

Ministry of the Environment, Climate Protection and the Energy Sector Baden-Württemberg  
Head of Environmental Technologies, Research and Ecology Unit

## **Policies to overcome the rebound effect - a new challenge for environmental policy**

### **1. Has the issue of rebound effects been included in energy efficiency policies so far?**

The EU Proposal for a **directive on energy efficiency** gives a strong impetus to energy savings and energy efficiency (20% of the primary energy by 2020). Commissioner Oettinger says, we will miss the 20% reduction target and end up with only about 10%. "People buy a new fridge and put the old one into the basement". The proposal is under discussion and will probably be changed in many details. The rebound effect is **not** regarded in this directive. However, it contains some obligatory issues (i.e. 1,5% reduction per year for energy suppliers or alternative measures) as well as improvements in energy consumption advisory services and certifying systems.

#### **In BW we are conscious of the problem...**

- PM Kretschmann Regierungserklärung Mai 2011: Energiewende; "Energie- und Ressourcenschonung muss wirtschaftlich und gesellschaftlich breit angelegt sein".
- „Neue Gründerzeit“ – a new age of founders, which takes its input from sustainability, energy and resource saving, themes which are of worldwide importance and which can create a new industrial basis for the economy in BW.
- "Nachhaltigkeitsstrategie" – the BW sustainability strategy emphasizes regarding energy efficiency: "an important role plays the change in behavior and life style".
- The green-red government plans a climate change act for BW with binding emission reduction targets. The necessary measures shall be set out in an integrated energy and climate change concept.
- A new funding program to enhance energy efficiency in small and medium-sized enterprises and private households is announced.
  
- **...however, at the moment, the rebound effect takes just a small part in energy and climate change policy of BW.** "Energiewende" – a fundamental change in energy policy. Our focus is to cease nuclear power supply, to double the energy efficiency and to develop the renewable energies to a central pillar of the electric power supply. Government plans to gain 10% of electric power from wind energy by 2020 (at present: 0,8%). This means that we have to find suitable locations and construct more than 1000 new 3 MW wind turbines. Different advisory services for consumers and industry are working (Informationszentrum Energie, Energietag Baden-Württemberg am 24./25.9.2011, Informationskampagne "Zukunft Altbau") and will be improved; information booklets how to save energy in several languages had to be reprinted, Turkish and Russian editions are considered.

Behavioral aspects have been discussed in the scientific community (already since many years: Weizsäcker Faktor 4; BUND Studie Zukunftsfähiges Deutschland, Radermacher; ...)

Actually the Ministry plans to **establish a new energy research program** which focuses on energy storage and aspects of participation, awareness, acceptance, framework conditions.

#### **Conclusion: the "classic" strategy approaches...**

such as technical and ecological research, standards for best available technologies and the existing regulation for energy efficiency on the national, EU and international level

*...do not really solve the problem - "soft instruments" should be enforced:*

- Awareness (Daten aus „Umweltbewusstsein in Deutschland 2010/UBA: „Kennzeichnung der Energieeffizienz „sehr wichtig“ für 41% der Bevölkerung“ – but everyday behavior seems not to approve the results of the study)
- Participation policy in BW ... actual conflict Pumpspeicherkraftwerk Atdorf : public perception (objections against planning decisions, “Widerstand”)
- So we need more education, training, comprehensible indicators, best practice.
  
- Quality of life – does it really depend on several long distance holiday trips per year or shopping trips across the Atlantic? How can we change motivation, values, cultural orientation, definitions of success?

## **2. Is the rebound effect in the focus of policy makers?**

Several colleagues confirmed to me: **not as a self-consistent political issue.**

In political discussions about traffic emissions (CO<sub>2</sub>, particles, NO<sub>x</sub>...) and the increasing number of SUVs or luxury cars with powerful engines, some NGOs demand additional taxes or restrictions. However, the long-term trend shows reduced traffic emissions in total (as a consequence of catalytic converters and fuel-saving powertrains). In German public opinion – even more in the automotive region BW – mobility and premium cars have a high significance. (“Ökosteuern”, gasoline price) PM Kretschmann had critical discussions with local industry and worker’s councils after asking for less and smaller cars.

“Verzicht” – frugality – is not the issue of government neither of the green party policy.

## **3. What kind of policies could be designed to address (prevent / reduce) rebound effects?**

- Strong and persistent signals for continuous improvement of energy efficiency and avoidance of additional energy consumption
- Long-term oriented reliable framework conditions and general regulations
- Energy prices and corresponding taxes or market-based instruments should give a clear signal: energy efficiency may not lead to increased use and consumption
- Industry, municipalities and the private sector should be able to see the long-term energy costs and related problems for energy supply (i.e. storage capacities, cable assembly)
  
- Steady increase of taxes on energy (... if possible...) along with the aforementioned long term objectives in energy efficiency could keep up the monetary pressure for improving energy efficiency. The additional revenue could be assigned to support schemes for energy efficiency measures or be used to ease the tax burden elsewhere (e.g. income tax).
- Better customer information about energy and resource consumption; lifecycle assessment
- (worldwide) Standards for raw material production and energy supply
- Suggestions for a new cooperation of state, market, civil society; incentives

#### **4. What kind of information or data do policy makers need from researchers for designing more effective strategies to address rebound effects?**

- Improved visibility of the rebound effect: data and models for predicting long-term effects
- Specific examples and best-practice solutions for industry, municipalities, private sector
- Indicators suitable for everyday life decisions, ideals
- Long-term strategy, perseverance
- Integration of social science in energy research (funding, focussing, organisation)
- Closing the gap between knowledge and behavior
- Effort on public understanding
- Research on dematerialisation

#### **5. Additional Recommendations:**

**Focus on cities and regions** to develop new strategies and models for sustainability

- Efficient land use
- Concentration on existing settlement area with existing infrastructure
- Strategies to slow down land consumption (new EU Experts Group on soil sealing in support of the Soil Thematic Strategy)
- Tools, information, training of land resource management
- “Kurze Wege” – short distances – Example Barcelona – Atlanta
- Quality of life in urban areas
- Low carbon city initiatives
- Close relation between settlement and traffic infrastructure
- “Modellregion nachhaltige Mobilität”
- Sustainable rural development

#### **Importance of the Transportation Sector**

- 42 Mio cars with combustion engines in Germany, boom in the automotive industry. 50% of the vehicles (medium and large) produce 75% of CO<sub>2</sub>.
- “Mobility is the engine of growth and prosperity for every modern society” (from: Daimler, The road for emission-free driving)
- Decarbonisation of the transport sector
- Entering the electric- and f-cell-vehicle age? Slowly: 1 Mio = 2,5%. 2<sup>nd</sup> and 3<sup>rd</sup> car?
- The role of public transportation? “Regionale Haushaltsbefragung zum Verkehrsverhalten“ des Verband Region Stuttgart 2010: 57 % aller Wege als MIV-Fahrer oder Mitfahrer, nur 12,5% im ÖV und 23,6% zu Fuß bei mittleren Wegelängen von 11,4 km...
- Rapid growth in freight transportation because of e-commerce, globalization

#### **Energy efficiency in products and production is not the only issue**

- Scarcity of natural (material) resources is not yet mentioned in this project!
- Decoupling natural resource use and environmental impacts from economic growth
  - o Example mobile phones, tablets: cheaper, increasing numbers, rare materials
  - o Example: wind turbines, electric traction motors: Neodymium consumption