Energy Efficiency Coordination Group

Policy design for meeting EED targets

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Policy design for meeting EED targets – workshop objectives

For a successful NEEAP top-down targets (overall Article 3 and subordinate Articles 5 and 7) need reconciliation with bottom-up calculation from individual measures → these provide the plan for EE action

Transposition of minimum regulatory requirements from EPBD and EED will achieve some of the targeted energy savings for Article 3 but gaps requiring additional initiatives will remain

This workshop aims to assist the policy formation process needed to identify, select and plan for a coherent set of EE measures that hold the potential to cost effectively bridge the gap

Policy design for meeting EED targets - contents

- **Top-down targets**
  - Basis of calculation for Articles 3, 5 and 7
  - Estimates for Energy Community Contracting Parties
- **Long-list of measures from 3rd NEEAP**
  - Current and planned measures
  - Bottom-up calculation methodologies
- **Linking of measures to targets**
  - Addressing double-counting
  - Eligibility for and alignment with Article 7 targets
- **Policy design for fulfilling gaps**

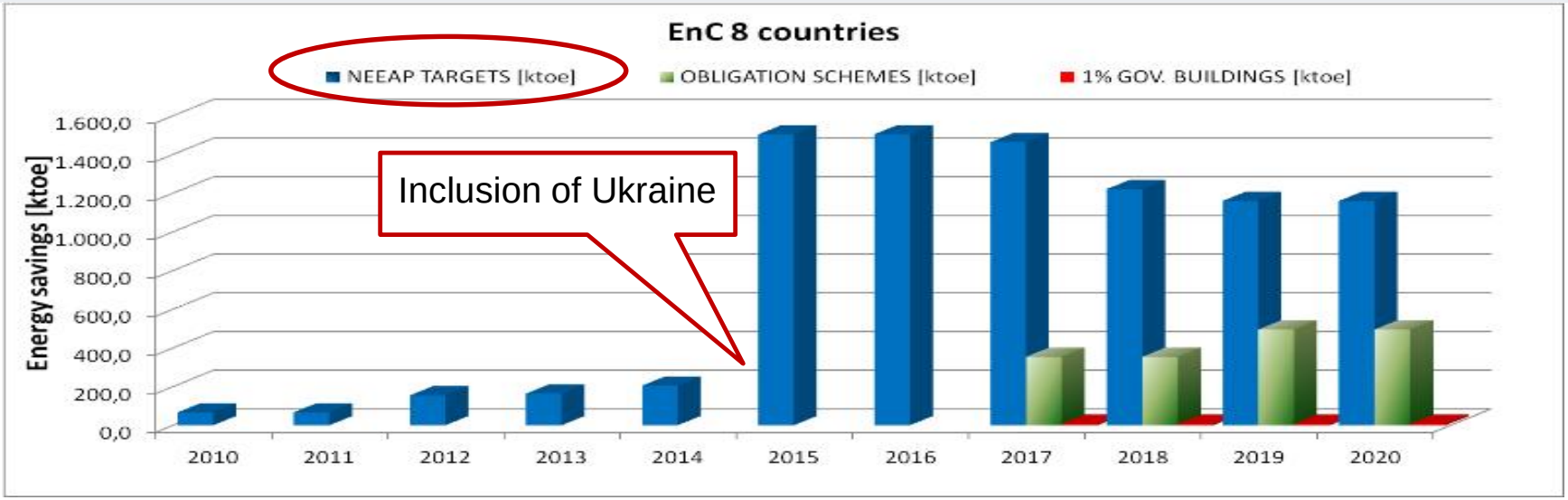
Policy design for meeting EED targets

Top-down targets

Top-down targets: a reminder

Article 3 – the primary target

- Contracting Parties to set indicative EE target expressed in terms of an absolute level of primary and final energy consumption in 2020
- The Primary Energy Consumption of the Community should be no more than 187 Mtoe in 2020 and Final Energy Consumption no more than 133 Mtoe
- Represents 20% (47 thousand ktoe) reduction on Baseline forecasts for EnC8



Top-down targets: a reminder

- **Approach to target setting (if setting undertaken by Contracting Parties)**
  - Develop Business-As-Usual baseline for primary energy consumption
  - Involves modelling projected energy demand based on socio-economic, technical and demographic development
  - Interactive effects with NREAP
  - Apply 20% reduction to BAU baseline to identify absolute level
  - Assess gap with respect to ESD commitments (9% of reference period final energy consumption by 2018)
- **Or adopt Energy Community Secretariat calculations from PRIMES modelling?**
  - Will need historical baseline for estimating individual measure savings

What approach has been taken by EnC8 in their 3rd NEEAPs?

Top-down targets: a reminder

- **Two top-down subordinate targets: Article 5 and Article 7**

Article 5

- 1% of floor area of heated/cooled central government buildings renovated per year
  - Building size threshold of 500 m^2 until 1 Jan 2019 then 250 m^2
  - Calculated as percentage of area not meeting EPBD standards at start of each year
  - Or alternative measures

Article 7

- Must adopt an EEO scheme or alternative measures to meet:
  - New savings equivalent to 0.7%/annum of reference quantity (2013-2015)
  - Cumulative target (so 7% of reference period in aggregate)
  - Exclusions apply
  - Savings must be additional to other EED/EPBD obligations

Careful of double-counting

Measures must be linked to Article 3, Article 5 and Article 7 targets

Policy design for meeting EED targets

3rd NEEAP long-list of measures

Long-list of measures

- **Contracting Parties have identified a preliminary list of preferred measures in 3rd NEEAPs**
  - Have bottom-up calculations of estimated savings by measure been used in setting 2020 indicative target?
  - Do gaps remain?
  - Are measures aligned with Article 5 and Article 7 targets?
- **Example measures (end-use only):**

Residential	Tertiary (public & services)	Industry	Transport	Horizontal
•Building regulations •Energy renovation/retrofit incentive programmes •Awareness programmes •Incentives for EE appliances/products •Energy poverty programmes	•Public procurement policy •Building regulations •Energy renovation/retrofit incentive programmes •CHP/district heating •Tax incentives	•Voluntary agreements •Energy Management Systems •CHP/district heating •Tax incentives	•Modal shift/infrastructure •Electric Vehicles •Improved fuel economy •Eco-driving	•Carbon/EE taxes •EEO schemes / EE Fund •ESCO support framework •Smart-metering •Training programmes

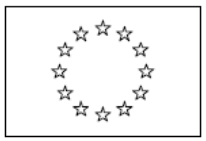
Energy saving calculations: Bottom up case by case

- **Bottom up – cumulative from individual measures, case by case**
  - Baseline - calculation relative to ‘business as usual’ (BAU) trajectory
  - Eligible measures
    - Commencement period
    - Lifetime of measures
    - Substantiveness/ measurability and verifiability of savings
    - (Some savings difficult to quantify – promotional/ informational/ developmental measures)
  - Credit for early actions that have lasting effect, e.g. building standards
  - Consideration of rebound effects
  - Consideration of interactive/ reinforcing effects between different measures
  - Avoiding double counting – calculate savings from measures that target the same end-use sequentially
  - Case by case calculation methodologies

Primary guidance

EE savings assessed and calculated using bottom up methods compliant with Commission guidance

- **Commission document:**



EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR ENERGY
Directorate C - New and renewable sources of energy, Energy efficiency & Innovation
C.4 - Energy Efficiency

- PRELIMINARY DRAFT EXCERPT–

RECOMMENDATIONS ON

MEASUREMENT AND VERIFICATION METHODS

IN THE FRAMEWORK OF

DIRECTIVE 2006/32/EC ON

ENERGY END-USE EFFICIENCY AND ENERGY SERVICES

Puts forward recommended methods/ formulae for calculation/ measurement and verification of EE savings – both 'Top Down' and 'Bottom Up'

Other reference guidance

- **Bottom up calculations:**

  EMEEES methodologies

  www.emeees.eu

  Numerous case examples. Takes account of:

  - Avoiding double counting
  - Technical interactions between measures
  - 'Free rider' effects
  - Multiplier effects
  - Lifetime of measures
  - Treatment of early action

- **Top down indicators:**

  ODYSSEE-MURE methodologies

  http://www.indicators.odyssee-mure.eu

  Data tools: key indicators facility, benchmarking, decomposition, energy saving, and indicator scoreboard

Policy design for meeting EED targets

Linking of measures to targets

EE measure policy classes

- For purposes of assessing policy mix, useful to view from perspective of end user
- ENSPOL suggested use of “Policy Class” for Article 7 but also useful as general framework:

EE Measure category	Policy class
Energy/CO_2 taxes	Taxation
Energy Efficiency Obligations	Purchase subsidy
Grants & Tax rebates	Purchase subsidy
Loans & On-bill finance	Access to capital
Regulations & Voluntary agreements	Minimum Standards
Standards and norms	Underpinning measurement standards
Energy labelling schemes	Information & feedback
Information, advice, feedback	Information & feedback

Adapted from: *ENSPOL (2015) Energy Saving Policies and Energy Efficiency Obligation schemes - D5.1 Combining of EEOs and alternative policies*

Which measures are pre-requisites for meeting minimum EnC requirements?

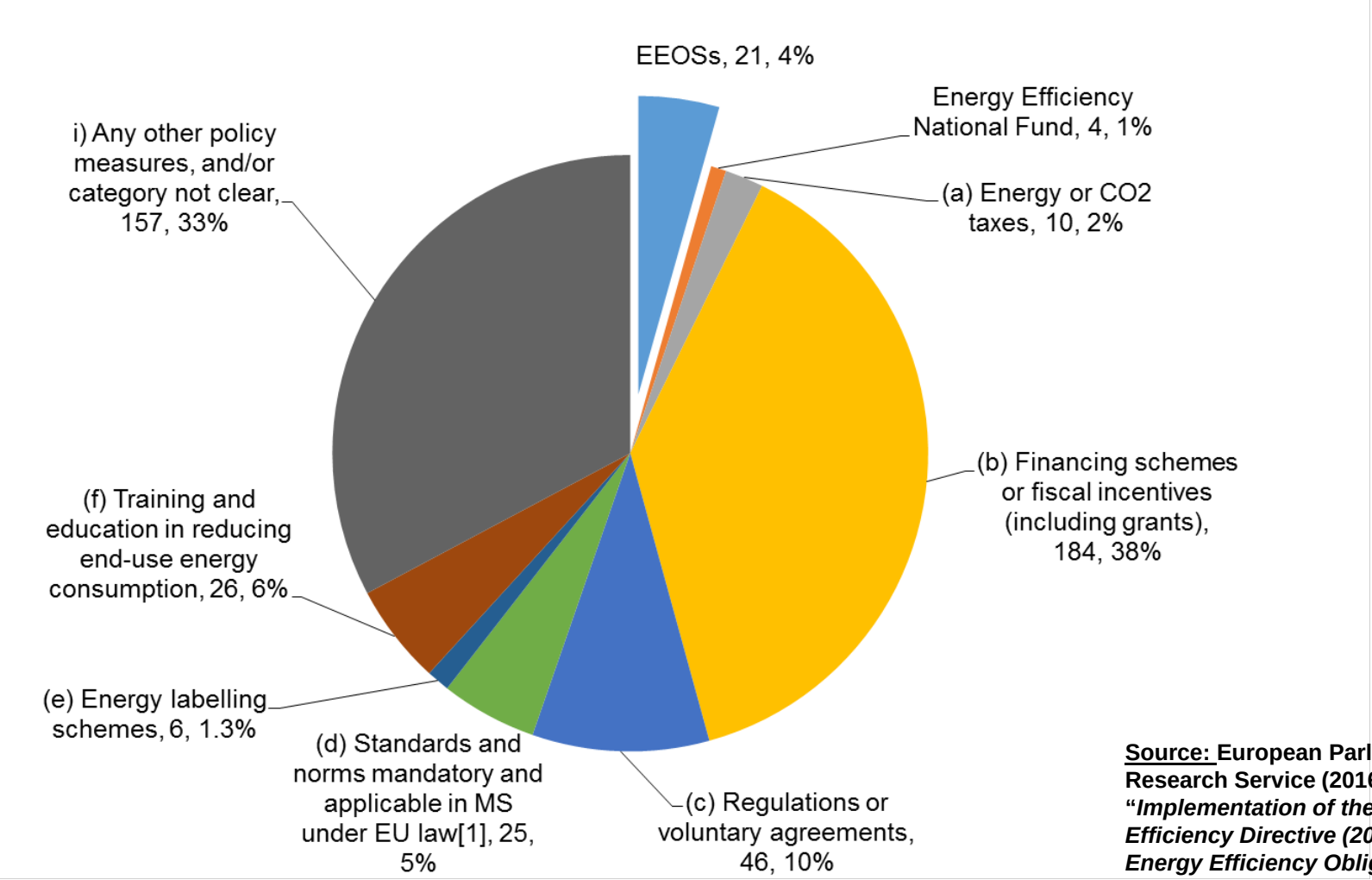
Criteria for selecting suitable policies

- **Close to 500 policy schemes in Member States just for Article 7**
  - Assess using policy class and category
- **Account for interaction**
  - Complementarity between policies to be considered
  - But “optimization” of mix is difficult to ascertain
  - Which sectors to target with what?

Potential criteria for selection:

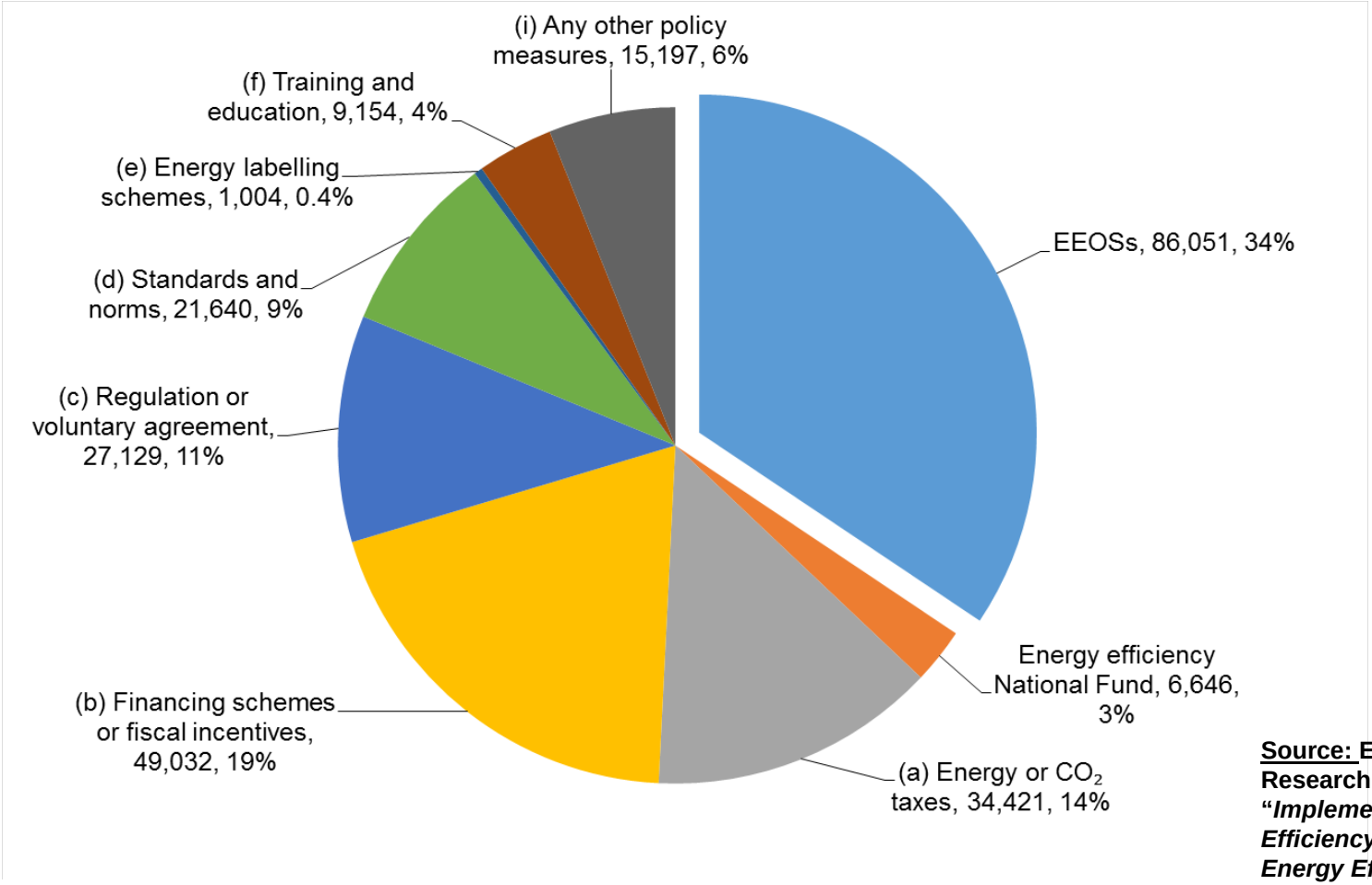
- Addresses identified barriers
- Scalability
- Market transformation potential
- Cost-effectiveness
- Complementarity
- Political and cultural acceptance
- Verification and eligibility
- Complexity

Article 7 EU MS – policy instruments notified



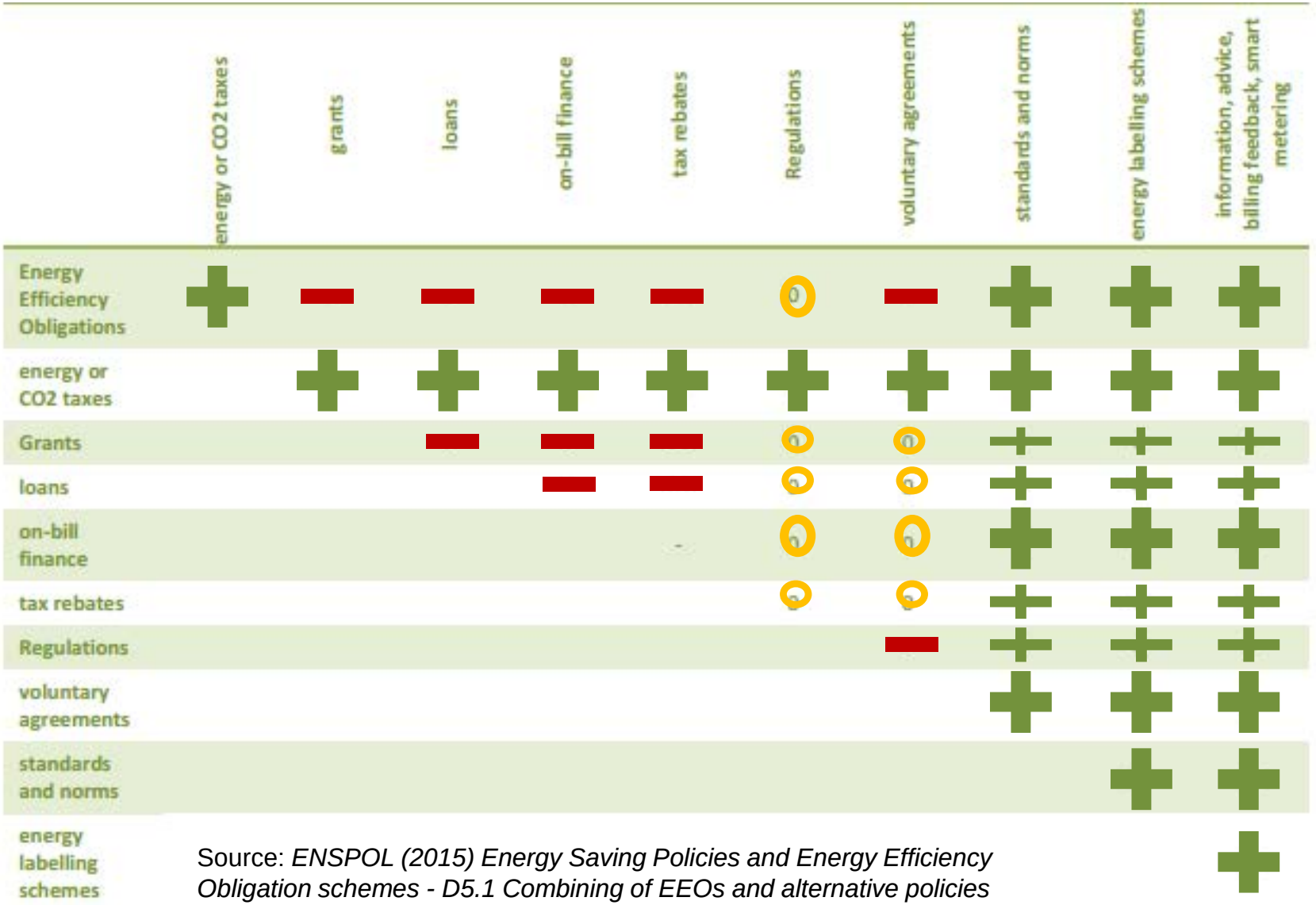
Source: **European Parliamentary Research Service (2016)** ***"Implementation of the Energy Efficiency Directive (2012/27/EU): Energy Efficiency Obligation Schemes"***

Article 7 EU MS – contribution of energy savings



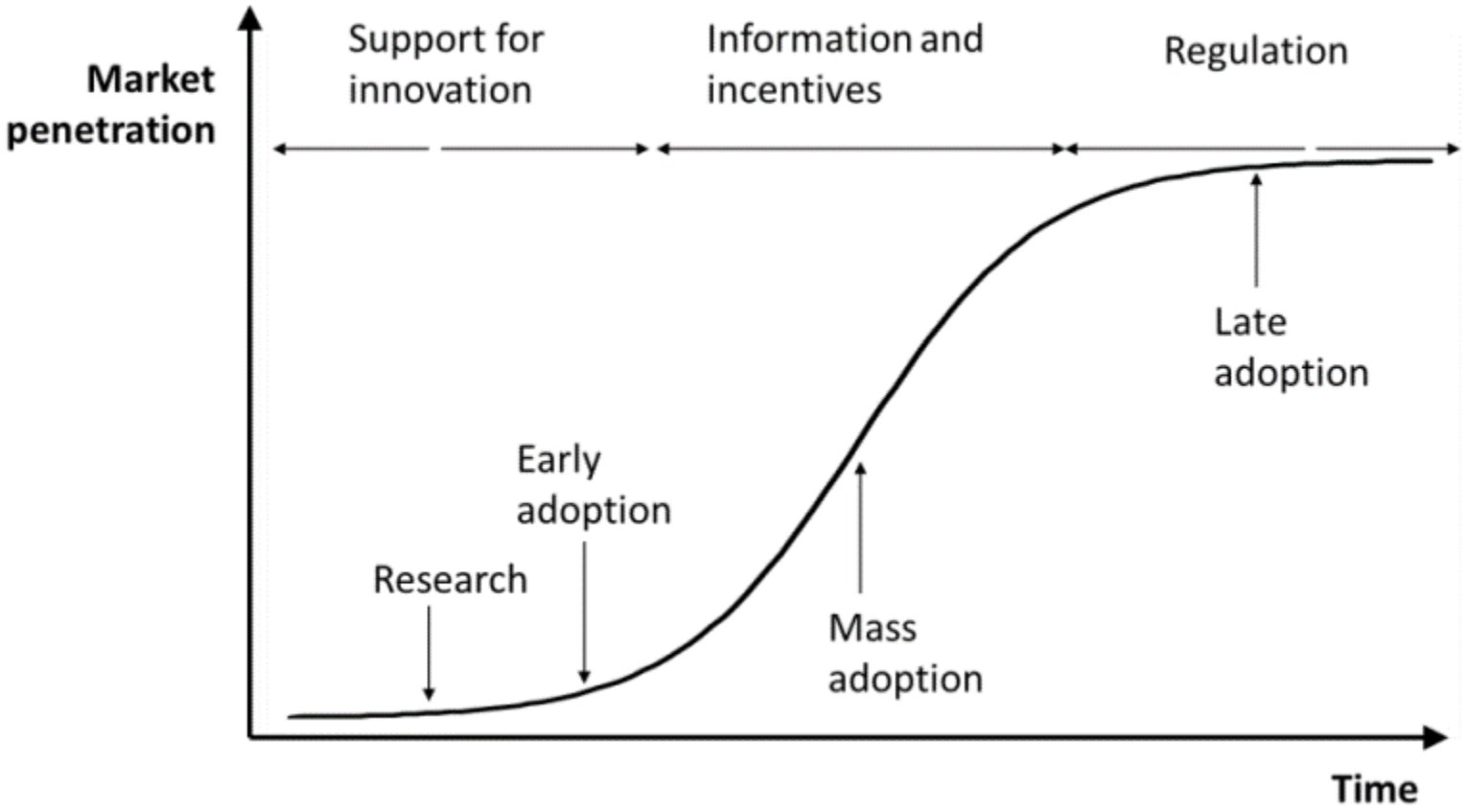
Source: **European Parliamentary Research Service (2016)** ***"Implementation of the Energy Efficiency Directive (2012/27/EU): Energy Efficiency Obligation Schemes"***

Policy categories - complementarity



Source: *ENSPOL (2015) Energy Saving Policies and Energy Efficiency Obligation schemes - D5.1 Combining of EEOs and alternative policies*

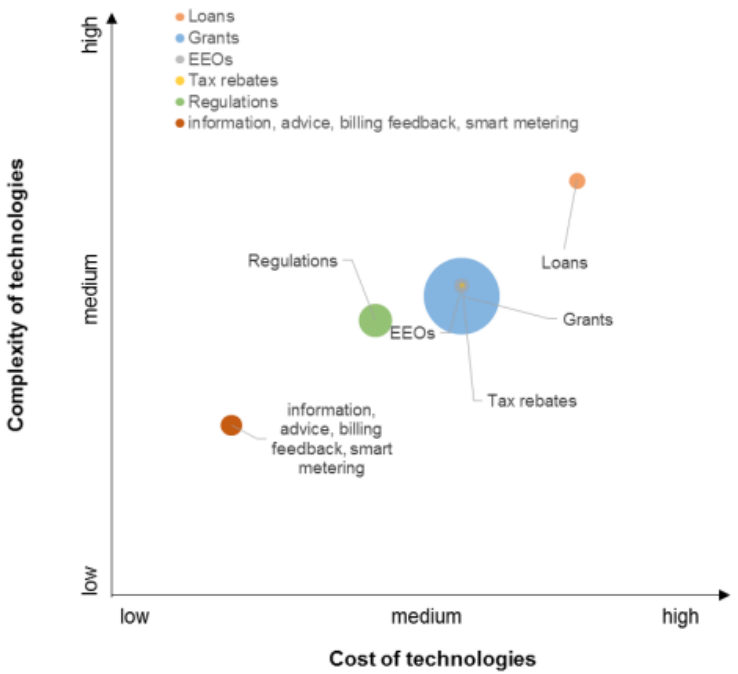
Policy categories – maturity of product/service



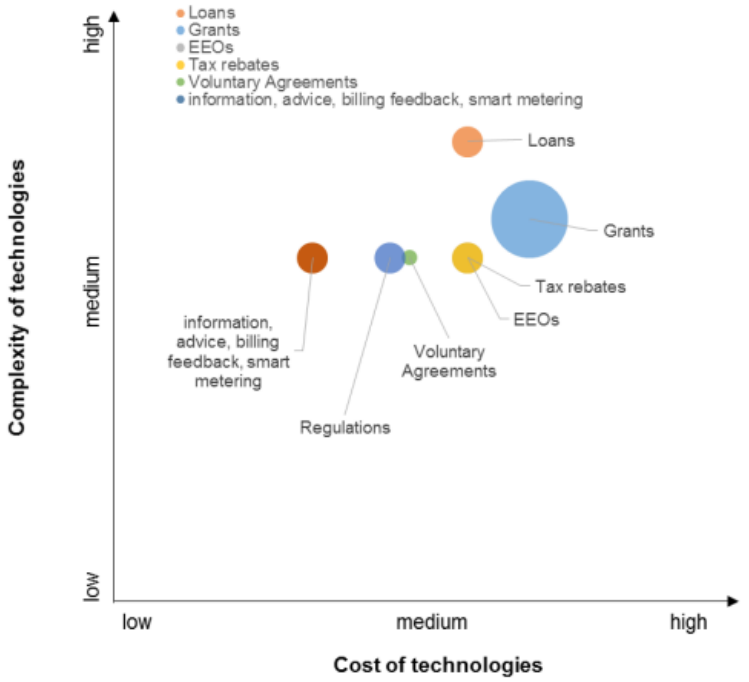
Source: *ENSPOL (2015) Energy Saving Policies and Energy Efficiency Obligation schemes - D5.1 Combining of EEOs and alternative policies*

Policy categories – cost and complexity

Residential



Industrial



Source: *ENSPOL (2015) Energy Saving Policies and Energy Efficiency Obligation schemes - D5.1 Combining of EEOs and alternative policies*

Eligibility of energy savings

Aside from double-counting calculation methodologies should consider

- **Free riders:** must be in addition to business-as-usual case, can use:
  - Annual sales charts for step-change
  - S-curve plots
  - Maximum market penetration
- **Rebound effect:** occurs where improved EE is used to access more energy services:
  - Direct effect should be considered in setting baseline
  - Indirect effect not considered in EED target

Further requirements for eligibility of energy savings for Article 7 compliance

- **Additionality:** savings must be above and beyond other Energy Community minimum requirements
- **Materiality:** actions of OPs must be demonstrably material

Policy design for meeting EED targets

Policy design for bridging the gap

Applying findings to policy design for EnC8

- **Outside of regulations required through EPBD and Eco Design:**
  - EEO schemes, other financing schemes and energy/CO_2 taxes are the three major mechanisms delivering energy savings in EU Member States
- **Eco Design is not an obligation for EnC8:**
  - Savings would therefore be considered additional (assumed eligible for Article 7)
  - But is market transformation best done through regulation or financial incentives or both? → depends on market maturity
- **What policy package is complementary?**
  - Information and feedback measures complement all other policy options
  - Energy taxes also do but unlikely to stimulate investment decisions alone

Applying findings to policy design for EnC8

- **What policy package is complementary (cont.)?**
  - Purchase subsidies and access to capital measures:
    - overlap each other → avoid targeting same end-user/product
    - Should only be offered for savings above and beyond regulations or voluntary agreements
    - Purchase subsidies used for lower cost, simpler measures; access to capital for higher cost, more complex measures
  - Voluntary agreements may precede regulations (while market remains immature) or go above and beyond but not overlap

- **Most appropriate policy measure also depends on:**
  - Product and end-user targeted and their associated barriers to EE uptake
  - Practicality/cost of implementation (eg voluntary agreements suit very large users)
  - Political and social acceptability

How feasible is the EEO-only approach for Article 7 targets?

- **Principle constraint is politically acceptable levy on energy prices**
  - Most EEO schemes internationally impose <1% increase in retail price
  - By focusing on most cost effective measures experience is utilities have achieved savings at cost of <3 €c/lifetime-kWh saved
  - Our work in Croatia (under EU targets), Serbia and Montenegro suggests a 100% EEO to meet Article 7 likely to require retail price increase >2%
- **Other issues with lack of EE experience in utilities and concern over direct funding for utilities**

Alternative measures are likely required to achieve targets for EnC8

Process for “filling the gap” – workshop questions

- **Look at existing measures – which are eligible for contributing towards Article 7?**
  - Must be additional to any other EED/EPBD minimum requirements
  - Careful of double-counting
  - Note difficulty in quantifying information-focused measures
  - What end-use sectors and EE products/services do these measures target?
- **Outline options for filling the gap**
  - Where do the greatest barriers to EE remain?
    - Which product(s)/services(s) address these needs?
    - Which end-users are targeted
  - Which proven EE policy measures address these product/user combinations?
  - Is there overlap with existing or already planned measures?
  - If so are the measures complementary or can existing measure be scaled up?
  - How does the proposed measure score against other selection criteria?
- **Iterative process!**

david.williams@eca-uk.com

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