



Ecological Tax Reform in Germany Economic Impacts

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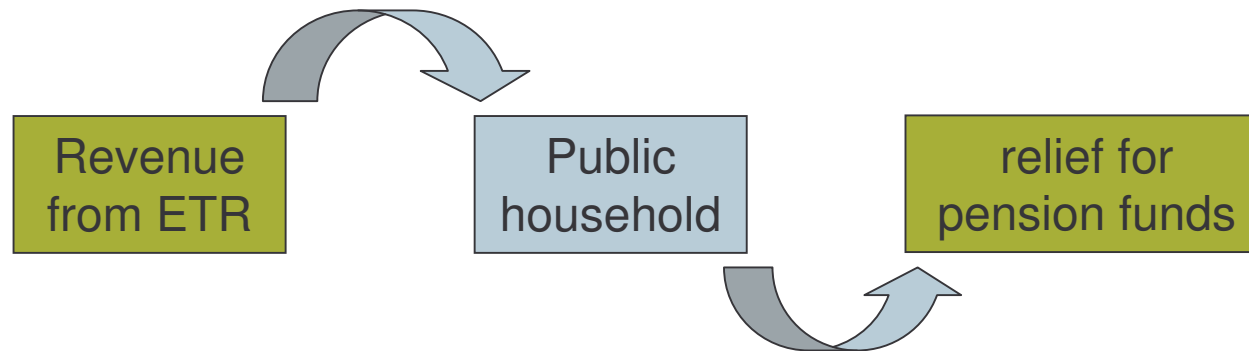
Labour market implications

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The double dividend - principle of ETR

- The German ETR is based on the principle of the double dividend,



- it creates a steering effect towards a low-carbon economy
- „tax bads – not goods“;



Impacts of the German ETR – information basis

- **Ecologic and DIW have assessed the impacts of the German ETR for the German environment agency in 2005,**
- **This project was based on earlier work of DIW;**

Assessment methods:

- **Ex-ante simulations using macro- and microeconomic models,**
- **expert interviews,**
- **indicator based research;**



Revenue and spendings

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005* | 2006* | 2007* | 2008* |
|----------------------------------------------------------------------------------|-----------------------------------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Additional revenue from excises on fuels and electricity, in billion Euro | 4,3 | 8,8 | 11,8 | 14,3 | 18,7 | 18,1 | 18,0 | 18,4 | 18,7 | 18,8 |
| <i>as % of GDP</i> | <i>0,2</i> | <i>0,4</i> | <i>0,6</i> | <i>0,7</i> | <i>0,9</i> | <i>0,8</i> | <i>0,8</i> | <i>0,8</i> | <i>0,8</i> | <i>0,8</i> |
| Binding use of resources, in billion Euro | 4,6 | 8,5 | 11,4 | 13,9 | 16,6 | 16,5 | 16,5 | 16,2 | 16,1 | 16,4 |
| <i>as % of GDP</i> | <i>0,2</i> | <i>0,4</i> | <i>0,5</i> | <i>0,6</i> | <i>0,8</i> | <i>0,7</i> | <i>0,7</i> | <i>0,7</i> | <i>0,7</i> | <i>0,7</i> |
| Thereof: | | | | | | | | | | |
| Transfer to the public pension system | 4,5 | 8,4 | 11,2 | 13,7 | 16,1 | 16,0 | 15,9 | 15,6 | 15,5 | 15,8 |
| Support programme renewable energy | 0,1 | 0,1 | 0,2 | 0,2 | 0,1 | 0,1 | 0,2 | 0,2 | 0,2 | 0,2 |
| Other | - | - | - | - | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 |
| Balance in billion Euro | - 0,3 | 0,3 | 0,4 | 0,4 | 2,1 | 1,6 | 1,5 | 2,2 | 2,6 | 2,4 |
| | percentage points of taxable gross wage | | | | | | | | | |
| Calculative reduction of contribution rate public pension system | 0,6 | 1,0 | 1,3 | 1,5 | 1,7 | 1,7 | 1,7 | 1,7 | 1,7 | 1,7 |
| For information: contribution rate public pension system | 19,7 | 19,3 | 19,1 | 19,1 | 19,5 | 19,5 | 19,5 | 19,5 | 19,9 | 19,9 |
| * Forecast. | | | | | | | | | | |
| Source: Bundesfinanzministerium, December 2005. | | | | | | | | | | |



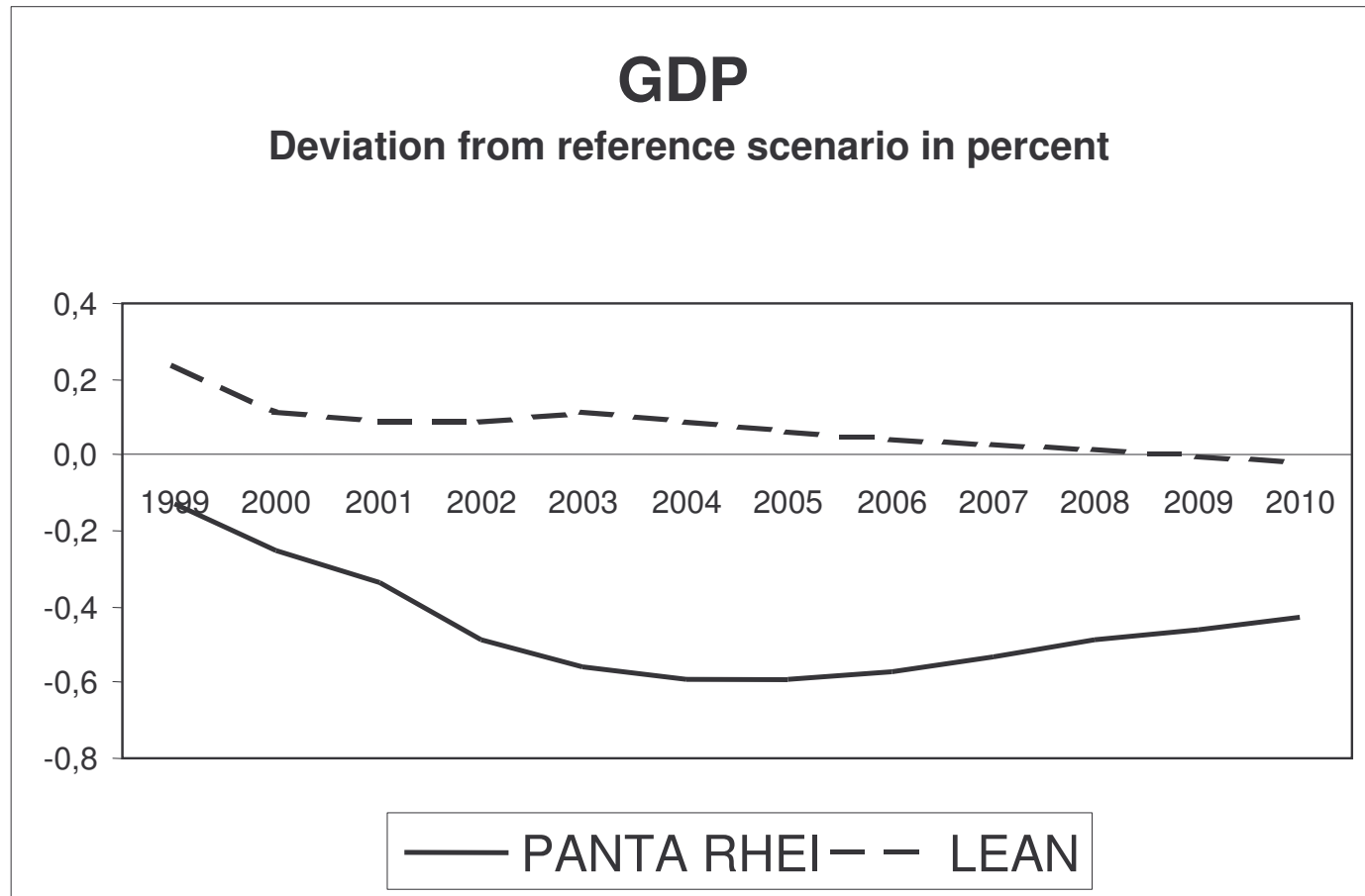
Impacts on GDP – isolated view

Impact on GDP is influenced through several channels:

- **Private consumption profits from reduction in pension fund contributions of employees,**
- **Reduction in pension fund contributions sets incentives for higher employment which creates new demand,**
- **Public spending increases as smaller fraction of public budgets are used for labour costs,**
- **Investment increases in the short run as higher energy costs triggers investment in energy saving technologies,**
- **Steering effect of ETR leads to reduced energy demand and reduced business volume of energy suppliers,**
- **Tank tourism leads to lower income from mineral oil tax.**



Impact on GDP – total impact



Source:
DIW (2005)



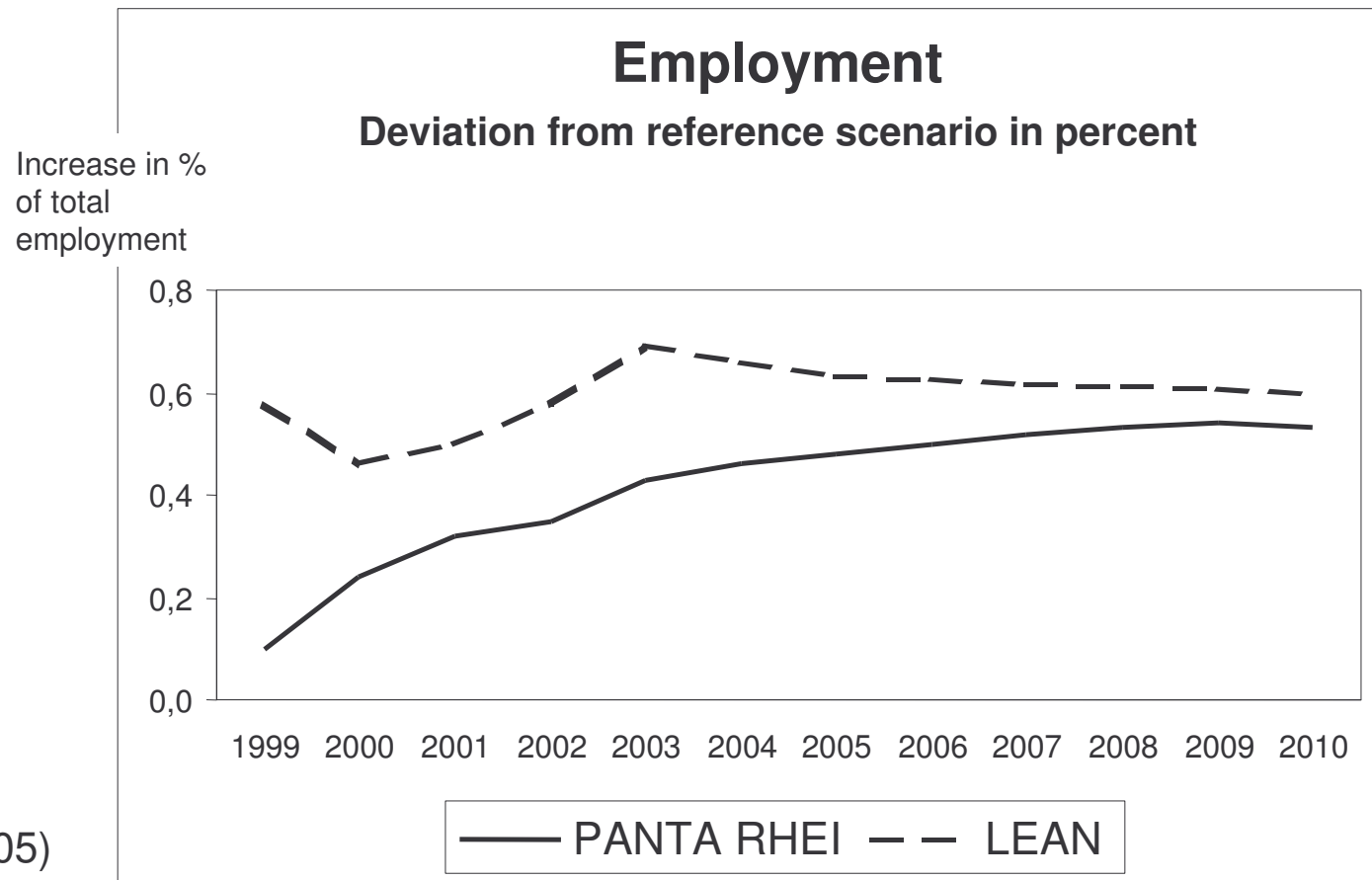
Impacts on employment

Employment is positively influenced through 2 channels:

- **New jobs through higher demand**
 - **Investment in energy-saving technologies leads to higher demand for these products,**
 - **Services that lead to energy-savings (e.g. Contracting) see higher demand;**
 - **New jobs through lower ancillary wage costs:**
 - **Decrease in pensions funds contributions makes labour comparatively cheaper,**
 - **Substitution of capital through labour;**
- Total impact: up to 250.000 new jobs are created;**



Impacts on employment





Distributional impact

- **Distributional impacts arise through the differences in energy-intensity and importance of labour within production processes,**
- **They are re-enforced through the design of the ETR:**
 - **special provisions for energy-intensive industry: net-burden compensation for energy-intensive industries gives the ETR an additional regressive component,**
 - **Exemptions for energy-efficient technologies and renewable energies create an additional advantage for these sectors,**
 - **Some sectors face net an additional burden while others are net winners;**



Sectoral impacts

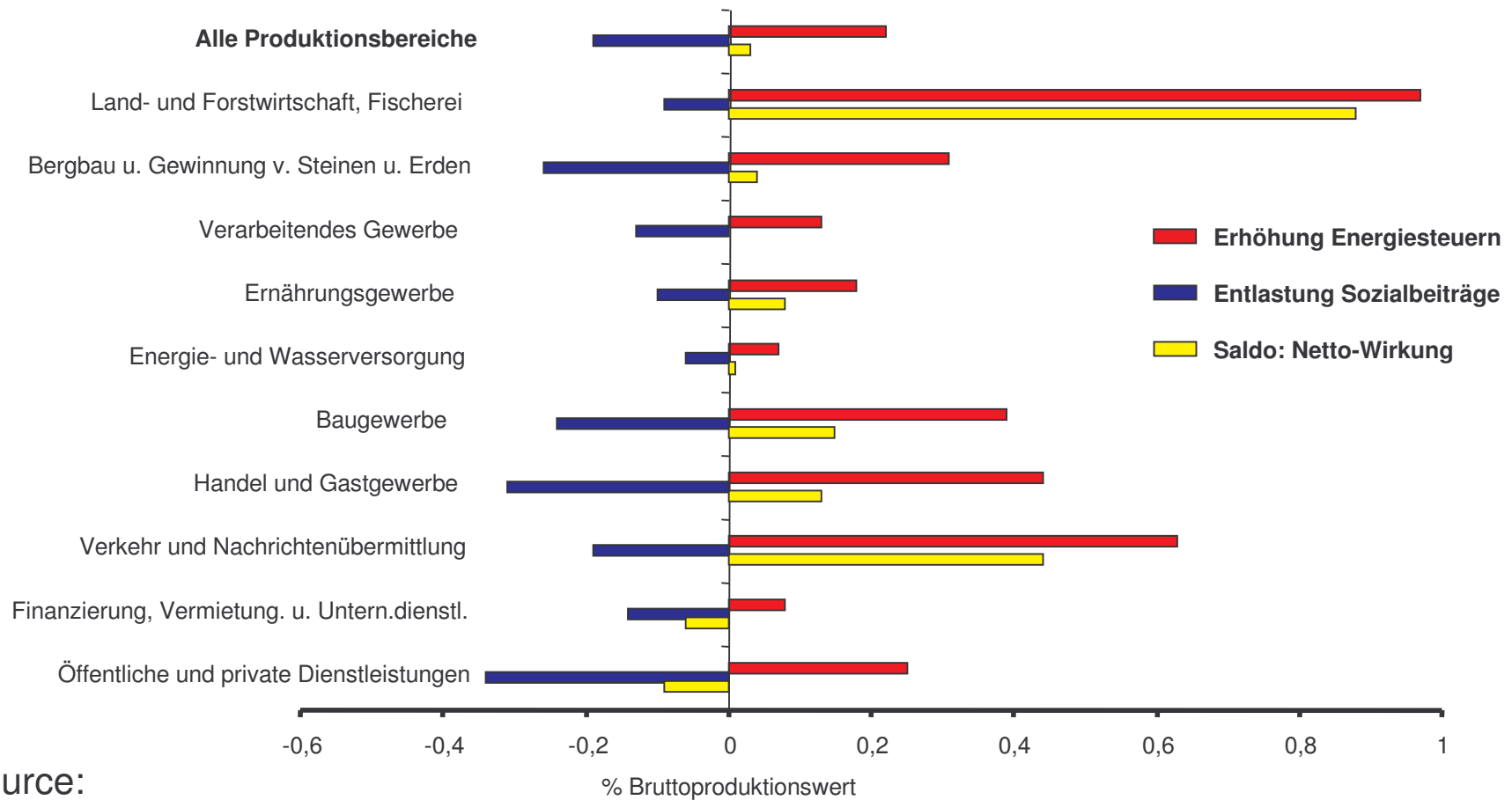
Sectoral effects of the ETR in 2003

%-change in comparison to reference scenario

| | Specific energy costs | Production | Employment | Emissions |
|-------------------------|-----------------------|------------|------------|-----------|
| Agriculture | 9.93 | -0.40 | 0.29 | -7.60 |
| Energy sector | 0.5 | -2.31 | -2.92 | -3.99 |
| Chemical sector | 0.31 | -0.11 | 0.02 | 0.44 |
| Investment goods | 8.64 | 0.18 | 0.33 | -1.15 |
| Consumer goods | 1.81 | 0.11 | 0.22 | -0.38 |
| Construction | 15.00 | 0.52 | 0.88 | -6.74 |
| Transport | 16.23 | 0.02 | 0.94 | -7.54 |
| Service sector | 14.49 | 0.43 | 1.40 | -5.04 |
| Public sector | 14.07 | 0.62 | 0.78 | -4.49 |

Source:
DIW (2005)

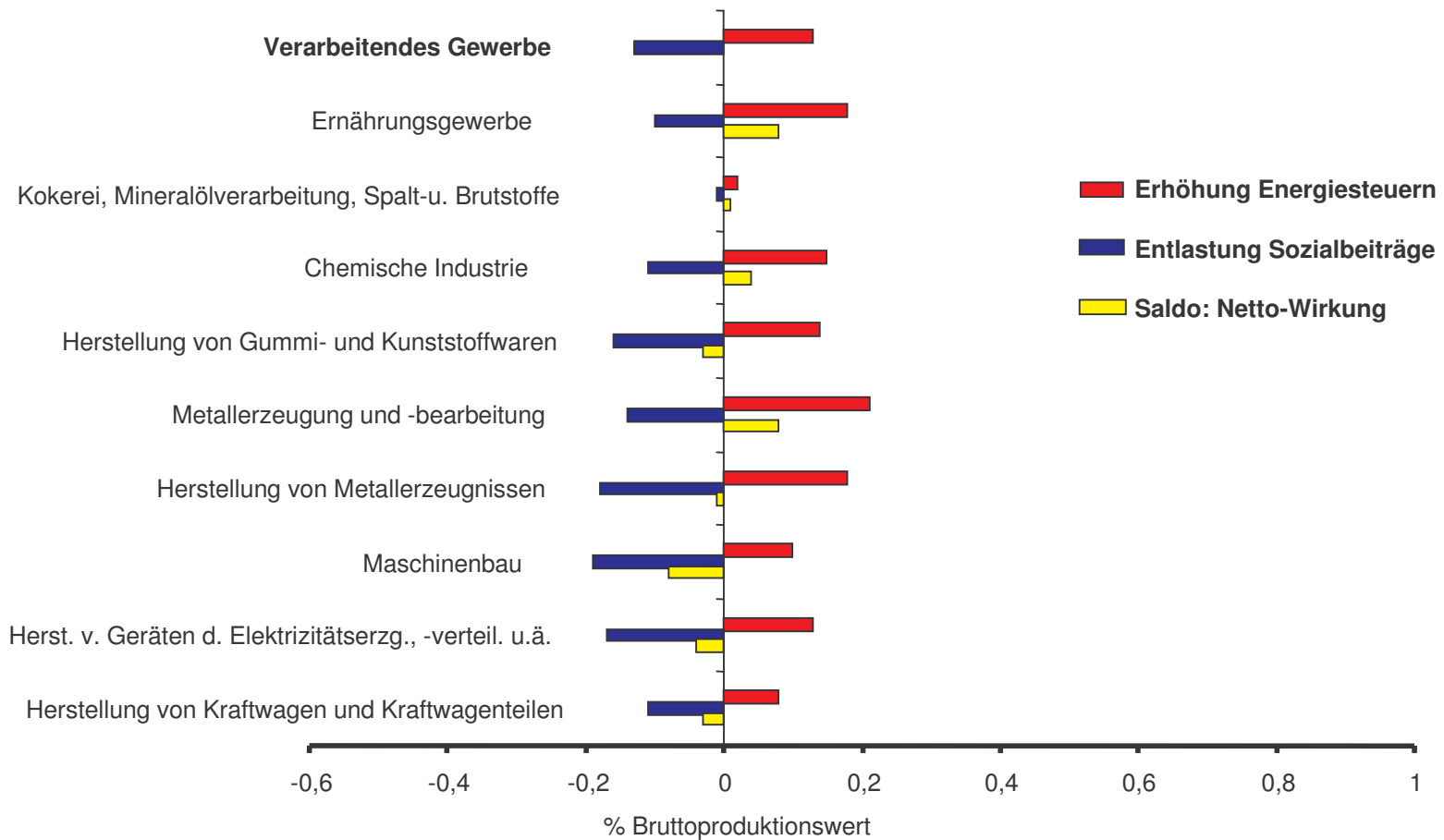
Distributional impacts – impact on production



Source:
DIW (2005)



Distributional impacts – production sector



Source:
DIW (2005)



Distributional impacts – private households

- **Eco taxes: Slight regressive burden in relation to income**
- **Higher net income for employees due to reduced social security contributions and rising employment**
- **No direct compensation for self-employed, civil servants, long-term unemployed, pensioners**
- **Higher motor fuel taxes hit commuters**
- **Negative distributional impact could be compensated via transfers or tax allowances**
 - e.g. heating costs credit for welfare recipients, income tax relief on commuting costs



Impact on selected businesses- positive ex.

Making energy consumption transparent – Dezem GmbH:

- **Dezem developed a new service concept in order to make energy consumption transparent,**
- **Special „energy sensors“ measure the energy consumption of a company, division or a single person,**
- **This increases sensibility of employees for their behaviour,**
- **Dezem has helped companies to reduce their energy consumption by 20 to 50%;**



Impact on selected businesses – positive ex.

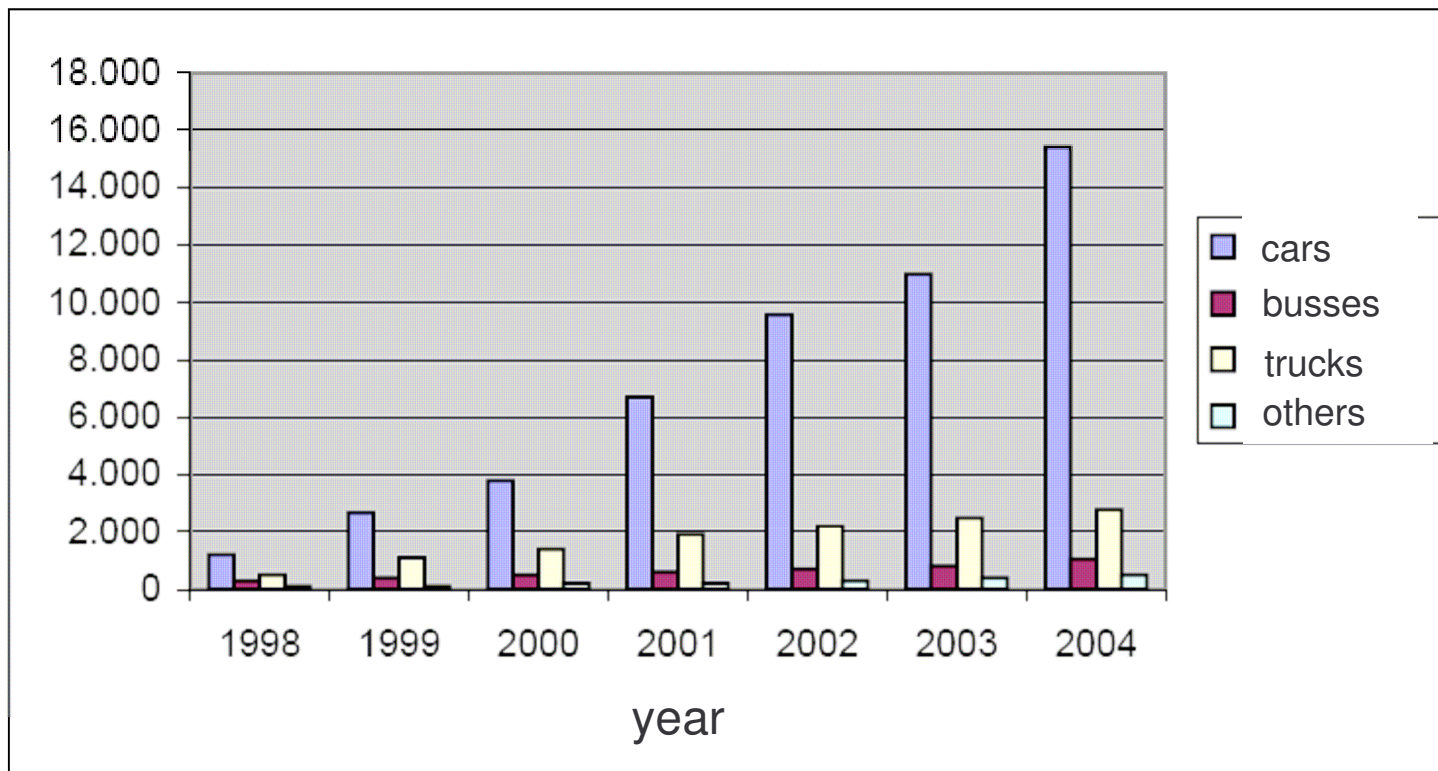
Supporting the use of natural gas vehicles - GASAG:

- **GASAS, Berlin's gas supplier, has invested in fuels stations that supply natural gas in Berlin,**
- **Due to expected increase in the use of natural gas vehicles, this investment will soon bring new revenue for GASAG;**



Impact on selected businesses – positive ex.

Background: Increase of natural gas vehicles in Germany





Impact on selected businesses – positive ex.

Making production processes more energy-efficient -

Schering:

- **self-supply in most installations,**
- **Energy is produced in efficient CHP installations,**
- **With a Contractor, inefficient energy use in buildings has been identified → energy savings of up to 600.000 €/year,**
- **New production installations and electrical appliances are chosen according to their energy needs,**



Preventing negative impacts of ETR

Experience from other EU Member States:

- **Regressive character of ETR can be prevented through granting minimum energy supply for free (e.g. electricity in the Dutch Regulatory Energy Tax),**
- **impacts on competitiveness for specific sectors can be prevented through:**
 - **Special provisions (like in Germany),**
 - **„opt-out“ of ETR for specific sectors, contribution to climate change from these sectors is secured through voluntary agreements (e.g. in UK: climate change agreements, in DK: energy agreements),**



Conclusion: does the German ETR meet its objectives?

1) Double dividend:

- **The ETR has lead to a reduction of GHG-emissions,**
- **Has lead to an increase in employment.**
→ **double dividend has been achieved;**

2) Securing competitiveness of German industry:

- **Special provisions and exemptions have prevented a reduced competitiveness for German industry,**
- **Production is in fact higher in most sectors than in reference case,**
- **Constant growth rate could be secured;**



Conclusion: does the German ETR meet its objectives?

3) Managing distributional impacts:

- **ETR has a slightly regressive character with negative impacts on low-income households,**
- **Only small distributional impact within industry sectors;**
- **Within instrument mix, double burdens need to be prevented**

4) Setting incentives for creating a low-carbon economy

- **ETR has lead to a reduction in GHG-emissions,**
- **But: special provisions and exemptions - especially for energy-intensive industries – reduce the steering effect,
→ ETR will need to be further developed (see FÖS concept 2006)**



Further information on impacts of ETR

All studies of impacts of the German ETR can be found on Ecologic's website:

<http://www.ecologic.de/modules.php?name=News&file=article&sid=1156>

- **Modelling burdens and benefits of the ETR for different economic sectors (in German);**
- **Macro-economic analysis of the impact of the ETR (in German);**
- **Effects of the ETR on private households (in German);**
- **Effects of the ETR on selected businesses (in German);**
- **Impacts of the ETR on innovation and market diffusion (in German);**
- **Summary of the Final Report (in English)**

Thank you for listening.

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