

Evaluation and Monitoring for the EU Directive on Energy End-Use Efficiency and Energy Services

Conclusions on case studies : issues that need decisions

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Issues that need decisions

Following the case studies, the correction for autonomous trend and price effect has raised three main questions, for which decisions are needed:

1. For the market price correction, i.e. to measure the part of total energy saving that is due to market price increase, how to account for price effect?
2. For the assessment of savings linked to autonomous technological trend (transport modes, electrical appliances), how to define this historical autonomous trend?
3. For the assessment of savings linked to a non-technical trend, which reference trend to use?
 - ✓ Case of thermal uses or electricity uses in household, industry or services
 - ✓ Case of the penetration of an efficient technology (solar, cogeneration) or mode of transport (modal shift)

1. How to concretely account for price effects: open questions?

- **What value to be used for the price elasticity?**
 - ✓ National data if relevant (in most countries the values obtained from statistical regression have been found non significant)
 - ✓ Or **default values, the same for all countries** (with the objective of harmonisation)

- **For default values, what value to be used?**
 - ✓ **The EU average if meaningful; if not, expert judgement**
 - ✓ Average of countries with relevant elasticities (could give arbitrary results since it could be based on few and non-representative countries)
 - ✓ Expert judgement

Note: in red, our proposal

Note: the lower the elasticity the lower the correction, and the higher the ESD saving, since we propose asymmetric elasticities (i.e., if prices increase, baseline will be reduced; if prices decrease, no change in baseline); if elasticity is equal to 0, this means no correction for market prices; a low value will be favoured by Member States

Accounting for price effects: example of new gasoline cars in France

- **National price elasticity**
 - ✓ Equal to -0.10 1995-2005 period
 - ✓ Not validated by econometric tests on the 1995-2004 or 1992-2005 period

- **Default values for elasticities**
 - ✓ EU average price elasticity not meaningful
 - ✓ Average of countries with relevant elasticities : DK=-0.11, ES=-0.14 and FR=-0.10 => about **-0.12**

2. Which autonomous technological trend to use for the assessment of savings of vehicles and electrical appliances?

For energy savings, related to an equipment (e.g. refrigerators, cars), the autonomous energy efficiency progress is mainly an autonomous **technological** trend:

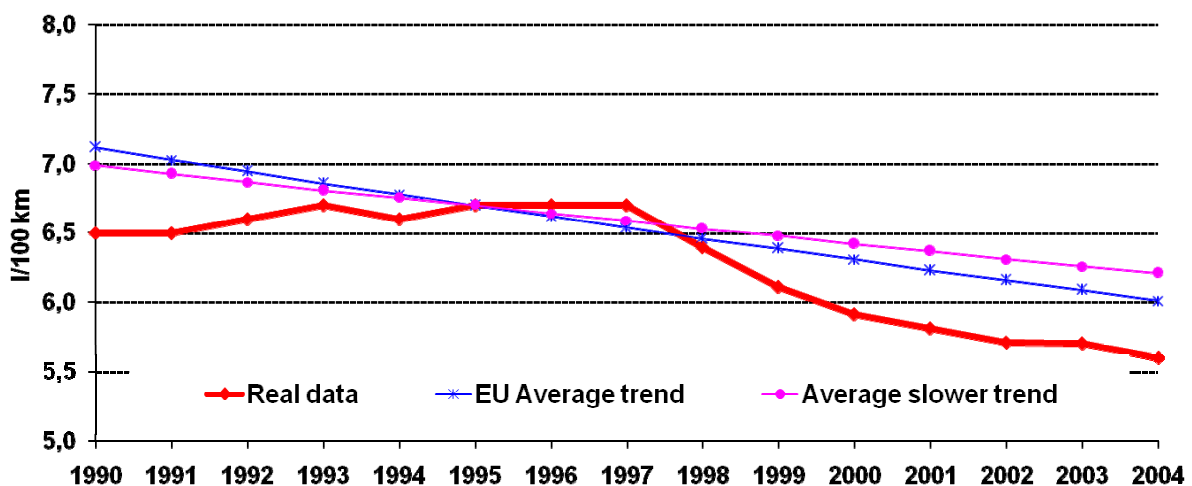
- How to define this autonomous **technological** trend ?
 - ✓ A “national trend” (i.e. a different trend for all countries) or,
 - ✓ the **same trend for each country**, as technical progress should be the same in Europe ?
- If the same trend is assumed, what value to be taken?
 - EU average trend (weighted average)
 - **Average arithmetic trend of countries with the slowest trend** (non weighted), as reflecting countries with no effective national policies :
 - ✓ the half of countries below the EU average, or
 - ✓ **the 3 countries with the lowest trend?**

Note: in red, our proposal

Defining the autonomous technological trend : example of new diesel cars in France

- National trend
- EU average trend = > -1.1%/year for diesel
- Average trend of countries with the lowest autonomous trend (“average slower trend”)

Specific consumption of new diesel cars (France)



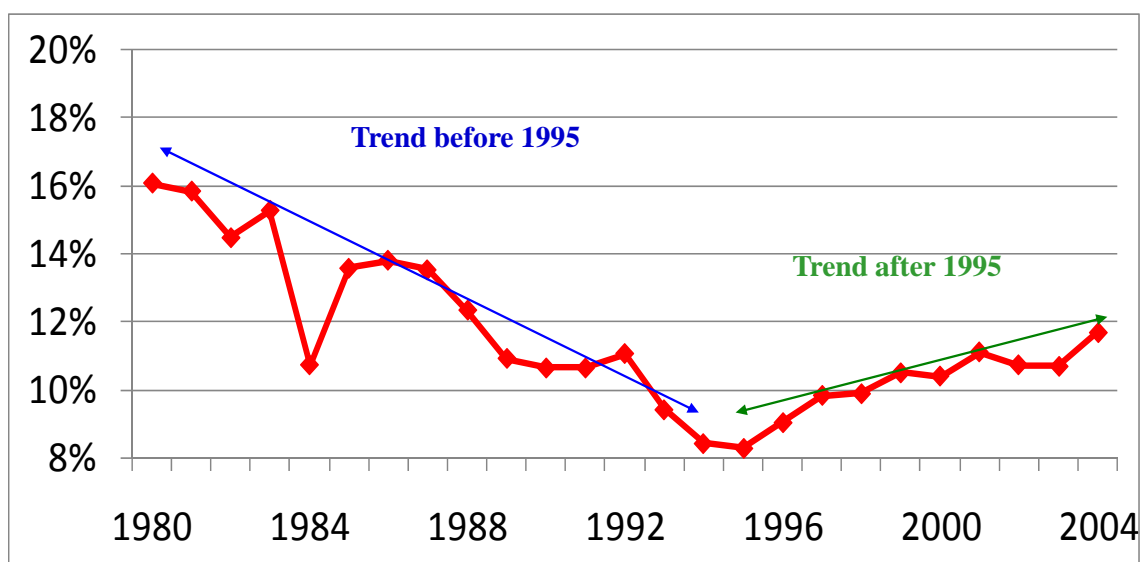
Which reference trend to use for the assessment of savings linked to a non technical trend?

Two options as to which reference trend to take:

- For end-use with policies (e.g. solar heaters or cogeneration): **national trends before policies**
 -except for mature markets (e.g. Germany or Austria for solar) → use a default value derived from countries with a same climate
- For other uses, where there are generally not yet visible policies, and thus measuring energy savings **requires definition of a trend** (case of energy indicators that are increasing, such as for electricity uses, or case of decreasing market share, such as modal shift; but also for indicators that are decreasing, such as for heating fuel consumption): **default value calculated** as a function of market share (e.g. modal shift) or value of the indicators (e.g. kWh/employee) (calculated from historical data and corresponding analysis)

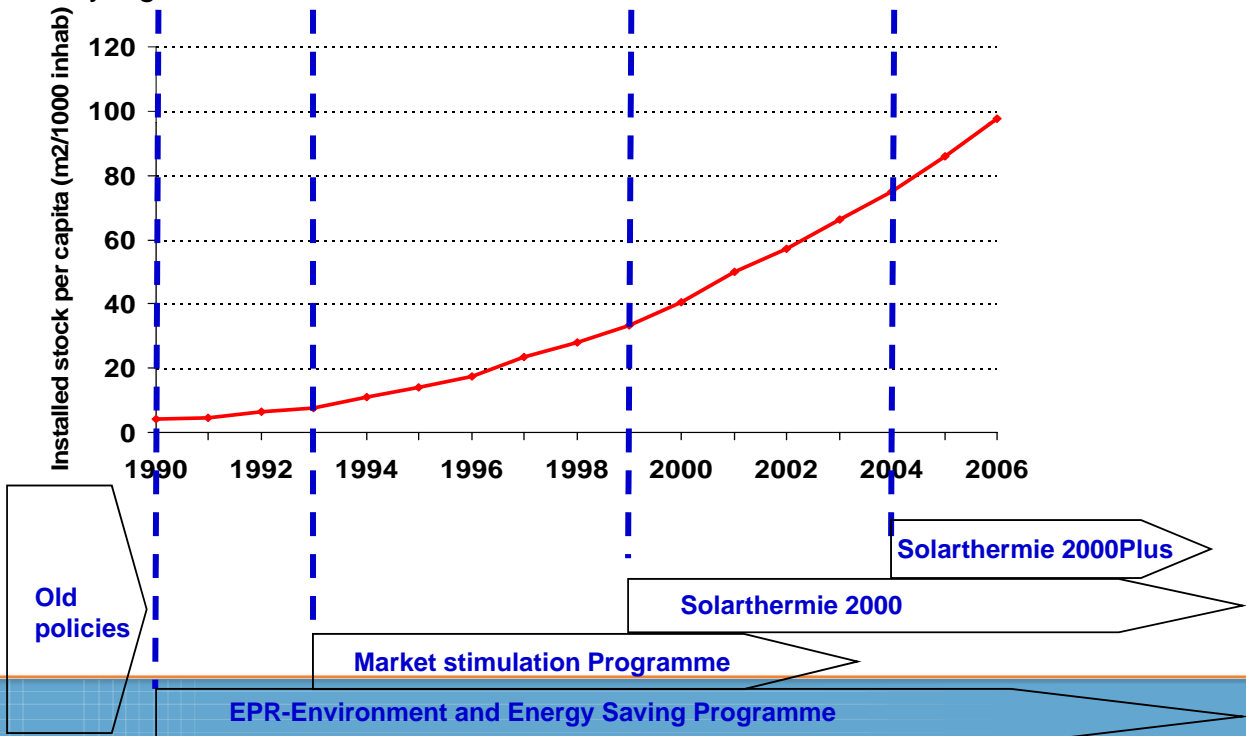
Assessment of savings linked to a non technical trend: case of modal shift

Share of railways and inland waterway in transport of goods (%)



Assessment of savings linked to a non technical trend: case of mature markets for solar (Germany)

Several policies implemented for solar water heaters (1993, 1995, 1999), plus ecological tax in 1999. Over which period do we do the regression? The diffusion mainly significant since 1999.



Annex: Indicators used to calculate energy savings

1. Specific energy consumption of a well identified equipment (e.g. cars, refrigerators) → total energy savings calculated from reduction in specific energy consumption of the equipment (l/100 km, kWh/appliance)
 - Part of the reduction may be due to autonomous technical trend and increase in market price
2. Market share of energy-efficient technology (e.g. share of public transport or goods and passenger traffic, share of solar water heater, share of cogeneration in industry) → total energy savings calculated from increase in market share
 - Part of the increase may be due to autonomous trend and increase in market price
3. Unit energy consumption of a sub-sector (e.g. thermal uses, electricity uses in household, industry or services) → total energy savings calculated from change in the unit energy consumption trend of the sub-sector
 - Part of the slow down in trend may be due to factors not linked to energy efficiency (saturation), autonomous trend and increase in market price