Classical evaluation frameworks for energy efficiency programs

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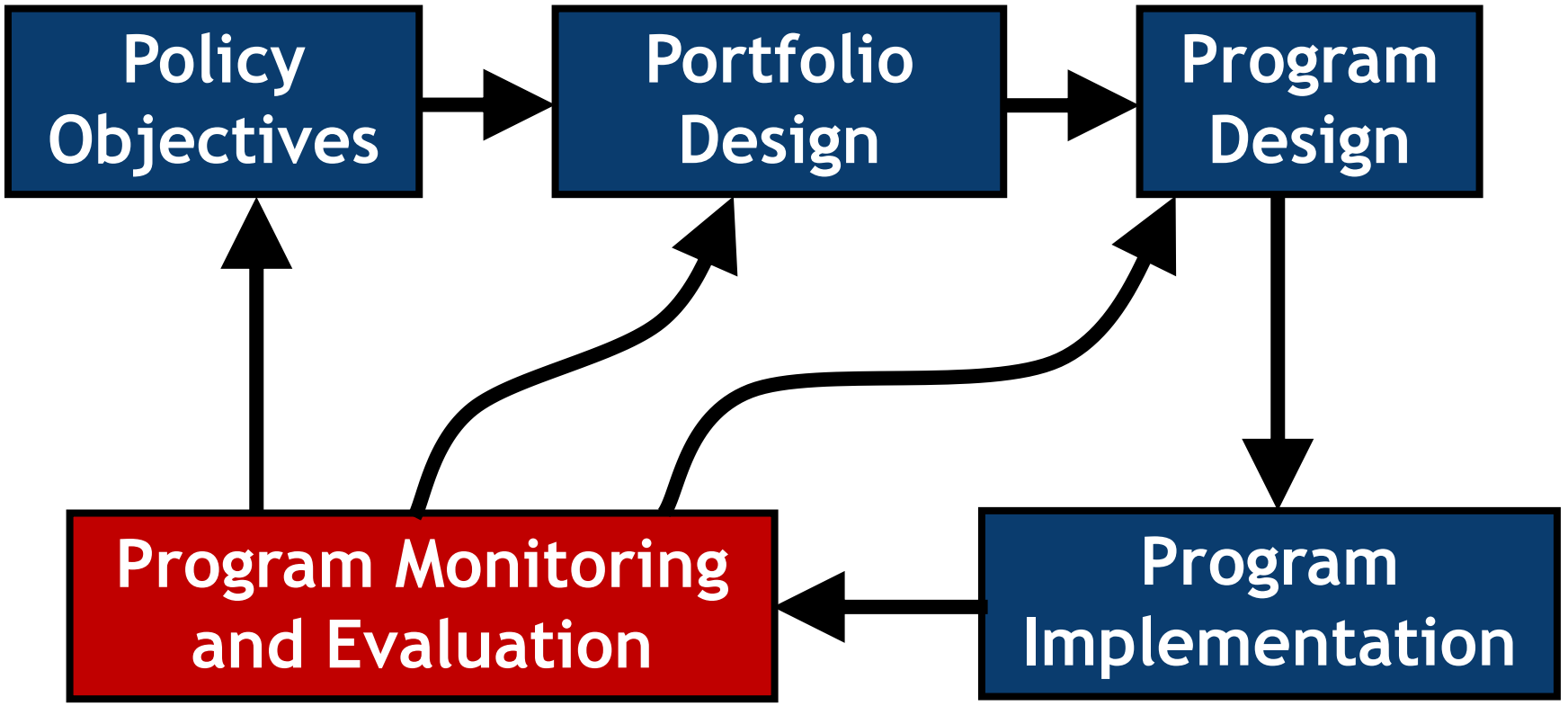
Program/Policy Planning Cycle



Types of evaluation carried out in the field of energy efficiency programs

Evaluation type	Description	Uses
Impact evaluation	Quantifies direct and indirect benefits of the program/policy	Determines amount of energy savings, emission reductions and in some cases possible co-benefits
Process Evaluation	Indicates how the program/policy implementation procedures are performing from both administration and participant perspective	Identifies how program/policy process can be improved
Market Effects Evaluation	Indicates how the overall supply chain and market have been affected by the program	Determines changes that have occurred in markets and whether they are sustainable with or without the program/policy
Cost-effectiveness evaluation	Quantifies the cost of program implementation and compares program/possible benefits	Determines whether the energy efficiency program/policy is a cost-effective investments as compared to other programs and energy supply resources

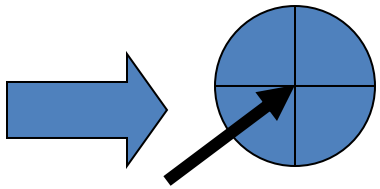
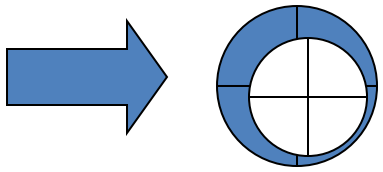
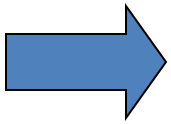
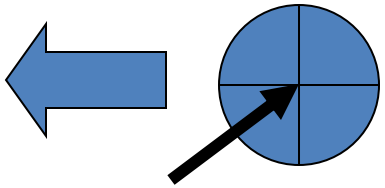
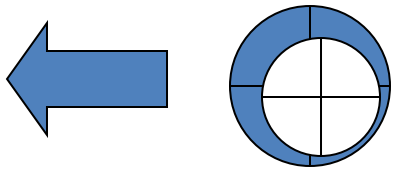
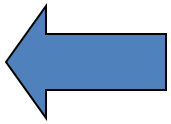
Source: National Action Plan for Energy Efficiency Leadership Group (2007)

What do we typically evaluate in impact evaluations?

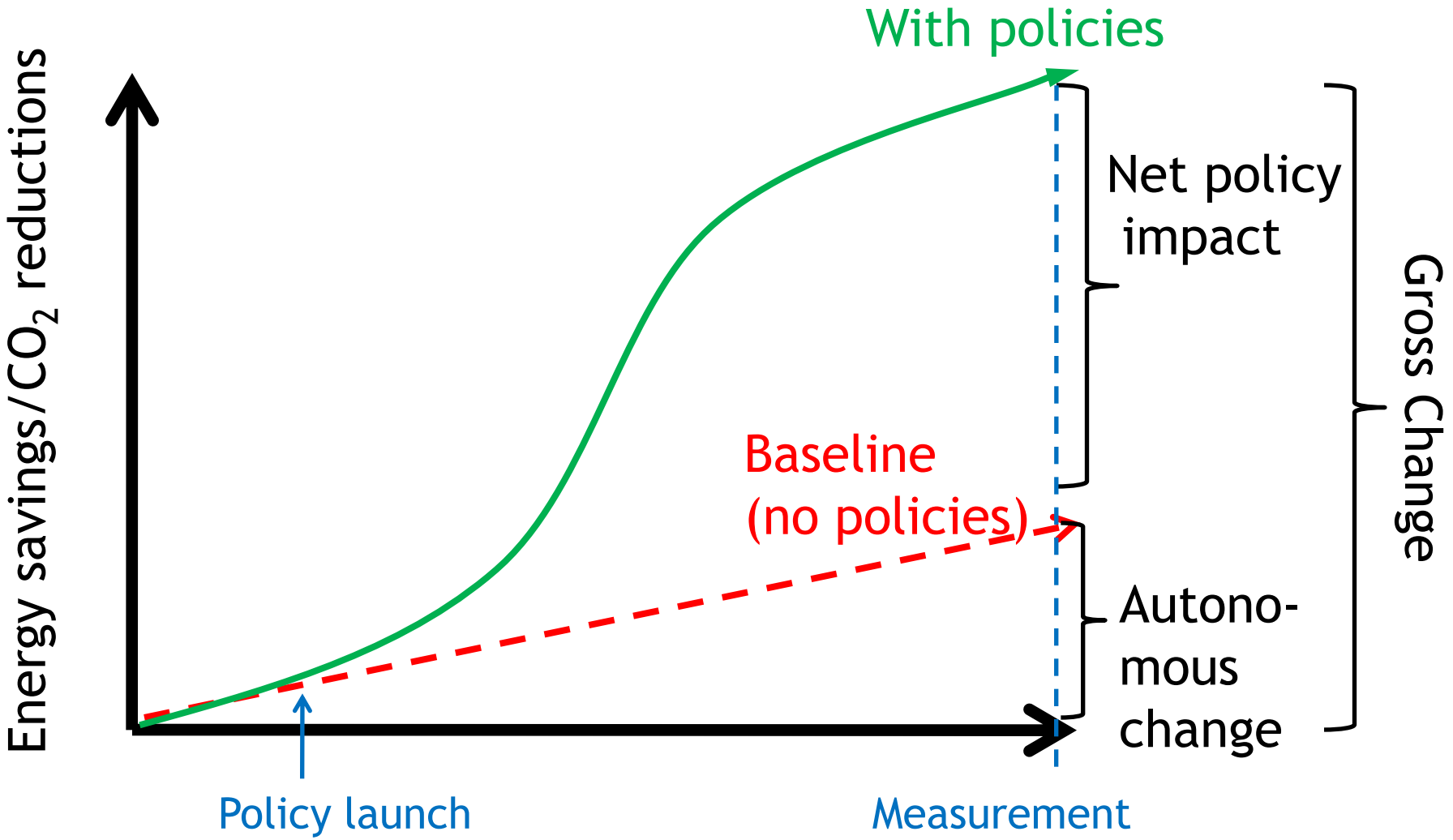
To what extent are policy targets being met?

To what extent did policy instruments make a difference in meeting the targets compared to the situation without the policy instruments in place?

What was the cost effectiveness of the policy instruments, and could targets have been reached against lower costs?

	Target achiev. / Effectiveness	Impact/ Effectiveness	Efficiency
Ex ante			 €
Ex post			 €

Main challenge: setting the baseline



Methods applied in policy evaluation

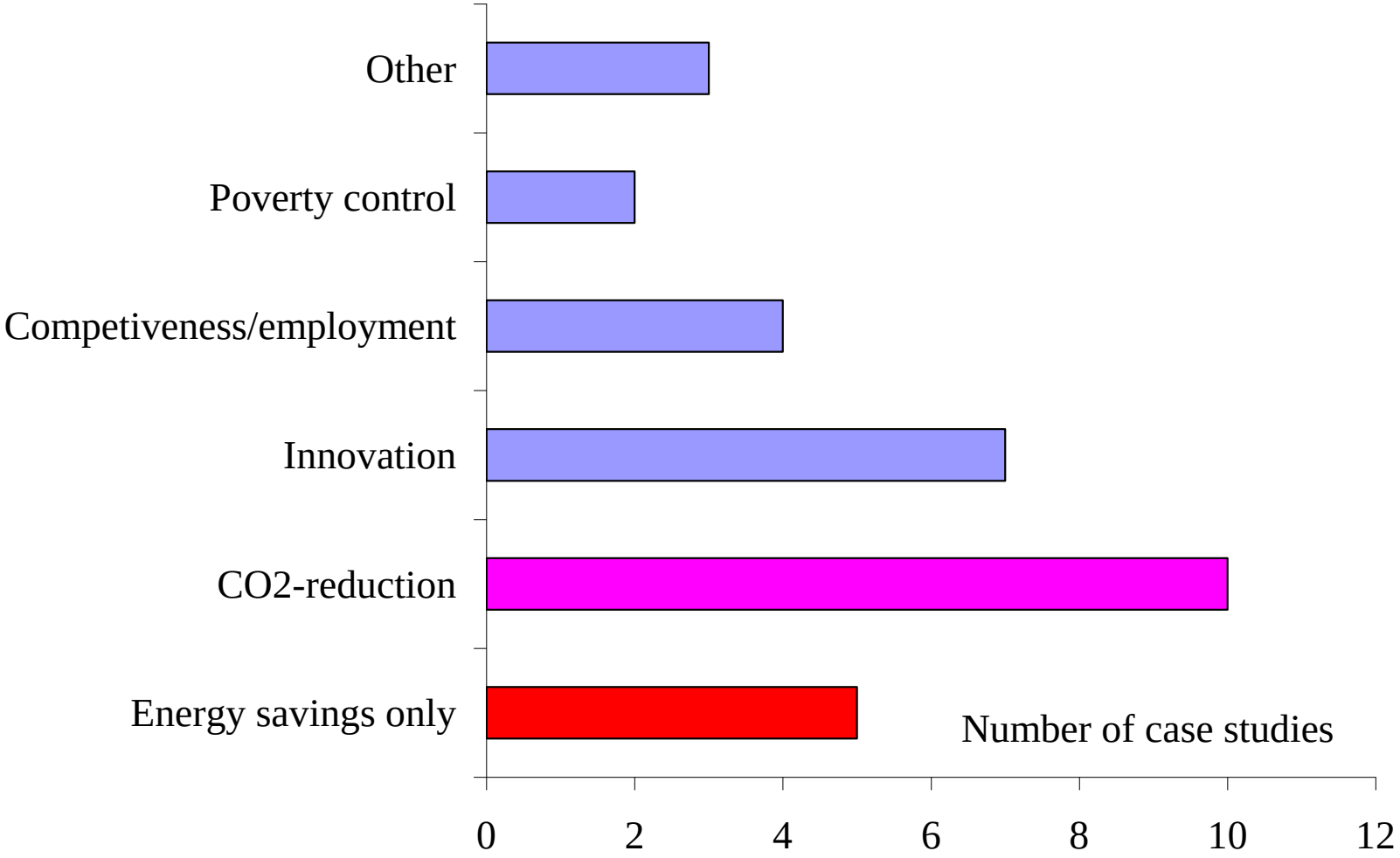
Top down methods

- End use or sector indicators
- Economic / econometric modelling

Bottom-up methods

- Direct measurement
- Analysis of energy billing or sales
- Modelling (based on stock and market statistics and surveys)
- Enhanced engineering estimates
- Mixed deemed and ex-post estimate
- Deemed estimate
- Theory based policy evaluation
- Logic modelling
- Equipment indicators

Energy efficiency programs often have multiple objectives



Source: Ecofys, Lund University, Politecnico Milano, Wuppertal Institute (2007) www.aid-ee.org

Examples on exploring (co-)benefits (1)

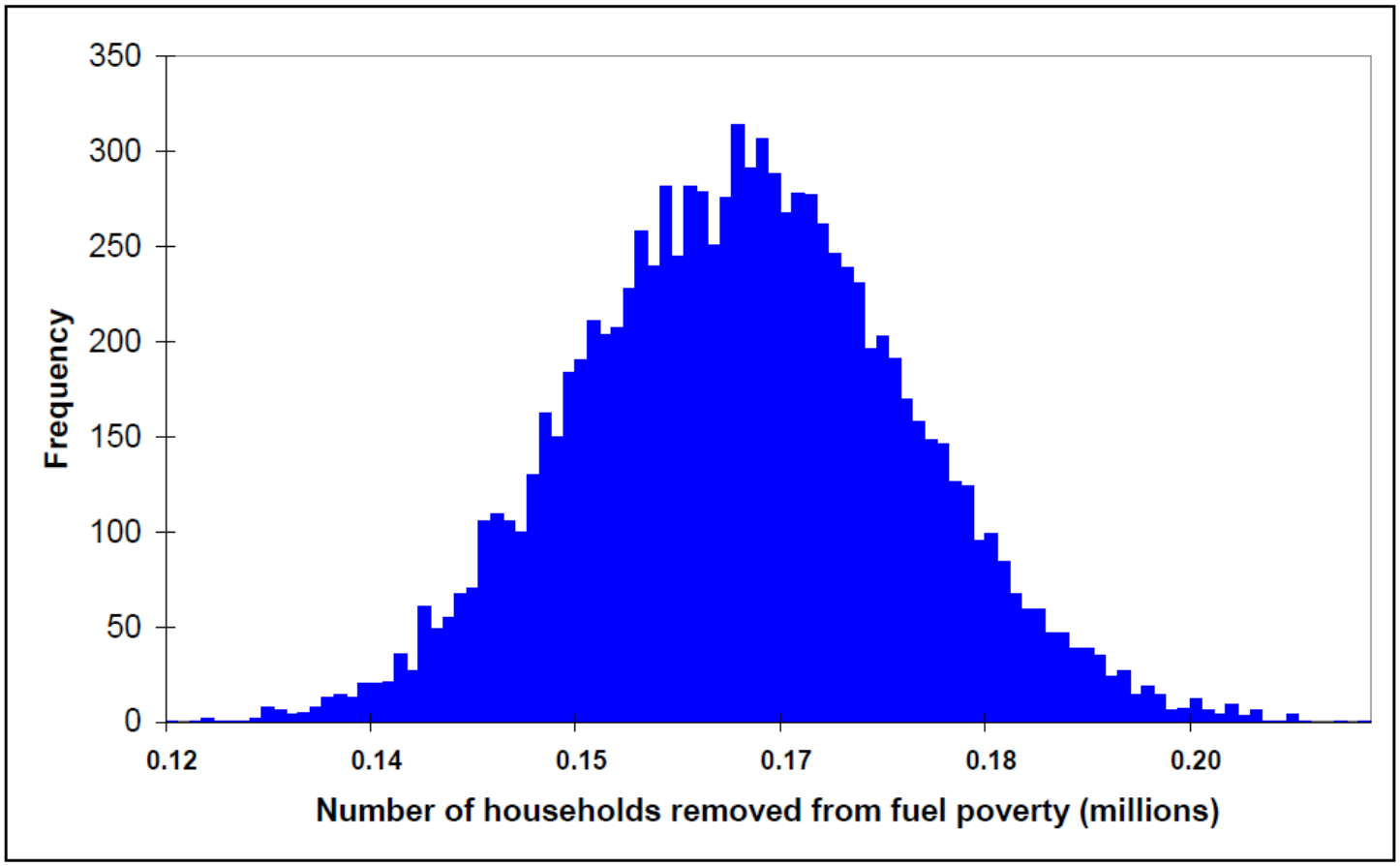
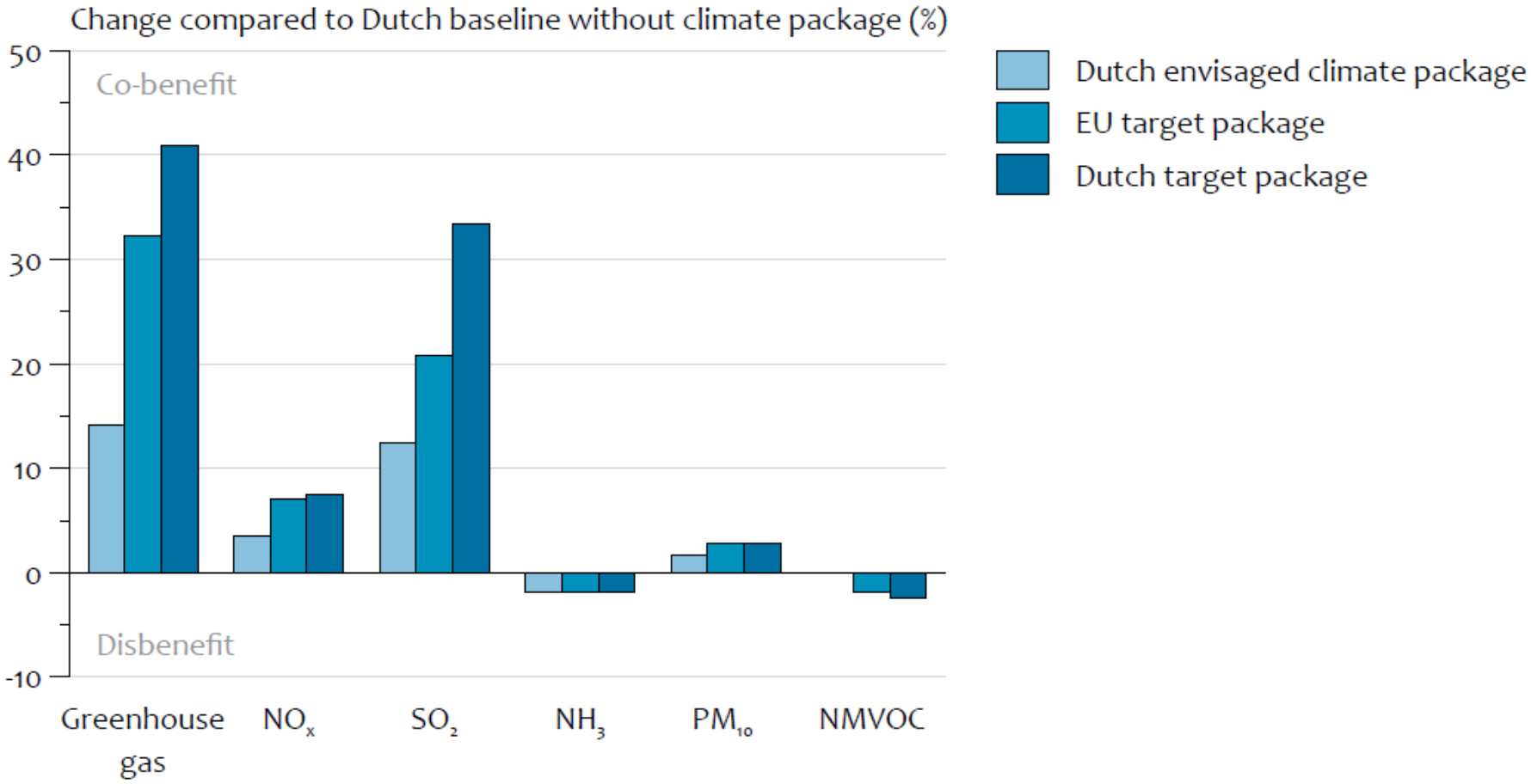


Figure 1: Distribution of possible values (after model convergence) for the number of households in England likely to be removed from fuel poverty after CERT. Based on the 2006 level of fuel poverty in England.

Source: DECC (2009)

Examples on exploring (co-)benefits (2)



Source: RIVM, ECN (2010) Co-impacts of climate policies on air polluting emissions in the Netherlands

Main challenges

- Developing good evaluation framework > linking energy efficiency improvements and co-benefits in a plausible way (theory)
- Developing a sound baselines
- Defining suitable indicators
- Results should spur the right discussion > but remember
  - Tinbergen Rule: “for each and every policy target there must be at least one policy tool. If there are fewer tools than targets, then some policy goals will not be achieved”

Thank you for your attention!

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