

# Options to improve energy efficiency: Why energy efficiency is not improving fast enough

## Group of Experts on Energy Efficiency

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**Martin K. Patel**

**Chair for Energy efficiency**

University of Geneva

Institute for Environmental Sciences and Forel Institute

Battelle site, building D, room 115

Tel +41 (0) 22 379 0658 - Mobile +41 (0) 789 679 033

Fax +41 (0) 22 379 0639

[martin.patel@unige.ch](mailto:martin.patel@unige.ch)

## Obstacles to energy efficiency (1/4)

*Legal, Institutional & Regulatory*

*Economic and Financial*

*Socio-political*

## Obstacles to energy efficiency (2/4)

(partly based on Thollander and Palm 2013)

### **Legal, Institutional & Regulatory**

- Low energy prices
- Energy subsidies
- No global level playing field
- Uncertain & changing boundary conditions  
(e.g., carbon price; legally non-binding nature of EE objectives in EU)
- Distributional aspects

## Obstacles to energy efficiency (3/4)

(partly based on Thollander and Palm 2013)

### **Economic and Financial**

#### a) Market failures

- Imperfect information, asymmetric information
- Split incentives and principal-agent relationship

#### b) Non-market failures

- High transaction costs and hidden costs (e.g., analysis & prod. disrupt.)
- Access to capital, higher capital costs of EE options
- Other priorities for capital investments
- Low share of energy cost in prod. cost
- Minimization of financial risk (low payback)
- Value proposition is less tangible



## Obstacles to energy efficiency (4/4)

(partly based on Thollander and Palm 2013)

### Socio-political

- Lack of awareness, lack of information
- Lack of credibility and trust
- Inelasticity of energy use (preferences/values; inertia)
- Company culture

### Other

- Technical risks
- Higher costs (some )



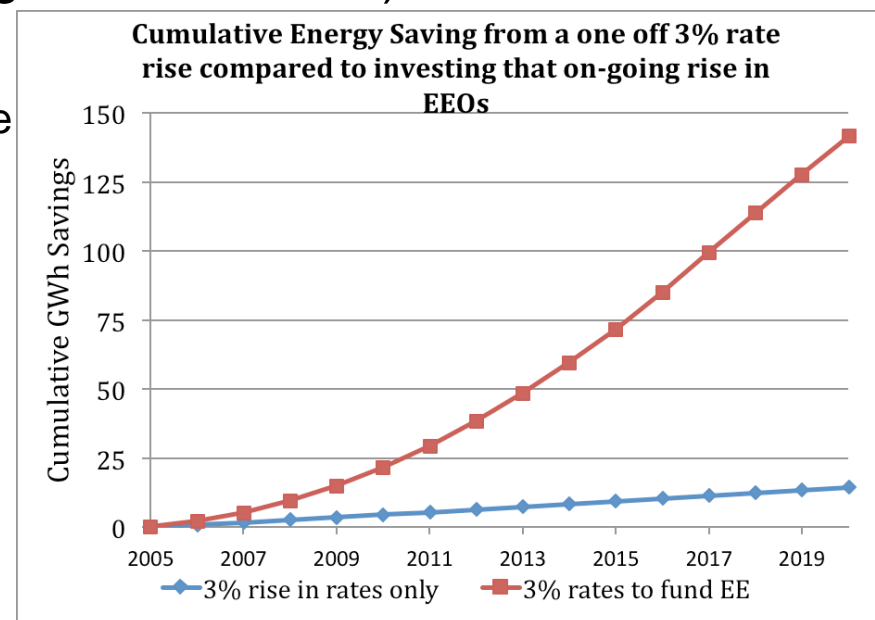
# Options to improve energy efficiency: Some complementary suggestions

## Technical

- R&D: Low hanging fruits for the future

## Legal, Institutional & Regulatory

- Subsidiarity + penalty for non-compliance
- Other tariff designs (fixed price↓, progressive, feed-in)
- Energy Efficiency Obligations
  - (Partial) Decoupling of sales from revenue
  - 10-fold more cost-effective
- Public sector: Exemplary and leading role
- CHP in the context of liberalized energy markets



Source: Lees (ecee March 2012)

# Options to improve energy efficiency: Some complementary suggestions

## Legal, Institutional & Regulatory

- Standards (H.-P. Siderius, Ph.D. thesis, Utrecht University):
  - Increased EE of products over time partly due to increased capacity  
→ need to consider product energy consumption next to EE (Chap.3)
  - 5 years (3.5 – 6.7) for preparing Ecodesign standard (Chap.2)  
→ for some products too long, requires substantial staff
  - Only 12 Ecodesign standard since 2012  
→ too slow  
→ modular functional approach

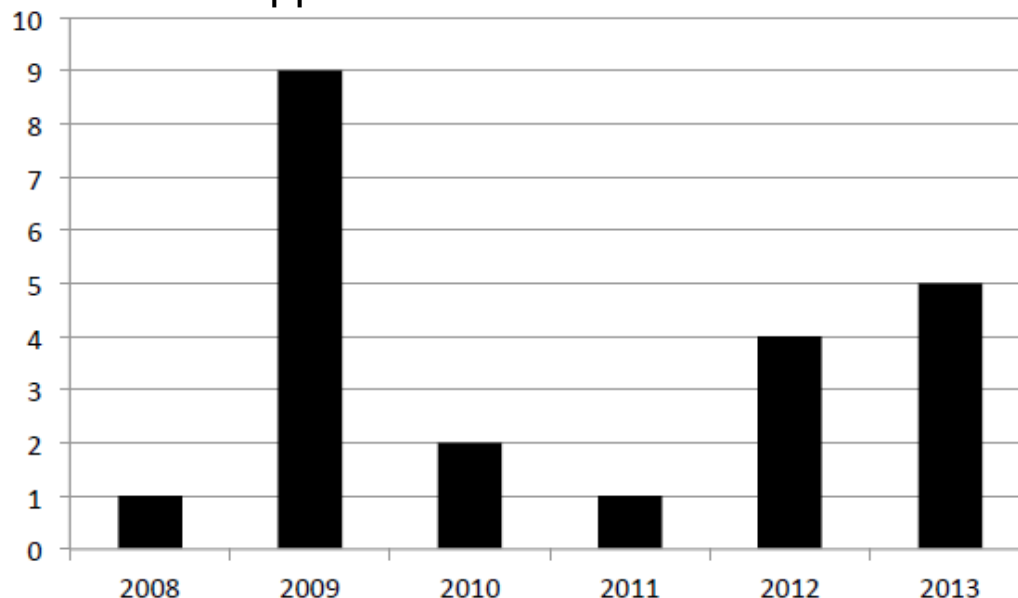



Figure 1.4 Number of ecodesign regulations published per year

# Options to improve energy efficiency: Some complementary suggestions


## Legal, Institutional & Regulatory

- Energy efficiency networks




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Local learning-networks on energy efficiency  
in industry – Successful initiative in Germany

Eberhard Jochem <sup>a,\*</sup>, Edelgard Gruber <sup>b</sup>

<sup>a</sup> Centre for Energy Policy and Economics (CEPE), ETH Zurich, Germany  
<sup>b</sup> Fraunhofer Institute for Systems and Innovation Research, Karlsruhe, Germany



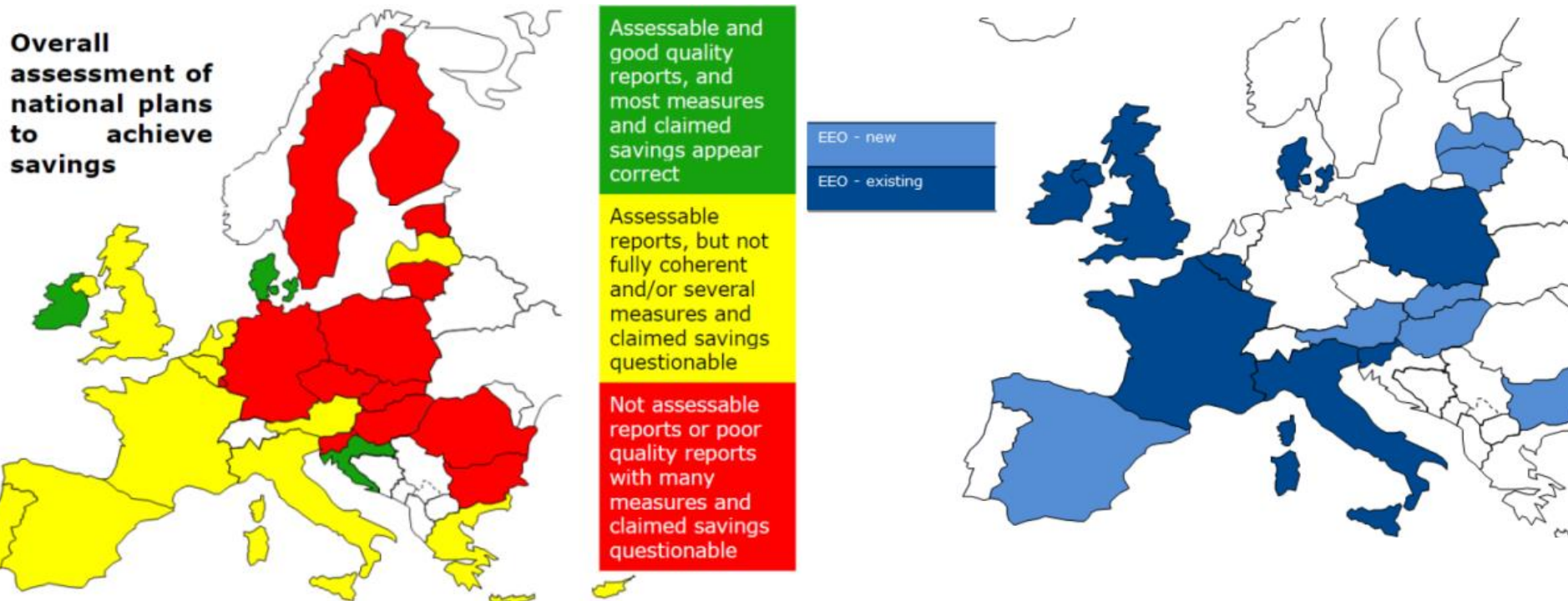
# Options to improve energy efficiency: Some complementary suggestions

## Legal, Institutional & Regulatory

- Energy efficiency networks
- Mandatory energy benchmarking, energy audits/EMS
- Co-ordination/Division of tasks among UN regions/countries (along the cost-supply curve? Economies of scale?)
- *Uncertain & changing boundary conditions*: Binding EE objectives
- Roadmap for inclusion of externalities in prices
- % of GDP for EE

# Evaluation of NEEAP continued...

- NEEAP = National Energy Efficiency Action Plan
- Report by 'Coalition for Energy Saving' \*):  
Implementing the EU Energy Efficiency Directives – Analysis of Article 7 Member States reports, 2014.



\*) <http://energycoalition.eu/sites/default/files/20140422%20Coalition%20for%20Energy%20Savings%20Art%207%20Report%20FINAL.pdf>

# Options to improve energy efficiency: Some ways forward

## **Economic and Financial**

- *Hidden costs and risk aversion:* Insurances (?)
- *Real estate:* Market price to consider EE label
- *Access to capital, other invest. priorities:* EE funds
- *Minimization of financial risk:* Mechanisms for longer payback times

## **Socio-political**

(?)

## Ph.D topics (some first ideas...)

- Liberalisation and energy efficiency
- Subsidiarity principle vs. mandatory requirements
- Leapfrogging
- Innovation, market transformation, implementation, education, ...  
("value chain balance")
- Levelling off of energy use across OECD as consequence of improved energy efficiency?