



Experience gained from evaluations of energy efficiency policies

1st European Peer Learning Workshop
3 October 2017, Paris

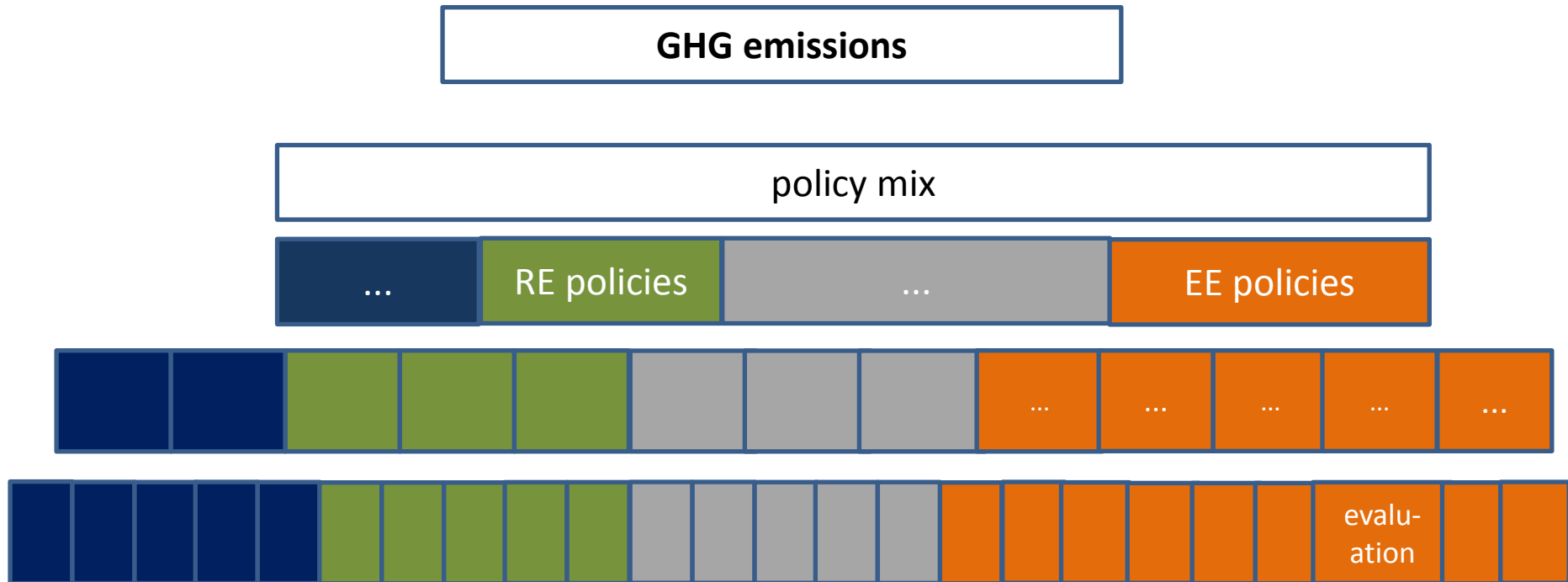
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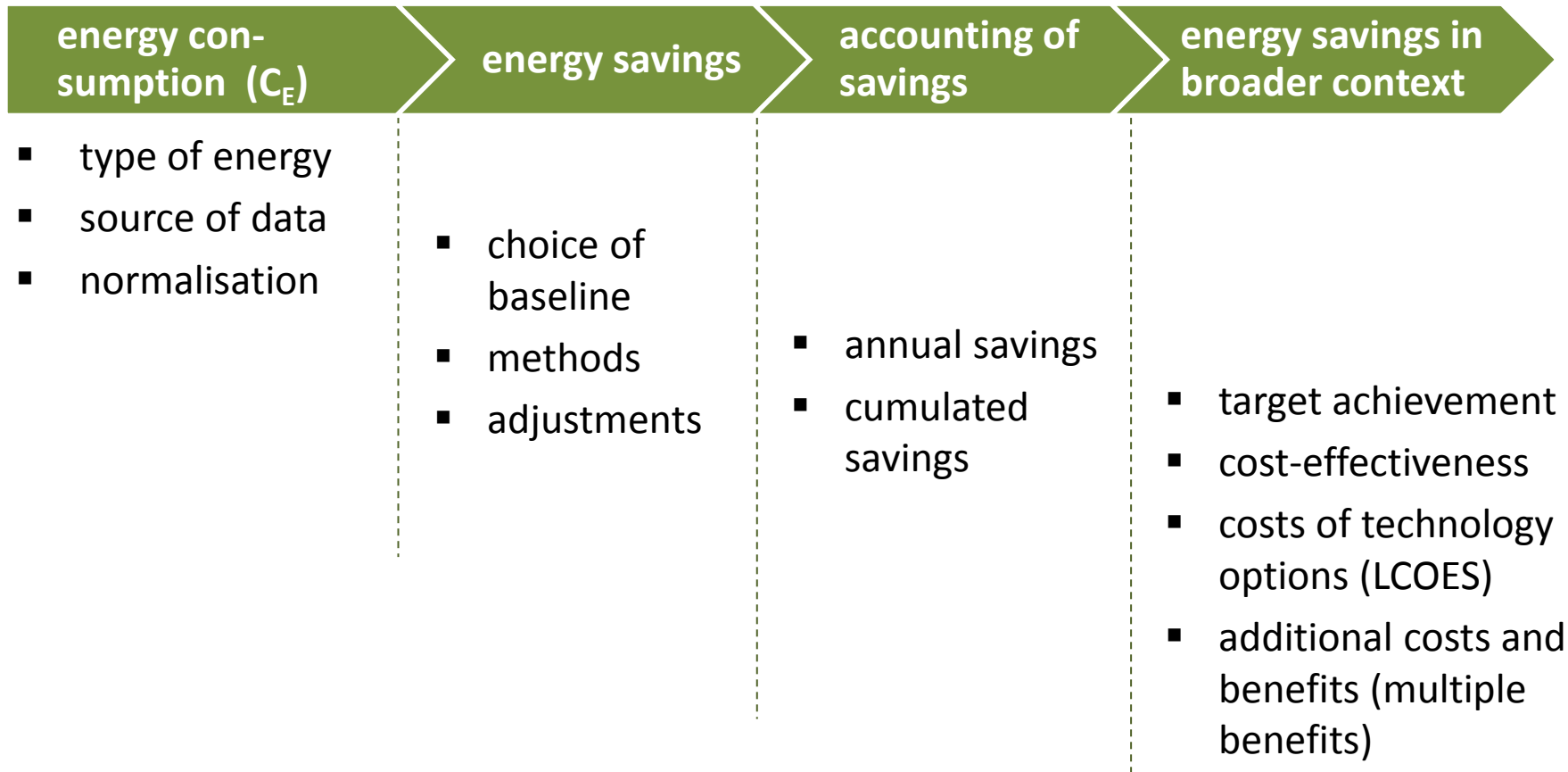
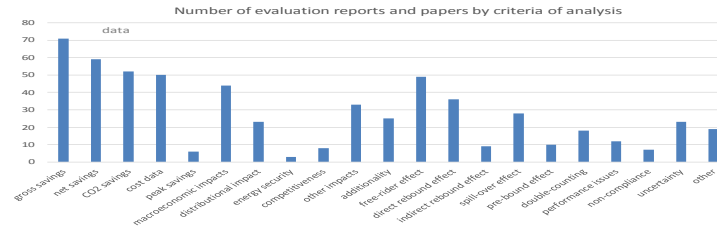


Literature review – part of ...





Literature review – sorting





Literature review – energy consumption



type of energy	final energy consumption	primary energy consumption
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source of data	<p>measure specific data:</p> <ul style="list-style-type: none"> • directly measured • metered utility data (billing, load) • technology sales / fuel stocks 	<p>derived data:</p> <ul style="list-style-type: none"> • measured averages • technology or consumption based calculations, averages • indicators in statistics
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• causality
 • actual consumption
 • external factors
 • comparability

Literature review – energy savings



normalised C_E with EE measure – energy consumption baseline \equiv gross energy savings

gross energy savings \pm adjustment factors \equiv net energy savings

assessment methods C_E

- direct
- deemed
- engineered (scaled)
- statistical aggregates
- modelling

baseline / counterfactual

- performance standard
 - constant
 - trending
- before-after
- control group

adjustment factors

- free-rider effect
- rebound effect
- trend
- double counting / interactions
- spill-over/multiplier effect

case-specific combinations of methods, baseline and adjustment factors required

Literature review - energy savings



Free rider effect

definition: „subsidies are paid to customers who would have purchased the technology even without the subsidy”

Olsthoorn et al. 2017

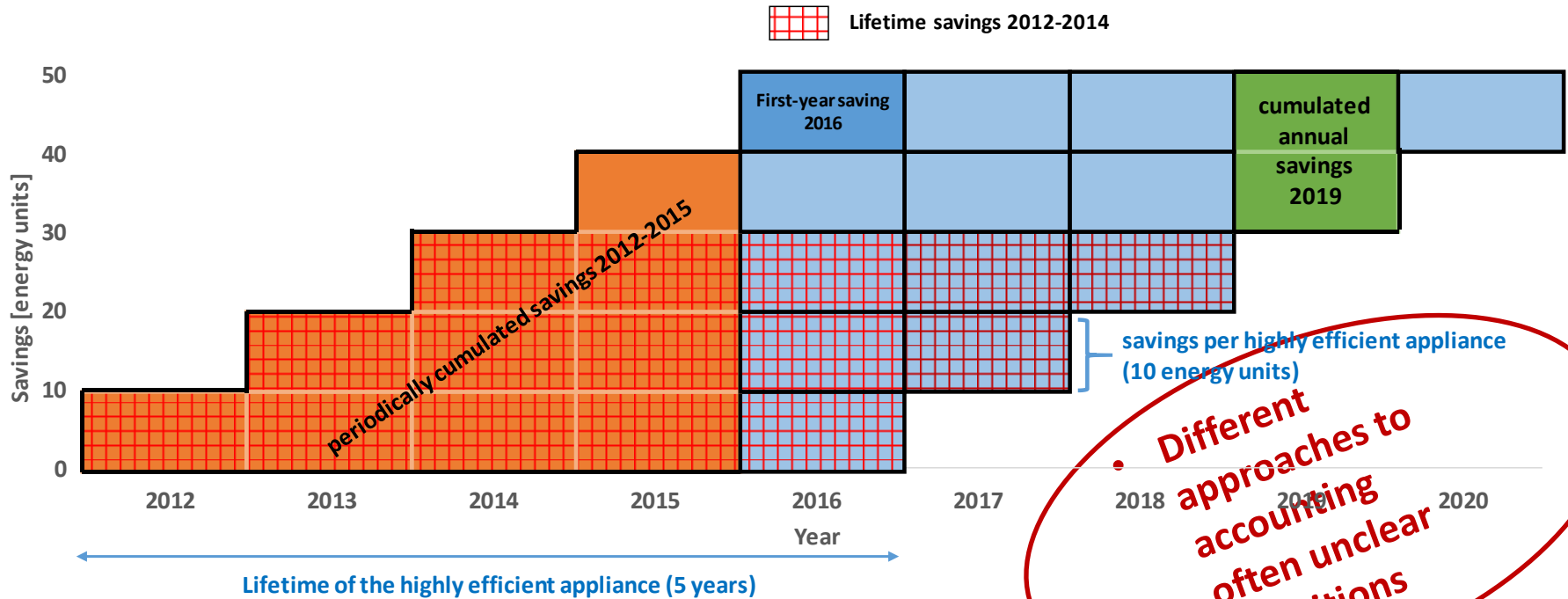
- strong free rider: planning to adopt a new appliance/technology anyway in the next years
- weak free rider: decided to purchase once informed on attractive technology package, no rebate necessary to adopt, just information needed
- approach:
 - stated preference experiments
 - 8 EU member states with about 15000 surveys
- results (average values):
 - 1 Euro energy savings reduce rebate by 0.17 Euro
 - 1000 Euro more income increases rebate by 2.6 Euro
 - > 50% at a rebate level covering half of the purchase price, higher share of weak free riders



Literature review - accounting



accounting of energy savings as ... → depends on the objective of the addressee





Literature review – broader context



cost effectiveness of grant, investment or measure ...
→ depends on the objective of the addressee

Grant effectiveness: $\frac{\textit{grant amount (with or without administrative cost)}}{\textit{energy savings}}$

Investment effectiveness: $\frac{\textit{total investment (with or without maintenance)}}{\textit{energy savings}}$

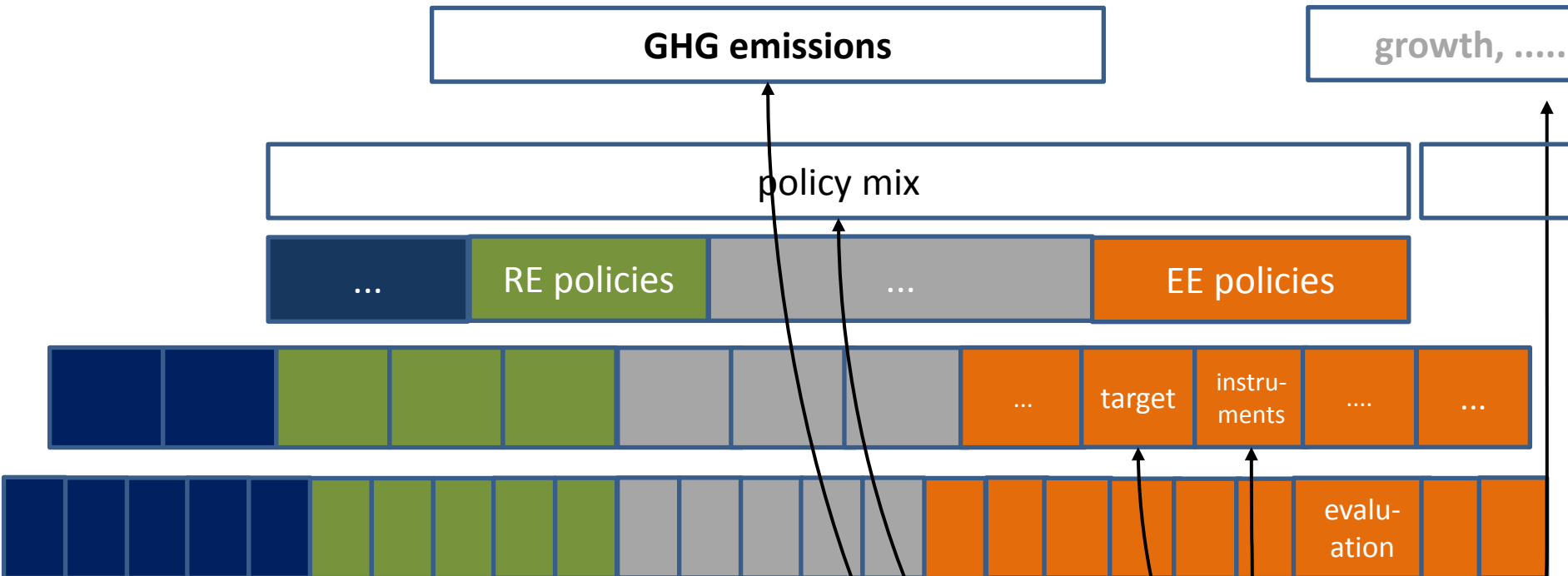
Measure effectiveness: $\frac{\textit{total investment + administrative cost}}{\textit{energy savings}}$

- Other objectives beyond energy savings**
 e.g.: greenhouse-gas emissions reduction
 energy cost reductions
 distributional effects
 competitiveness
 macroeconomic effects

- delineation of terminology
- available data
- overarching perspective



Literature review – broader context



Evaluations - a small part in the overall system BUT an important part as it helps to

- improve policy design/effectiveness
- report on the achievement of EE target
- decide on the policy mix at the energy system
- inform about GHG and
- other impacts

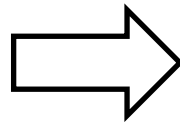
costs
gross/net energy savings



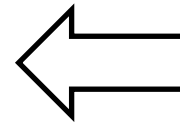
Literature review - discussion

Different adjustment factors:

- free-rider effect
- trend
- rebound effect
- double counting / interactions
- spill-over/multiplier effect



- **energy savings gross/net**
- **costs of actors/macro**
- **other benefits**



Different actors (donor, obliged entity, policy maker)
→ different objectives

- target of policy instrument
- EE target 2020
- GHG emission reduction 2020
- economic objectives

