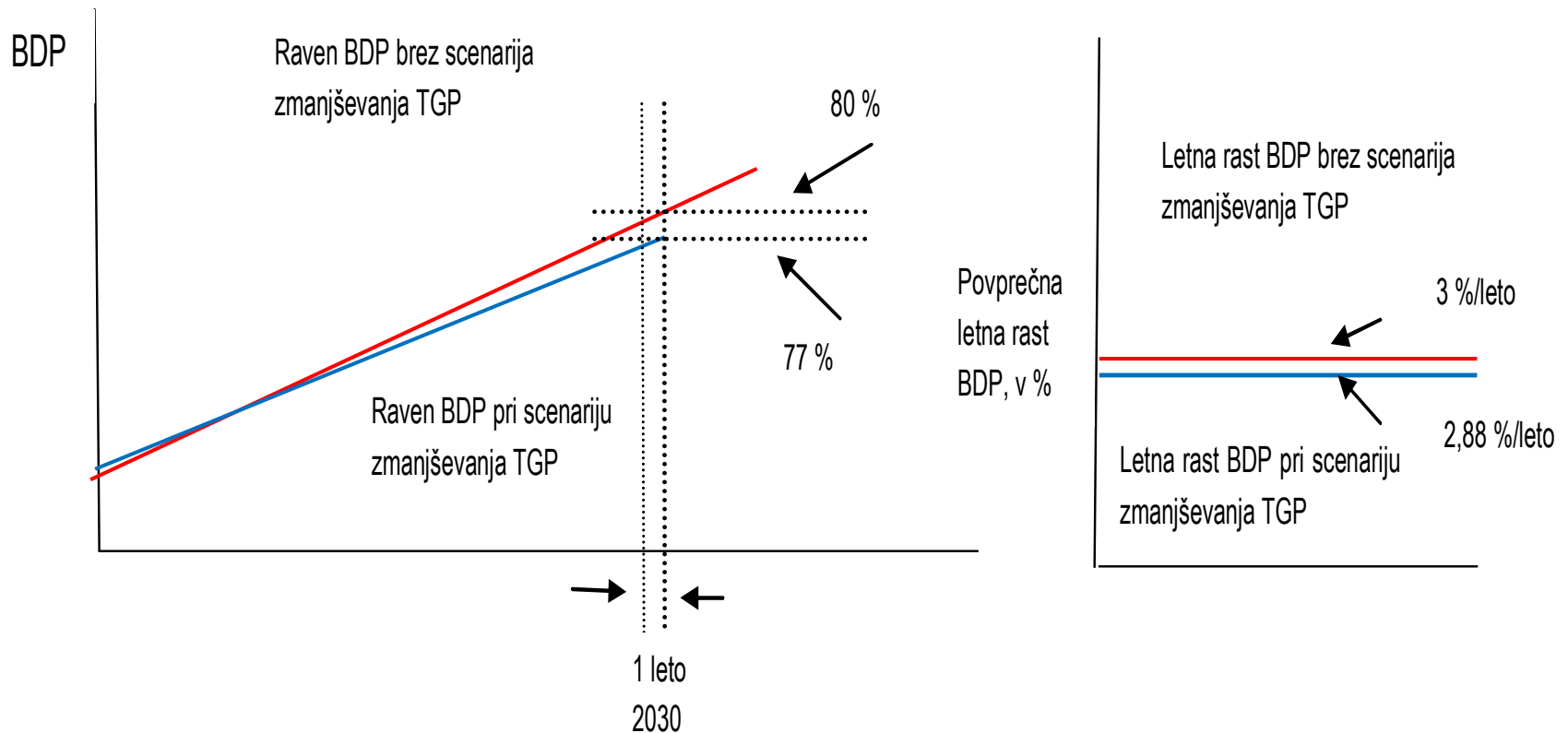
### (c) Averaged effects of including ETC on GDP on GDP



**Figure 11.9:** Averaged effects of including ETC on carbon tax rates, CO<sub>2</sub> emissions and GDP: 9 global models 2000–2100 for the 450 ppm and 550 ppm CO<sub>2</sub>-only stabilization scenarios

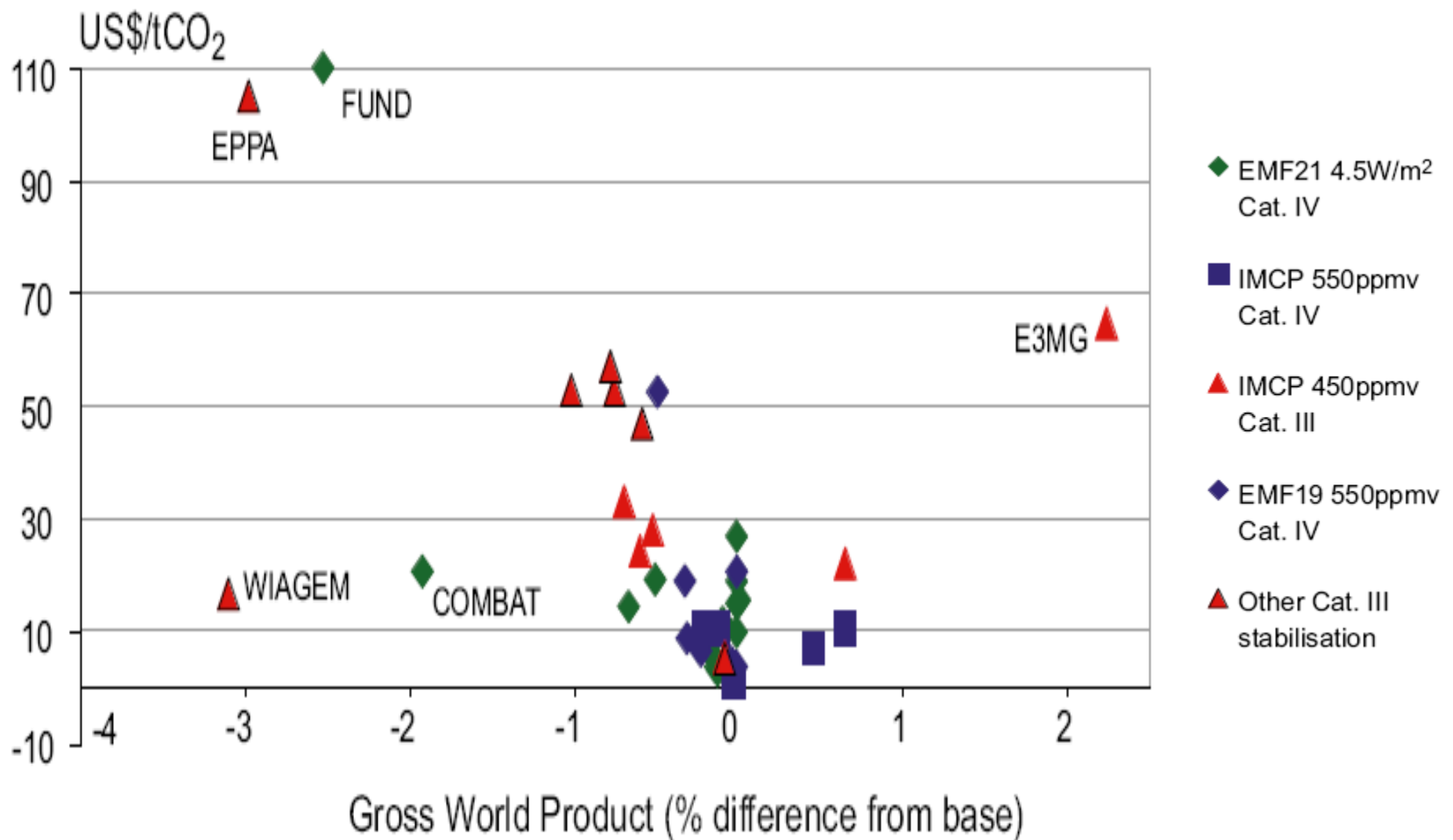


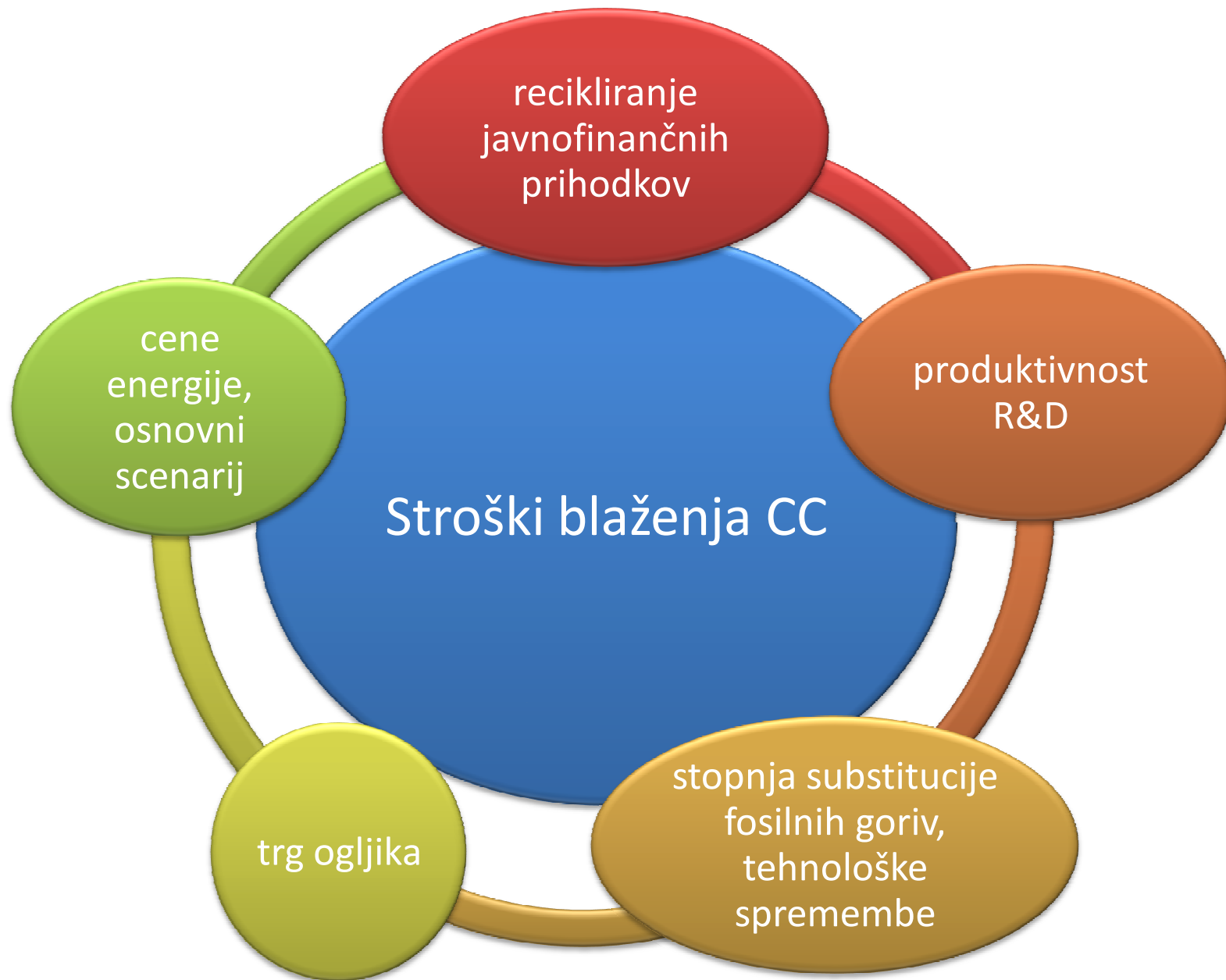
# Stroški blaženja podnebnih sprememb



Vir: IPCC, 2007

(c) Carbon Prices and Gross World Product, 2030







# Costs

- Lead scenario 2008; path A -

