Possible new European policies for energy efficiency: exploring the feasibility of binding energy savings targets

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European Sustainable Energy Seminar 2010
Organized by INFORSE-Europe and EREF

Brussels, 27 April 2010

http://www.inforse.org/europe/seminar_2010_BXL.htm

Background

- Project for ECF and RAP
- Partners: Ecofys and Fraunhofer-ISI
- Period: December 2009 – April 2010

- Objectives:
  - Recap energy savings potential EU27 (Fraunhofer 2009 for DG-TREN)
  - Identify need for additional energy savings policies
  - Explore design options for binding energy savings targets

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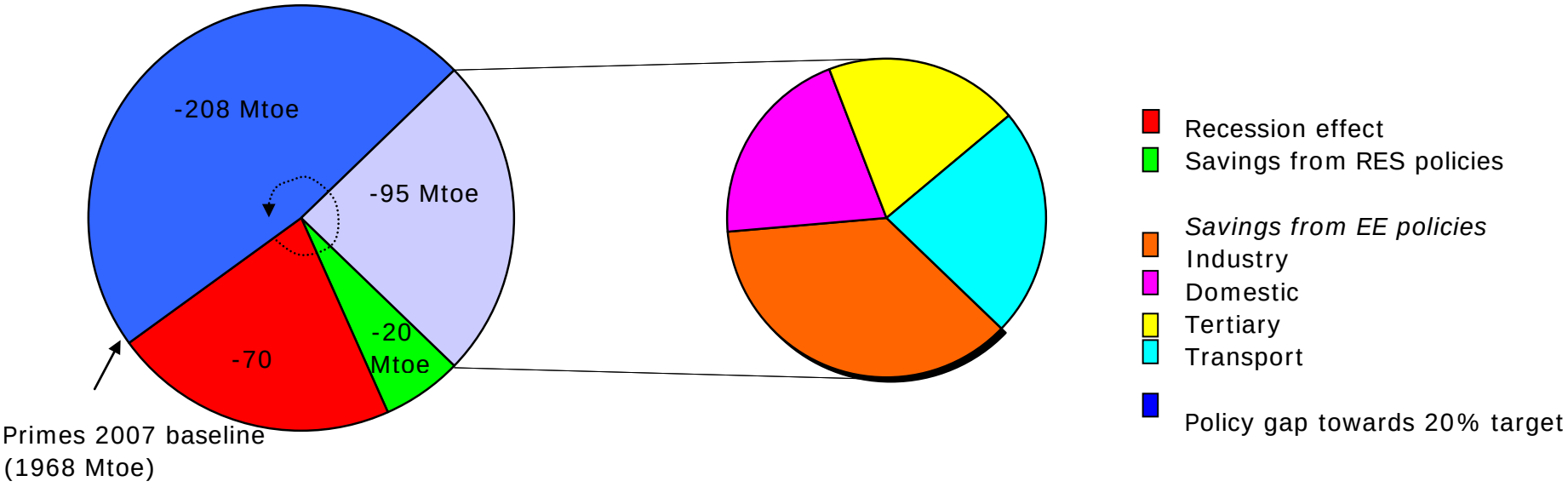
Current policy intensity will lead to >200 Mtoe policy gap / achievement of only half of the 20% energy savings target



Also the Commission has identified a policy gap

Expected annual primary energy saving potential by 2020 for EU27 for some specific Energy Efficiency measures (full implementation)

	Measures	Yearly primary energy savings by 2020 compared to 'business as usual' scenario in Mtoe	Yearly primary energy savings by 2020 compared to 'business as usual' scenario in %	Reference document[37]
1	energy services Dir 2006/32/EC	Max 193	Max 9.8%	COM(2008)11(as of 2016)
2	eco-design Dir 2005/32/EC (appliances) and labelling framework Dir 92/75/EC energy star agreement with USA	96 2	4.9% 0.1%	EuP preparatory studies http://ec.europa.eu/energy/demand/legislation/eco_design_en.htm#consultation_forum
3	buildings Dir 2002/91/EC	130	6.6%	SEC(2006)1174
4	cogeneration Dir 2004/8/EC	23	1.2%	COM(2002)415
5	fuel efficiency in road vehicles - CO2&cars –public procurement	36	1.9%	COM(2007)856 & SEC(2007)1723 COM(2007)817
6	urban transport - integrated approach	26	1.1%	Policy assessment of the CIVITAS initiative
	TOTAL NET (taking into account the interplay of measures and the witnessed implementation speed)	**256**	**13%**	
	OBJECTIVE EU27 in 2020	**394**	**20%**	
	Note: PRIMES model 'business as usual' baseline projections (update 2007) in 2020: EU27 TOTAL primary energy consumption = 1968 Mtoe.			

- **Source: COM(2008)772 final**

Where to find the additional savings potentials to bridge the policy gap?

- Industry: limited additional potential compared to *expected* delivery from adopted policies (Eco-design, CHP, etc.)
- Transport: might fill up ¼ of the policy gap
- Built environment: might fill up ¾ of the policy gap (2/3 residential, 1/3 tertiary)

- *Note that the baseline energy efficiency improvement in the power sector is already substantial*

Bridging the policy gap will:

- Reduce Europe's energy bill with € 78 billion annually (excl. taxes)
- Create over half a million new jobs in the EU
- Bring Europe's import dependency back to 1990 level
- Be a huge step in meeting the 2020 RES target (current 2020 projection = 15% RES; after bridging policy gap -> 19% RES)
- Lead to an additional 560 Mt of CO2 savings

What policies could bridge the gap?

- Bridging the policy gap means a **factor 3** (!) increase of the after 2006 policy impact
- Main question: to what extent can pipeline policies (recast EPBD, new implementation measures Ecodesign etc.) bridge the gap?
- In our view: up to half of the policy gap *if ambitiously implemented*
- Strong policies are needed to achieve such ambitious policy implementation and to trigger new policies and revision of existing policies
- *An overarching binding energy savings target could be such a strong policy*

How could a binding energy savings target look like?

- A target working at the EU level only (<-> CO2 target under ETS, current indicative 20% energy savings target)
- A target working and specified at Member State level (<-> burden shared RES target & Effort Sharing Decision)
- A uniform target working at Member State level (<-> non-binding target Energy Services Directive)

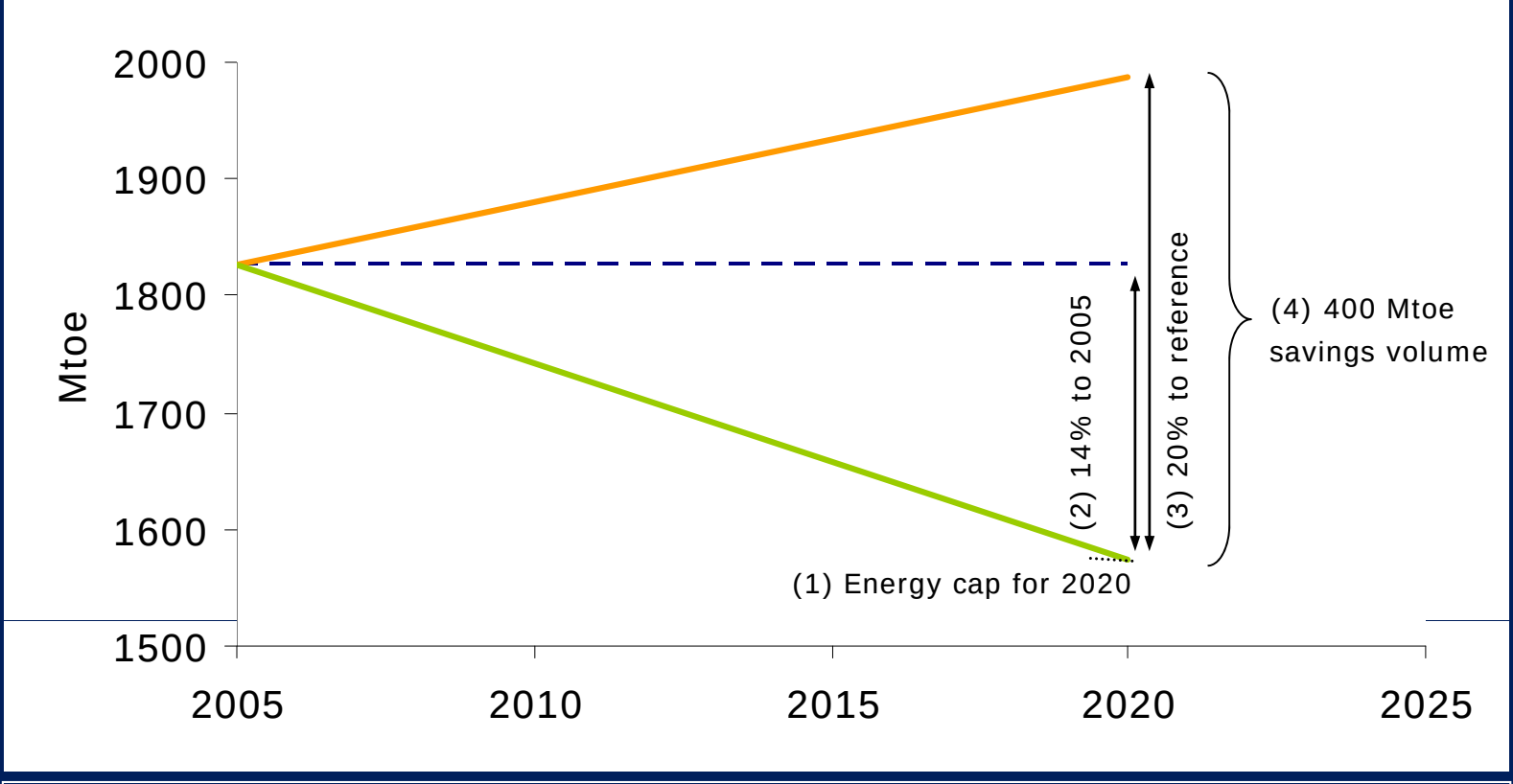
Design features

- Definition of an energy savings target
- Expression in primary or final energy
- Flexibility provided to Member States
- Interaction with standing policies

Definition of an energy savings target (1)

- Requirements
  - Transparency
  - Measurable / easy to monitor
- 5 options
  - Setting a cap on energy use in 2020
  - Setting a target for energy use in 2020 relative to a base year
  - Setting a target for energy use in 2020 relative to a baseline projection for 2020
  - Setting a certain volume of energy savings to be realized in 2020
  - Setting a target as an improvement of the energy intensity of the economy

Definition of an energy savings target (21)



Option 1 is most transparent; For option 3 one needs clarity regarding the baseline (fixed or moving)

Final or primary energy?

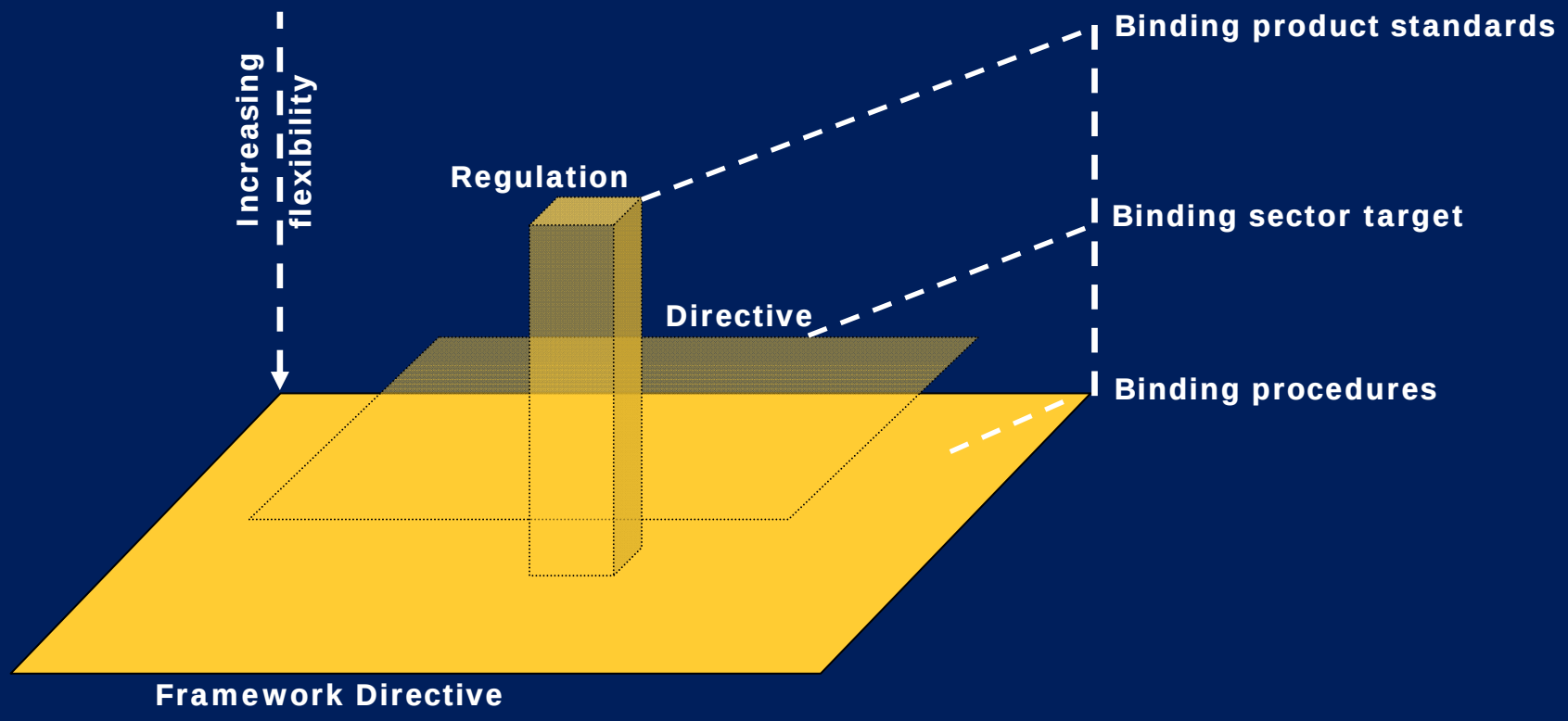
Full economy (supply + end-use)	Supply	End-use
“Pure” primary energy (by definition)	“Pure” primary energy (by definition)	“Pure” final energy or “adjusted” final energy

“Adjusted” final energy means converting electricity into primary energy (e.g. with a factor 2.5)

Final or primary energy

- Why to choose for “adjusted” final energy in case of an end-use target?
  - “pure” final target may give perverse incentives to inefficient electric appliances
  - “adjusted” final energy better reflects the economy-wide impact of electricity savings

Flexibility for Member States (1)



flexibility: the extent to which Member States can shape own policies under binding EU provisions

Flexibility for Member States (2)

Binding target set at EU level only	Member State specific binding targets
Limited flexibility for Member States	Full flexibility to Member States (compare national policies for meeting binding RES target)

Interaction with standing policies (1)

- Potentially positive interactions
  - A binding savings target might trigger ambitious Eco-design Implementation Measures
  - A binding savings target might trigger ambitious national implementation of the EPBD
  - A binding savings target might lead to additional transport policies (e.g. CO2 standards freight transport)
  - A binding savings target resulting in additional end-use electricity savings helps meeting the ETS cap
  - With an ambitious binding savings target less RES needs to be implemented for achieving the same RES share

Interaction with standing policies (2)

- Potential barriers for specific design options for a binding energy savings target:
  - A Member State specific target *covering the supply sector* limits the flexibility of ETS
  - A binding savings target covering ETS energy use might be perceived as double regulation
  - Modestly ambitious Eco-design Implementation Measures set at the EU level limit the possibilities of Member States to achieve an ambitious MS specific savings target
  - Same for transport policies set at EU level
  - Effort Sharing target (non-ETS GHG target) is binding but does not need ambitious energy savings for compliance ("do MS like another more stringent target overlapping the Effort Sharing target?")
- Note that the interactions are time dependent: after 2020 policy arena could be freed for many of these interactions

Which design option to choose for (1)?

- Makes sense to exclude ETS:
  - Avoid discussion on double regulation
  - 80% (!) of the cost-effective energy savings potential can be found in the end-use sectors
- When also excluding other supply (large scale RES and nuclear) a pure end-use focus remains
- Could be set at the EU level only…
- …. With e.g. energy retailers as the obliged entities….
- … but so far this is a rather theoretical option for which no example policy exist…
- …. Not sure yet if this will be legally feasible

Which design option to choose for (2)?

- A Member State specific target for end-use (excluding ETS-industry, at least up to 2020) is a promising option
- Member States are flexible in meeting the target:
  - Either pass through the obligation to market entities supported by national policies (<-> Quota system for RES-E)
  - Or keep the obligation at the government level and implement a policy mix of voluntary agreements, regulation and financial instruments that leads to compliance (<-> Feed-in subsidies for RES-E)
- In our view, such a end-use target should preferably be defined as an energy cap and based on “adjusted” final energy

Thank you

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