

Contract ENER/C3/2018-447/05

# Feasibility study EPBD article 19a

2<sup>nd</sup> stakeholder meeting

Brussels, 28 November 2019

# Modelling results

## Building renovation passport

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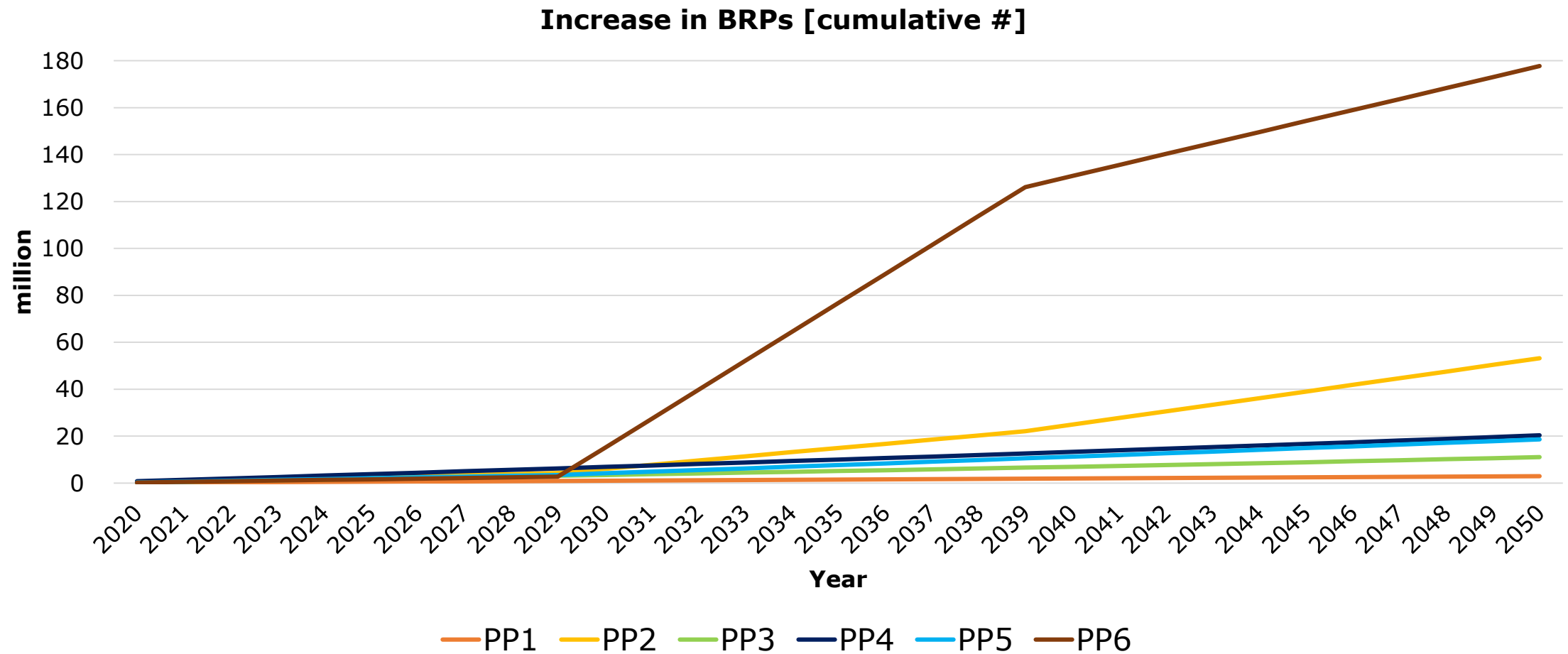
# Session outline

1. Scope and limitations of modelling
2. Overview estimated impact per category
  - Number of BRPs
  - EPC ratings
  - Energy demand
  - CO<sub>2</sub>-emissions
  - Residential energy expenditure
  - Health benefits
  - On-site renewables
  - Triggered private investments
  - Required public investments

# Scope and limitations of modelling

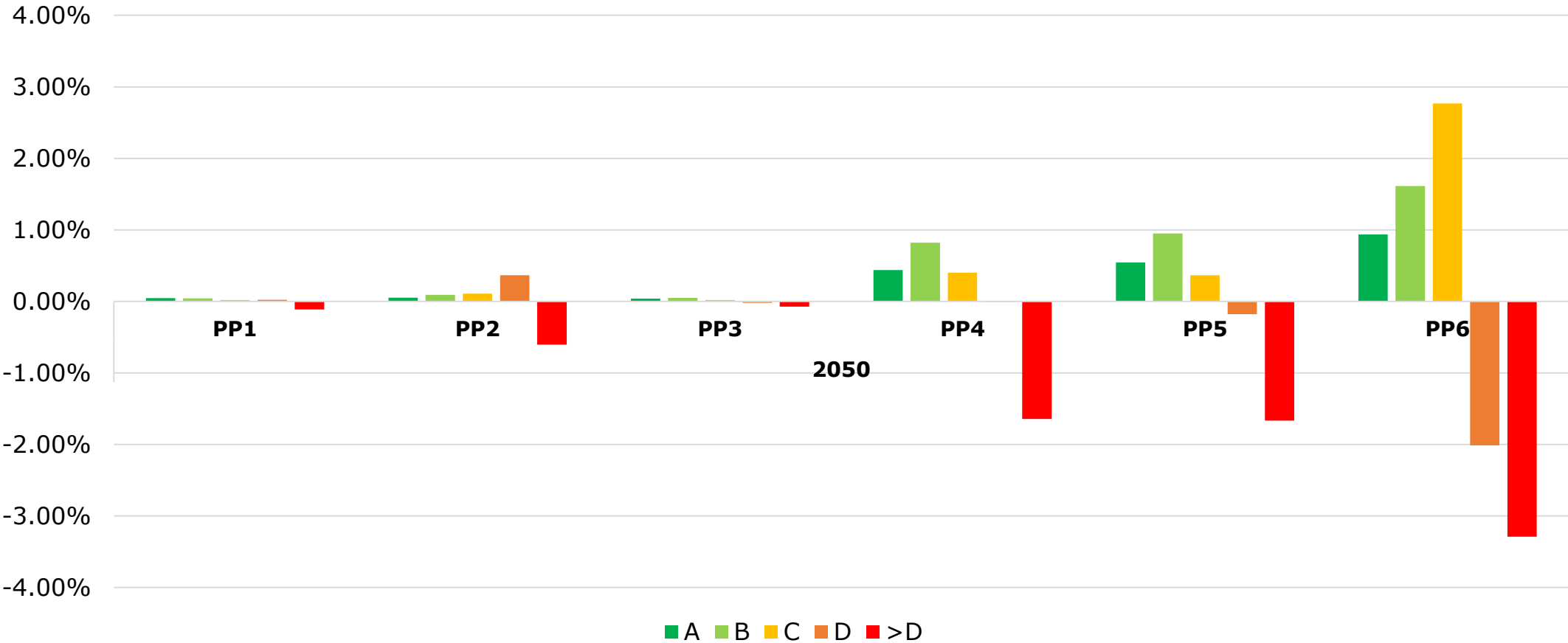
1. Only 6 simplified policy packages were selected for assessment.
2. 9 impact categories were selected based on their environmental, economic and social relevance. Data availability and the possibility to quantify the impact were considered when choosing categories.
3. Existing BRP schemes are few and evaluation data from these is scarce. Assumptions are complemented with figures from the existing literature and expert consultation.
4. Status quo scenario is a trajectory based on historical trends. It does not integrate potential future trends (increased ambitions from MS, change in behavior, adaptation to climate change, change in demographics etc.)
5. Effect of climate change has not been reflected in calculations.
6. Results of each policy package present estimations and not forecasts.

# Estimated increase in BRPs



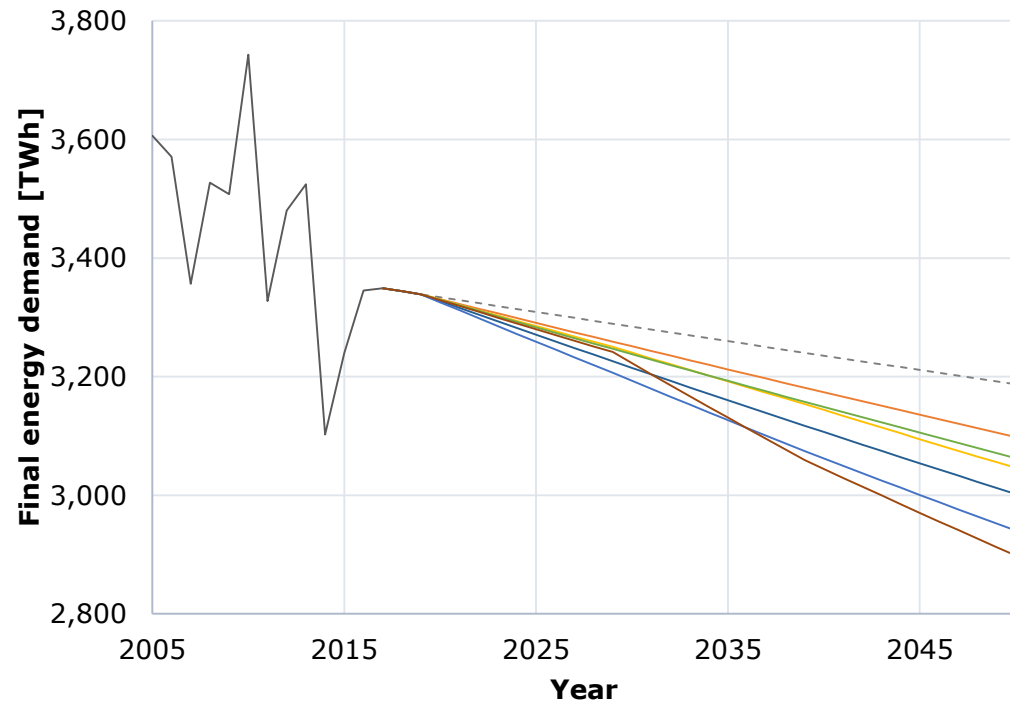
# Estimated improvement in EPC ratings

Estimated changes in EPC ratings, triggered by the introduced BRP, by 2050



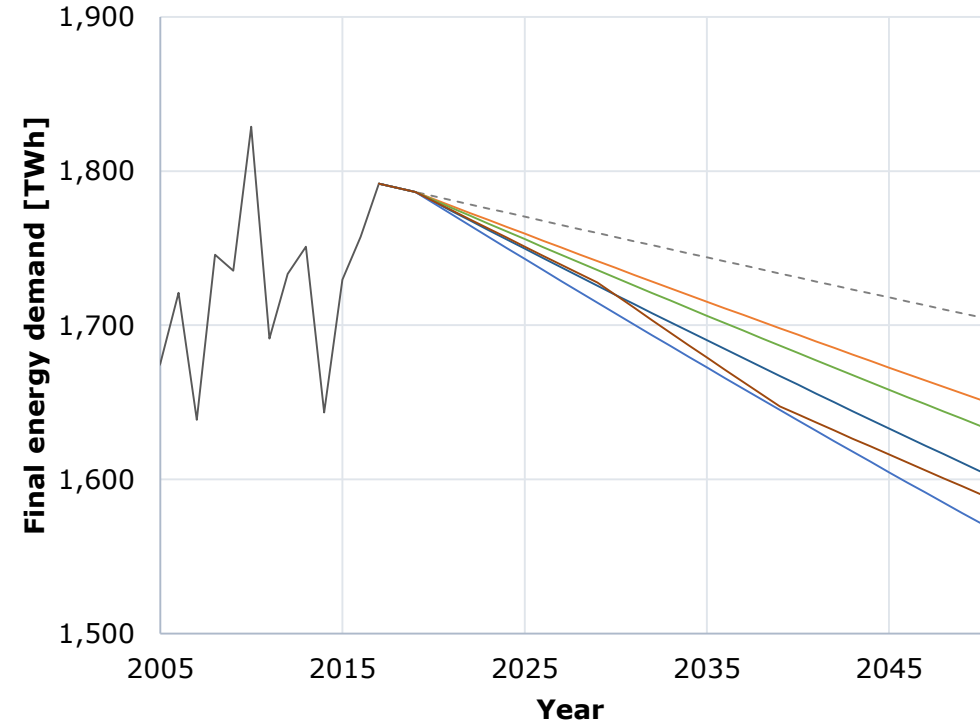
# Energy demand

## Residential energy demand



— Historic data    - - - - No Action    — Policy Package 1  
 — Policy Package 2    — Policy Package 3    — Policy Package 4  
 — Policy Package 5    — Policy Package 6

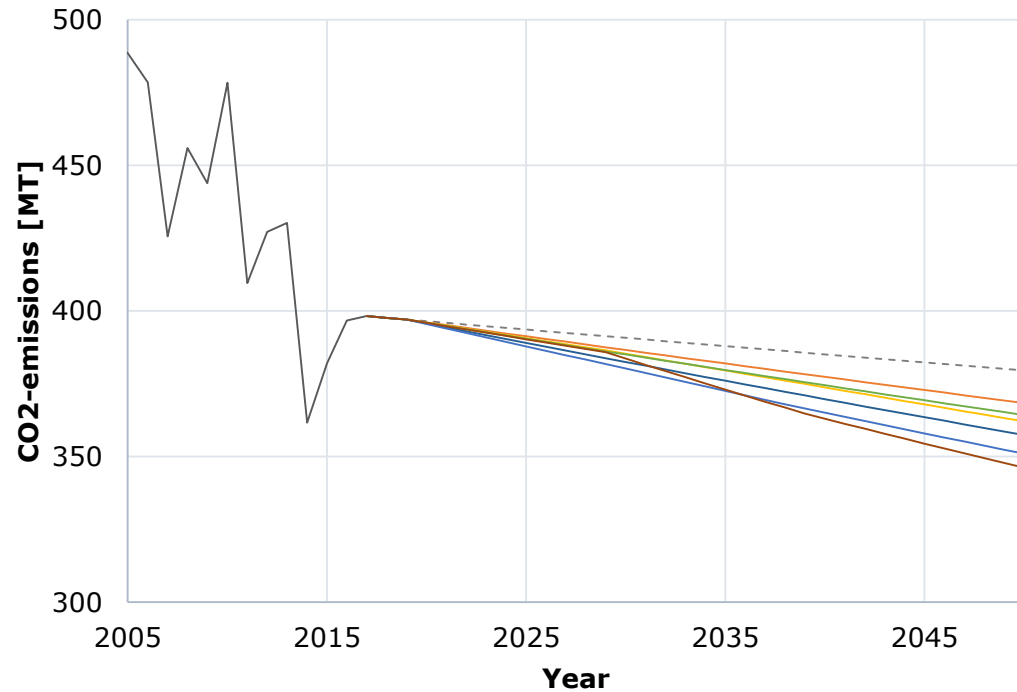
## Non-residential energy demand



— Historic data    - - - - No Action    — Policy Package 1  
 — Policy Package 2    — Policy Package 3    — Policy Package 4  
 — Policy Package 5    — Policy Package 6

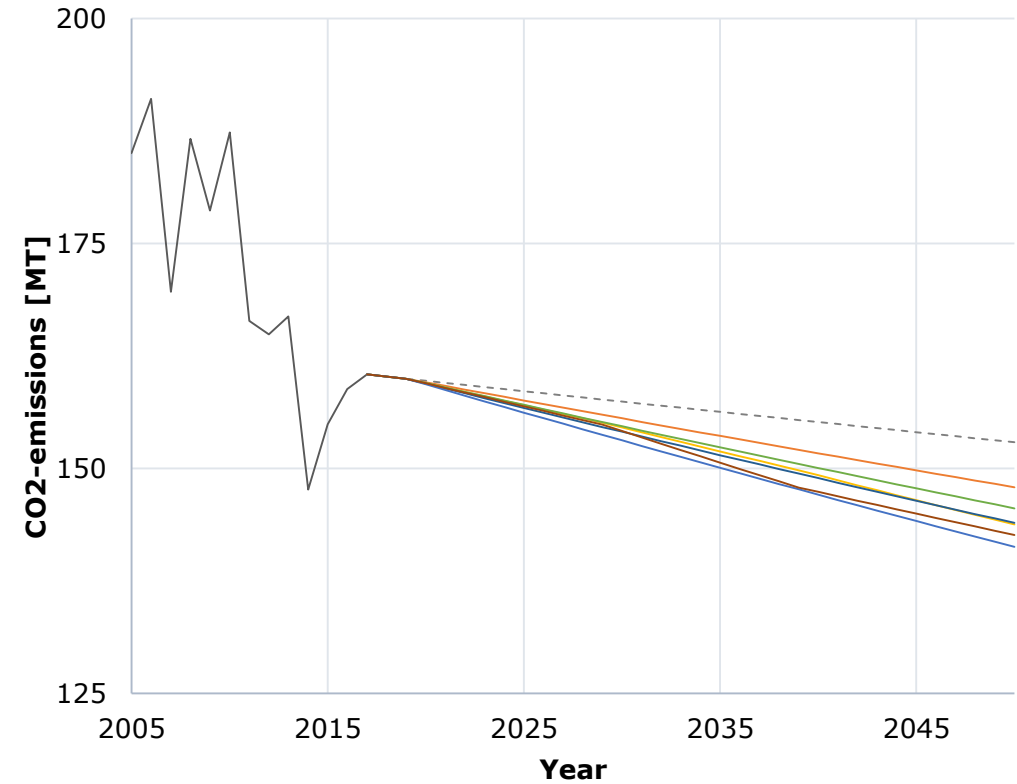
# CO<sub>2</sub> emissions

## Residential CO<sub>2</sub>-emissions



— Historic data    - - - - No Action    — Policy Package 1  
— Policy Package 2    — Policy Package 3    — Policy Package 4  
— Policy Package 5    — Policy Package 6

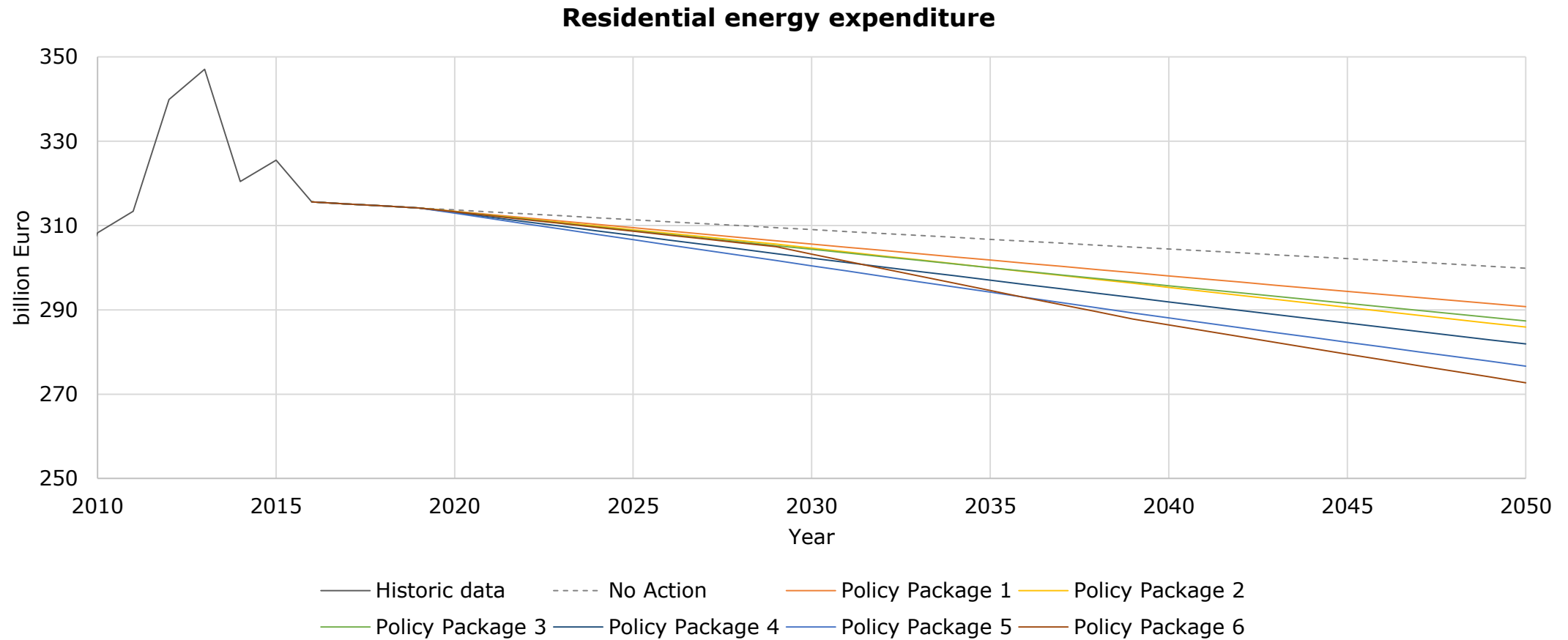
## Non-residential CO<sub>2</sub>-emissions



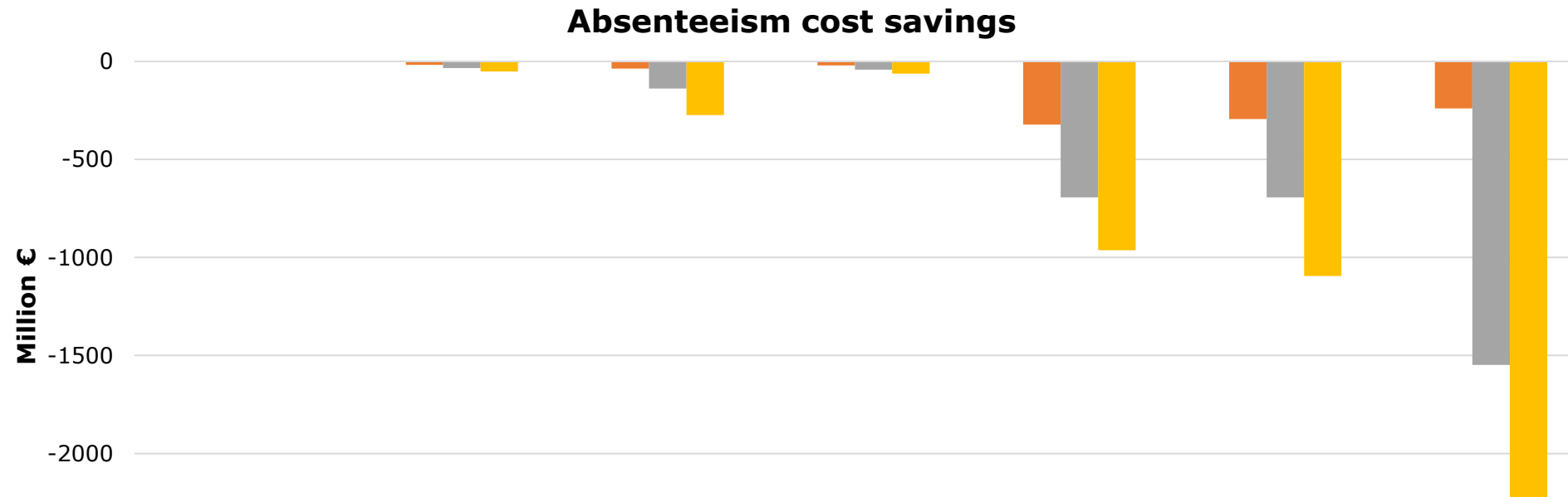
— Historic data    - - - - No Action    — Policy Package 1  
— Policy Package 2    — Policy Package 3    — Policy Package 4  
— Policy Package 5    — Policy Package 6



# Residential energy expenditure



# Health benefits

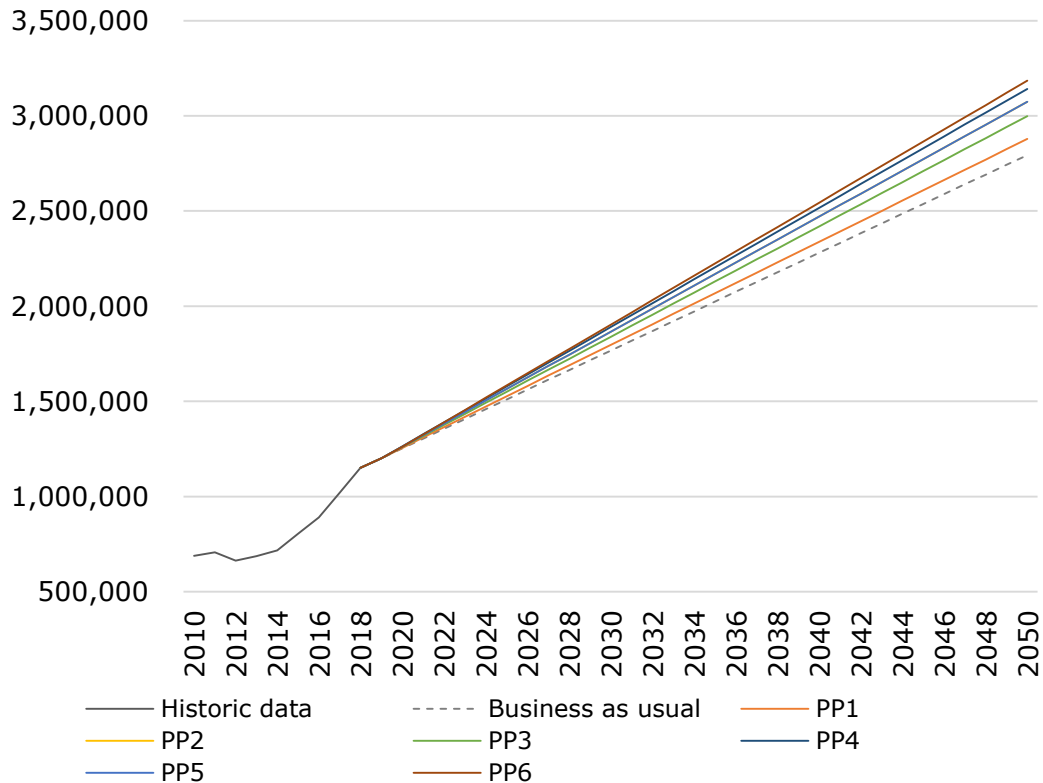


	No action	PP1	PP2	PP3	PP4	PP5	PP6
■ 2020	0	0	0	0	0	0	0
■ 2030	0	(17.29)	(36.42)	(20.94)	(322.14)	(293.40)	(239.37)
■ 2040	0	(34.57)	(138.16)	(41.67)	(694.13)	(694.13)	(1,548.26)
■ 2050	0	(51.86)	(273.63)	(62.40)	(963.22)	(1,094.86)	(2,233.15)

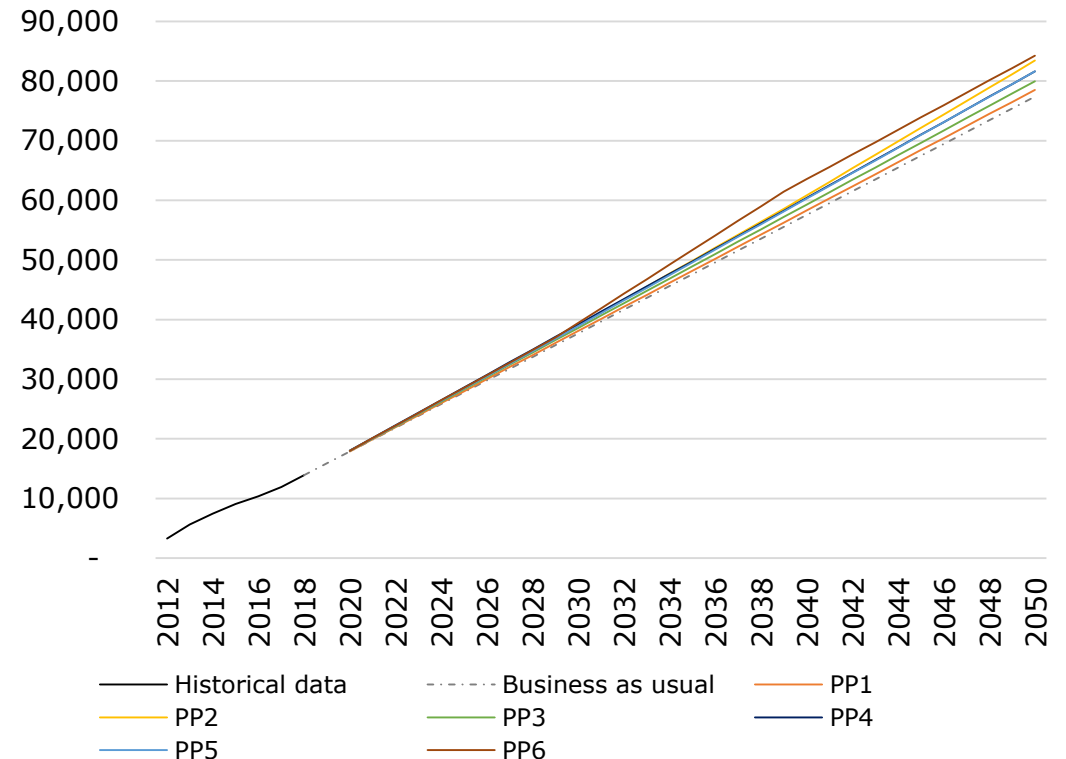
**Investment in million € per year in the different decades**

# Increase of on-site renewables (residential sector)

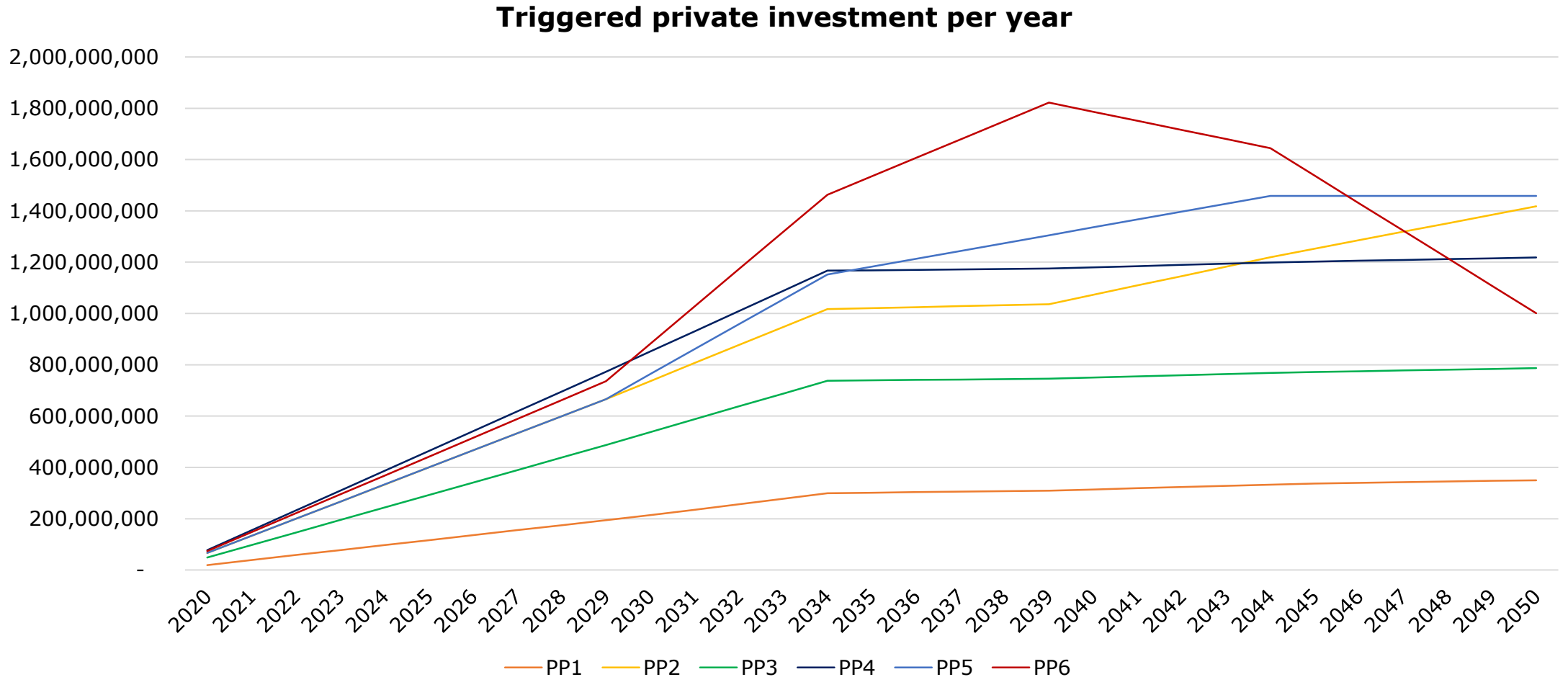
**Estimated impact on number of residential heat pumps**



**Estimated impact on residential solar PV**



# Triggered private investments



# Public investments required for different policy packages

million €	Cost for setting up a BRP	Communication and training activities	BRP Subsidies (average per year for residential buildings)
<b>PP1</b>	2.25	0.90	57.77
<b>PP2</b>	4.05	1.62	337.52
<b>PP3</b>	3.15	1.26	-
<b>PP4</b>	4.95	1.98	113.06
<b>PP5</b>	11.70	4.68	107.98
<b>PP6</b>	11.70	14.00	1,252.74



# Thank you...

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