New energy efficiency policies - supporting profits and competitiveness of European industries

High level workshop on energy efficiency and sustainability

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Overview

- Present economic efficiency potentials –
  a snap-shot of present technology and energy price levels
- Major obstacles and unused constructive factors (within the energy using company)
- Energy efficiency policy strategies – remind the innovation system (all actors)

  - along the supply chain for obstacles and motivations
  - decisions in Brussels and in capitals of Member Countries
- the implications for effective policy portfolios of energy efficiency policy

Profitable energy efficiency potentials of industry and services until 2020

The case - EU :

- Economic potential 2014 to 2020 : about 2.000 PJ (- 2.2% per year)
- Reduced energy cost: about 40 Billion € in 2020 (-12%)
- reduction of CO2 emissions : around 180 Mill. Tonnes
- additional net 200.000 new jobs (0.1%, induced by a 120 Billion € investment)
- slight net increase in gross domestic product (+ 10 Billion € in 2020)
- Unaccounted side effects: more comfort, less production waste, accelerated sales of energy efficient technologies, improved competitiveness

Can these potentials be realised?

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Source : Jochem u.a. energiewirtschaftliche Tagesfragen, 64(2014)1/2, S.81-85

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Why are present profitable efficiency potentials not fully realised?

A selection of existing obstacles – the traditional view

- lack of knowledge and sufficient market survey of energy managers, particularly in SMCs, consulting engineers, architects, installers, bankers
- high transaction cost of the energy manager (for searching solutions, tendering, decision making, installation)
- lack of own capital, fear of lending more capital for investments of off-sites
- technology producers or whole sale often pursue their own interests opposing the possible innovation steps of efficient solutions
- 80% of companies using only risk measures (payback period), but not profitability indicators (e.g. internal interest rate) for their decisions

The traditional textbook energy efficiency policy:
choosing an instrument that alleviates the obstacle, mostly focused on the investor

• not sufficient information	⇒	• flyers, subsidised initial consulting, technical standards
• not sufficient knowledge	⇒	• subsidised consulting or/and professional training
• lacking own capital	⇒	• subsidy to the investment
• biased decision criteria	⇒	• information (written or oral)

Selected obstacles and related instruments -
this energy efficiency policy is not effective and efficient

One of the major company-internal obstacles of resource efficiency

Payback time requirement (in years)	Internal rate of return in % per year[1)]							
	Useful life of plant (in years)							
	3	4	5	6	7	10	12	15
2	24%	35%	41%	45%	47%	49%	49,5%	50%
3	0%	13%	20%	25%	27%	31%	32%	33%
4		0%	8%	13%	17%	22%	23%	24%
5			0%	6%	10%	16%	17%	18,5%
6	unprofitable			0%	4%	10,5%	12,5%	14,5%
8						4,5%	7%	9%

[1)] Continuous energy saving is assumed over the whole useful life of the plant

Profitable investment possibilities eliminated by a four-year payback time requirement

Source: FhG-ISI

As long as 80% of technology producers and suppliers do not calculate internal interest rates and life cycle cost, most of the profitable efficiency investments will not be realised – an example how decision routines have to be changed

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in addition – unused constructive factors looking after the motivations of the actors of the innovation system

- Opportunities from the social science perspective: (not just “homo oeconomicus”)

- first movers well informed, risk taking (as tec producers or tec users)

  ⇒ support of first movers (information, training, R&D&D, financially)

- social prestige of CEOs or companies (green image, member of the Green Dow Jones, leaders who are responsive to societal needs or regional chances)

  ⇒ establish efficiency awards, a selected company group of top efficient companies at the national level (e.g. Climate protection companies)

- professional career of energy managers and acknowledgement of workers by unexpected high savings of energy cost, by motivation, advice to the controller. etc.

  ⇒ establish best practice information, local efficiency networks, ask your supplier for carbon foot prints, etc.

Energy efficiency policy strategies – remind the innovation system

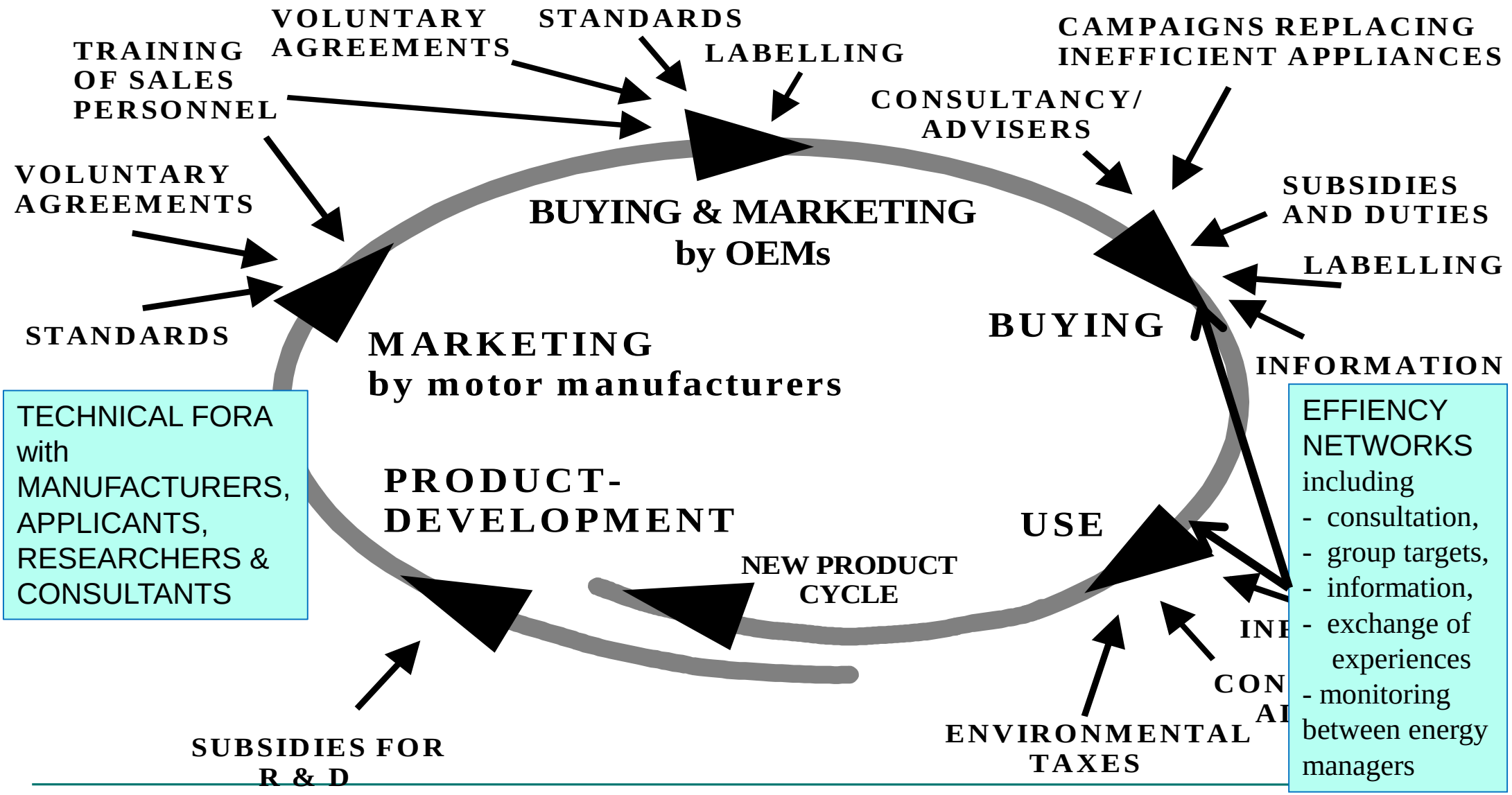
- looking along the supply chain for obstacles and motivations

- policy decisions in Brussels and in capitals of Member Countries
  - effective, if investment decisions have to be individually made by 100.000s of companies?
  - more effective by regional/ local governance?

Does it make a difference ?

Possible policy instruments reducing existing obstacles or supporting the motivations of actors in the product cycle –

"simultaneous policy measures"



TECHNICAL FORA with MANUFACTURERS, APPLICANTS, RESEARCHERS & CONSULTANTS

EFFIENCY NETWORKS including
- consultation,
- group targets,
- information,
- exchange of experiences
- monitoring between energy managers

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The technology- or branch-specific efficiency policy bundle: determined by the mix of obstacles and unused motivations

The case for Brussels: Mass-produced and mass-applied efficient solutions demand for regulation and dynamic technical standards

It is too costly (and inefficient): more than a million companies in OECD countries decide individually on more or less efficient mass-produced energy-converting or using technologies (e.g. electrical motors, pumps, compressors, ventilators, high efficient windows, etc.),

therefore:

- **International technical standards for electrical motors (e.g. the Eco design Dir.)**
  - electrical motors (implemented), companies have still to decide between two options
  - electrical motor systems, condensing boilers, heat pumps (to be negotiated)

- **Introduce dynamics to technical standards by top runner models**
  (like in Japan in the case of some residential electric appliances)

The case for regions: ®LEEN - Local Energy Efficiency Networks – reducing the transaction cost by mutual exchange of experiences

- How do the networks operate with 10 to 15 local companies ?
  - Phase 1. - energy review, a report, a joint efficiency and mitigation target
  - Phase 2: - four meetings per year, moderated, a site visit included
    - one technology each meeting,
    - yearly monitoring,
    - hot line
- Results :
  - doubling of efficiency progress compared to average of industry
  - 180.000 €/a energy cost savings per site and 10 to 20 €/t CO2 profits
- Application so far:
  - CH: 85 networks; 50% of industrial CO2-emissions
  - D: 60 networks, 500 to come until 2020
  - A: 8 networks

Energy efficiency policy at the regional, local level

Intensify the activities of regional actors

- Cities and regional government
  - giving examples of good and best practice in their own buildings and plants
  - supporting energy efficiency activities by awards, local or regional fairs,
  - advising their companies (e.g. municipality, savings bank) to support by contracting, special efficiency fonds or bonds etc.

- Chambers of commerce, chambers of crafts
  - offering special courses of professional training on topics of energy efficiency
  - checking the curricula of the apprentices ; certificates for “energy scouts” (apprenticies)
  - offering or recommendations of energy efficiency networks

- Municipalities and utilities
  - offering energy reviews and contracting
  - offering financing options and consultation for funding
  - offering or recommendations of energy efficiency networks

DACH Energieeffiziente Stadt

Conclusions

- Selecting existing obstacles and picking policy instruments - the text book approach:
  not effective and inefficient in most cases

- The adequate energy efficiency policy paradigm
  - first movers in industry and services (branches for final consumers, family owned companies)
  - consider the value chain, not just the energy using company
  - identify the role of governments at all levels : EU, national government , and local/regional
  - consider unused constructive factors (motivation, acknowledgment, responsibilities)

- Policy strategies as multi-level governance task
  - mass-produced and mass-applied products – technical regulation at EU / national level
  - energy taxation and CO2 emission certificates
  - individual decisions at corporate level to be based on better practice and to be intensified by
    - climate cities often lack activities in industry and the service sector
    - municipalities: offering more energy services (consulting, contracting, financing)
    - chambers of commerce and of crafts: more training courses/ improved education
    - reducing transaction cost in SMEs by learning energy efficiency networks
    - additional forms of financing (contracting, fonds, bonds, crowd financing for SME)

Thanks

for contributing to a

sustainable development in the global context !

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