

# Energy efficiency obligation scheme in the residential sector

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# EEOS

- The **Energy Efficiency Obligation Schemes (EEOS)**, as specified in Article 7 of the Energy Efficiency Directive (EED), are mandatory schemes, which can be established by Member States, setting the obligation on energy providers (energy distributors and/or retail energy sales companies) to achieve specific levels of energy savings through the implementation of energy efficiency measures in the end-use sectors.
- According to Article 9 of the Law 4342/2015 (paragraph 1), the establishment of an Energy Efficiency Obligation Scheme is foreseen from the 1<sup>st</sup> of January 2017.
- A Ministerial Decision was prepared clarifying all the critical issues regarding the design and the operation of the EEOS.

# Need for the introduction of the EEOS

- Deviation from the fulfillment of Article 7's target as outlined in the recently notified annual report.
  - *Implementation of ineffective alternative energy efficiency measures.*
  - *Limited financial instruments and resources for the realization of additional alternative measures.*
- Design and conduction of more cost-effective energy efficiency measures.
- Promotion of energy services.
- Establishment of a new perceptive regarding the relationship between customers and retail energy companies.

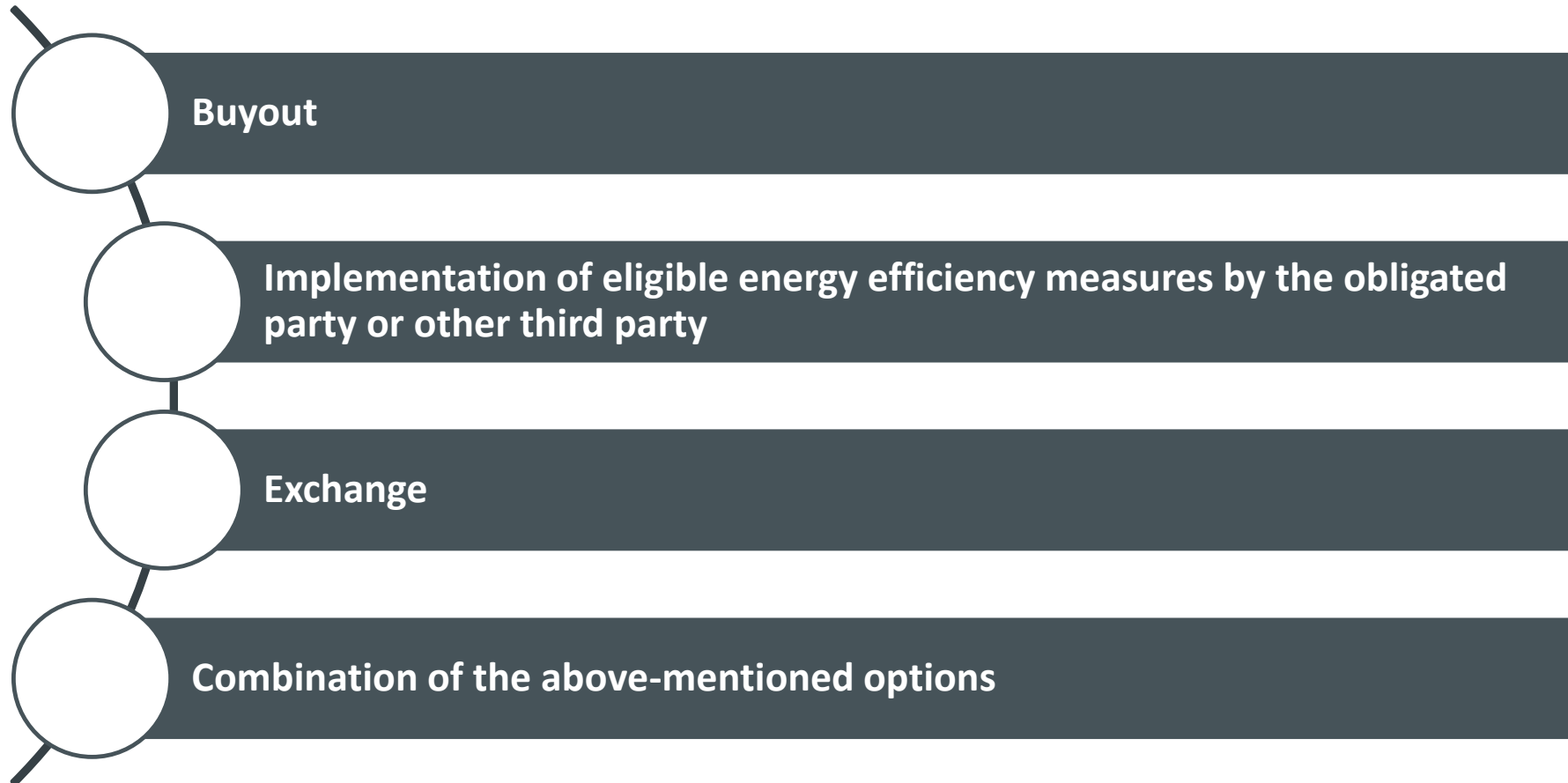
## Basic information

- The target, which must be achieved by the Obligated Parties cumulatively the period 2017-2020, is equal to **333 ktoe**.
- The portion of the Total Cumulative Target which must be fulfilled annually (**2017 - 30% of the Total Cumulative Target: 100 ktoe, 2018 - 40% of the Total Cumulative Target: 133 ktoe, 2019 - 20% of the Total Cumulative Target : 67 ktoe, 2020 - 10% of the Total Cumulative Target : 33 ktoe**).
- The identification of the obligated parties was performed on the basis of **objective and non-discriminatory criteria** including at least the sold energy to the final energy consumers.
- Focus was given exclusively on **retail energy sales companies** due to the structure of the energy markets in Greece.
- Selected types of fuels: **Electricity, Natural Gas, LPG, Gasoline, Diesel and Heating Oil**.
- Eligible measures can be considered only the ones that contribute to the achievement of **final energy savings from all the end-use sectors** (residential, tertiary, industrial, agricultural and transport sectors).

# Obligated parties for 2017 & 2018

A/A	Obligated parties	Energy carrier	Annual cumulative target (ktoe)	
			2017	2018
1	ΔΗΜΟΣΙΑ ΕΠΙΧΕΙΡΗΣΗ ΗΛΕΚΤΡΙΣΜΟΥ Α.Ε.	Electricity	31,76	43,32
2	ΗΡΩΝ ΘΕΡΜΟΗΛΕΚΤΡΙΚΗ Α.Ε.	Electricity	0,61	1,39
3	ELPEDISON	Electricity	0,57	1,29
4	ΜΥΤΙΛΗΝΑΙΟΣ Α.Ε.	Electricity	0,47	1,37
5	ΕΚΟ ΑΒΕΕ	Oil	11,56	23,47
6	CORAL ΑΕ	Oil	9,62	13,18
7	ΕΛΛΗΝΙΚΑ ΚΑΥΣΙΜΑ ΑΕΕ	Oil	7,01	-
8	ΑΥΙΝΟΙΛ ΑΒΕΝΕΠ	Oil	5,78	8,17
9	ΑΙΓΑΙΟΝ ΟΙΛ	Oil	5,36	7,16
10	REVOIL Α.Ε.	Oil	5,06	6,89
11	ΕΛΙΝΟΙΛ Α.Ε.	Oil	4,83	6,05
12	ΕΤΕΚΑ Α.Ε.	Oil	3,33	4,21
13	SILK OIL S.A.	Oil	1,78	2,14
14	ΜΑΜΙΔΟΙΛ-ΙΕΤΟΙΛ ΑΕ	Oil	1,22	-
15	CORAL GAS ΑΕΒΕΥ	Oil	1,18	1,58
16	ΠΕΤΡΟΓΚΑΖ	Oil	1,12	1,40
17	ΚΑΟΙΛ ΑΦΟΙ ΚΟΥΤΛΑ Α.Ε.	Oil	0,92	0,80
18	CYCLON ΕΛΛΑΣ	Oil	0,75	-
19	ΑΡΓΩ Α.Ε.	Oil	0,42	0,57
20	ΤΟΠ ΓΚΑΖ ΑΕ	Oil	0,30	0,42
21	FGAS.eu	Oil	0,26	0,35
22	GS GAS	Oil	0,18	0,26
23	ΡΟΔΟΓΚΑΖ ΑΕ	Oil	0,16	0,31
24	TRIGON GAS	Oil	0,16	0,20
25	ΝΗΣΟΓΚΑΖ ΑΕ	Oil	0,07	0,08
26	LEON GAS ΑΒΕΕ	Oil	0,06	0,09
27	ΥΓΡΑΕΡΙΑ ΠΡΙΜΑΓΚΑΖ ΑΕ	Oil	0,04	-
28	ΡΗΟΕΝΙΧ ΠΕΤΡΕΛΑΙΟΥΣΕΙΣ ΑΕ	Oil	0,04	0,07
29	ΕΛΛΗΝΙΚΑ ΠΕΤΡΕΛΑΙΑ Α.Ε.	Oil	-	0,86
30	ΝΕΤΟΙΛ S.A.	Oil	-	0,07
31	ΔΕΠΑ	NG	0,75	0,75
32	ΕΠΑ ΘΕΣΣΑΛΟΝΙΚΗΣ	NG	1,62	3,17
33	ΕΠΑ ΘΕΣΣΑΛΙΑΣ	NG	0,90	
34	ΕΠΑ ΑΤΤΙΚΗΣ	NG	2,14	3,04
35	M&M GAS Α.Ε.	NG	-	0,33
Σύνολο			100	133

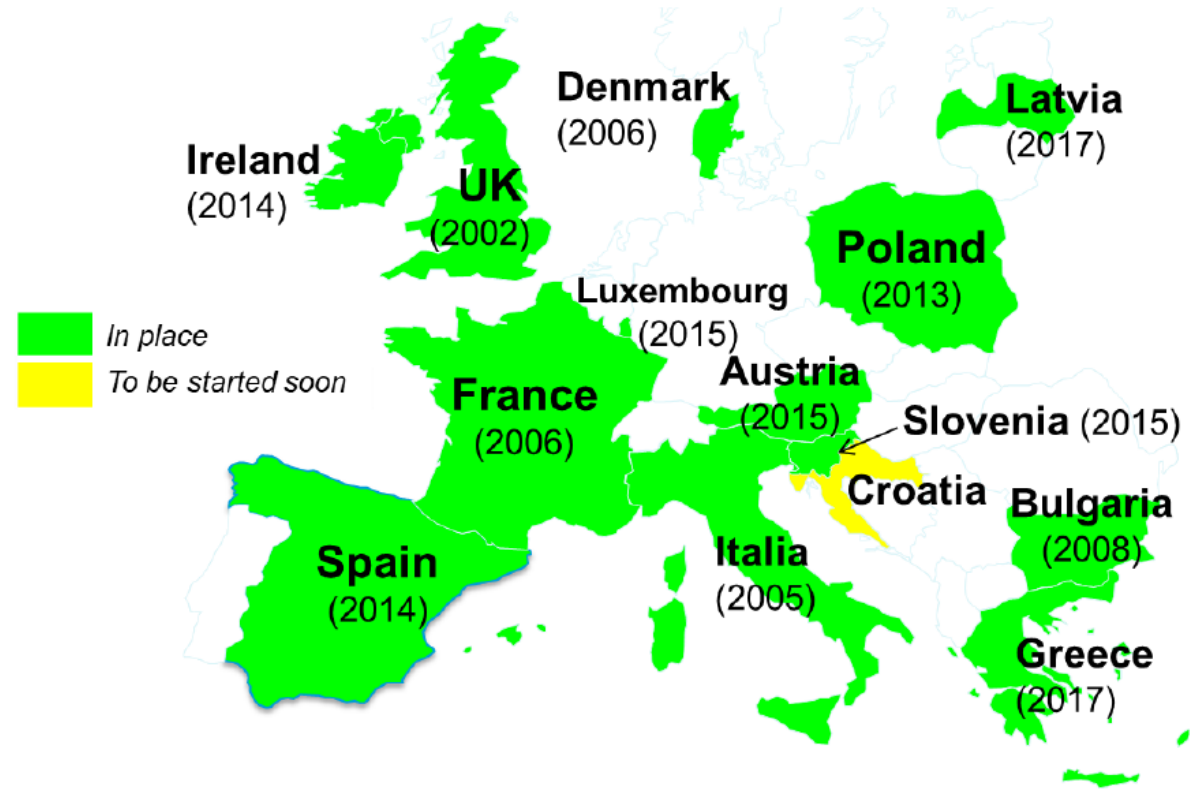
# Implementation options for the fulfilment of the target



# Indicative list for residential sector

Indicative measures	Type	Bottom-up	Lifetime (years)
Insulation: Building envelope (cavity wall and other insulation such as solid, wool, etc.)	Technical	BU4	30
Insulation: Building envelope (loft/roof and floor insulation)	Technical	BU4	25
Draught proofing for increasing the air-tightness of the buildings	Technical	BU4	5
Windows/glazing with low U value	Technical	BU4	30
New hot water storage tank with foam insulation	Technical	BU22	15
Insulation of hot water pipes, with material on unexposed hot water pipes	Technical	BU23	20
Heat reflecting radiator panels: Insulation material installed between radiators and the wall to reflect heat back into the room	Technical	BU4	18
Energy efficient heating boilers irrespective of fuel	Technical	BU6	20
Heating control: Timing devices, thermostats and radiator valve thermostatic controls	Technical	BU24	10
Heat recovery systems for recovering and recirculation of heat	Technical	BU20	17
Hot water saving faucets with flow restrictors	Technical	BU25	15
Heat pumps: Air to air	Technical	BU6	10
Heat pumps: Exhaust air to water	Technical	BU6	15
Heat pumps: Ground source	Technical	BU6	25
Energy efficient (class A or above) room air conditioner	Technical	BU5	15
Connection to the district heating	Technical	BU6	30
Solar thermal collectors for hot water supply	Technical	BU7	20
Solar thermal collectors for assisting space heating and cooling	Technical	BU4	20
Energy efficient (class A or above) cold appliances (e.g. refrigerators, freezers)	Technical	BU17	15
Energy efficient (class A or above) wet appliances (e.g. dish washers, washing machines and tumble driers)	Technical	BU17	12
Energy efficient consumer electronic goods (e.g. DVD player, settop box, home computer)	Technical	BU18	3
Energy efficient compact fluorescent light bulbs for household use	Technical	BU10	6,000 hours
Luminaries with ballast systems (lighting units with dedicated efficient lamp fittings)	Technical	BU10	15
Awareness raising campaigns	Behavioural	BU1	2
Energy audits	Behavioural	BU2	2
Smart meters providing information on energy consumption	Behavioural	BU3	2
Trainings	Behavioural	BU1	2

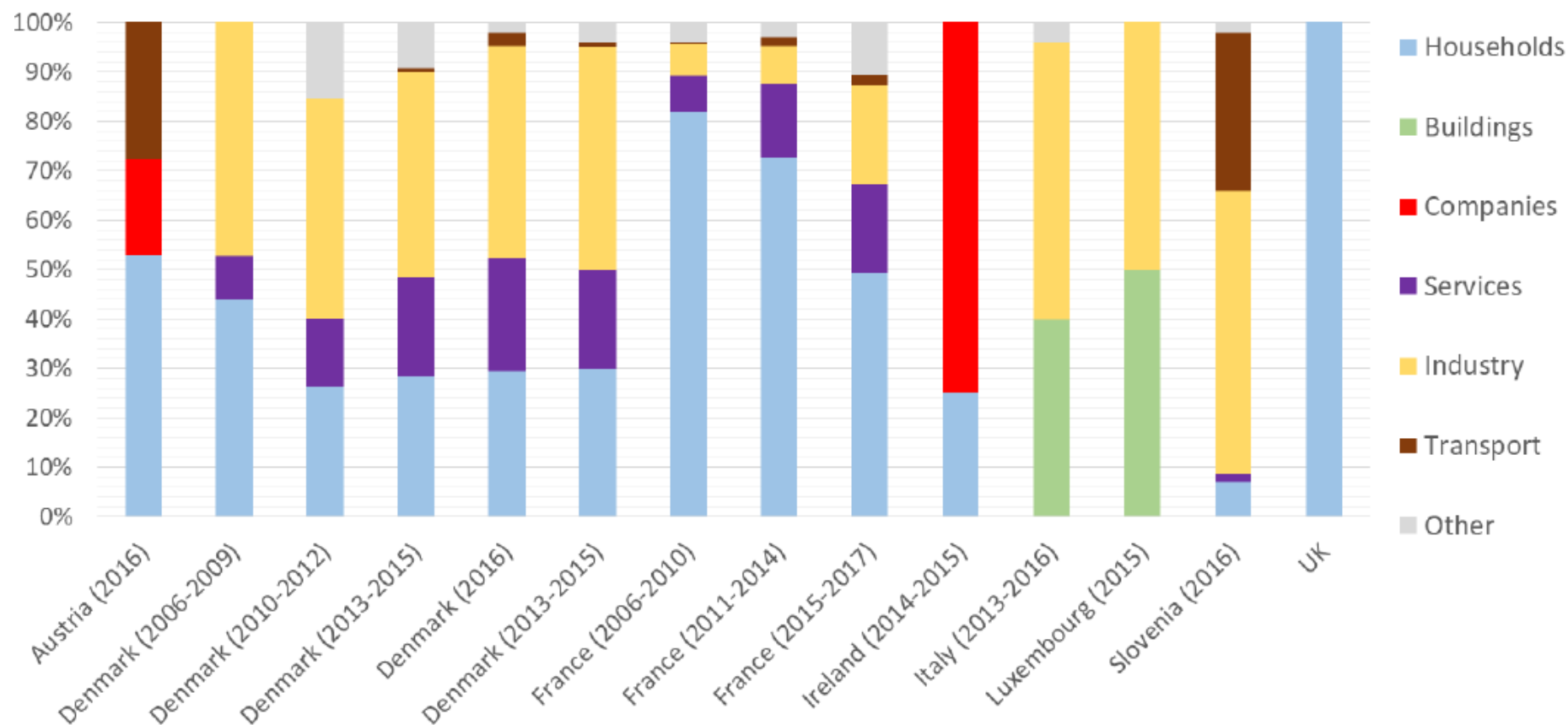
# EEOS in Europe



COUNTRY	TYPE OF PROVISION	CURRENT ELIGIBILITY CRITERIA
AUSTRIA	bonus (+50%)	Eligibility to special electricity tariffs
FRANCE	mandatory (specific target) + bonus	Income levels
GREECE	bonus (+40%)	Eligibility to special electricity tariffs
IRELAND	mandatory (sub-target)	Eligibility to means-tested benefits, social housing and/or pre-selected areas
UK	mandatory (specific target/obligation)	Eligibility to means-tested benefits, social housing (if G to E energy class), or identification by local authorities (pilot option)



# Statistics about the distribution of reported energy savings per sector



# Main design elements of the examined EEOs

	UK	France	Denmark	Austria	Ireland
<b>Target setting</b>	Mt CO2 savings over lifetime - Heat cost reduction for vulnerable households.	kWh “Cumac” final energy savings over lifetime taking an in-use factor (4%) into account.	Final energy savings.	PJ total final energy savings over lifetime.	GWh yearly primary energy savings.
<b>Type of measures</b>	Mainly subsidies.	Energy Saving Certificates; incentives to consumers as low interest loans or primes.	Mainly advice and subsidies.	Different types of incentives.	Energy Credits for realised Primary Energy Savings. Grants mainly at the residential sector. Energy Efficiency National Fund for non-residential sectors and energy performance contracting.
<b>Scope sector</b>	Households.	All final consumers, but mainly households.	All final consumers, but mainly industry and households.	All end-use sectors, but focus on households.	Non- residential (75%), residential (20%) and energy poverty households (5%).
<b>Obligated parties</b>	Gas and Electricity suppliers.	Suppliers of gas, electricity, LPG, heating oil and district heating/cooling. Also wholesalers of autogas and gasoline/diesel.	Grid and distribution companies for electricity, gas, district heating and oil.	Retail energy sales companies of all energy carriers.	Energy suppliers and retail energy sales.

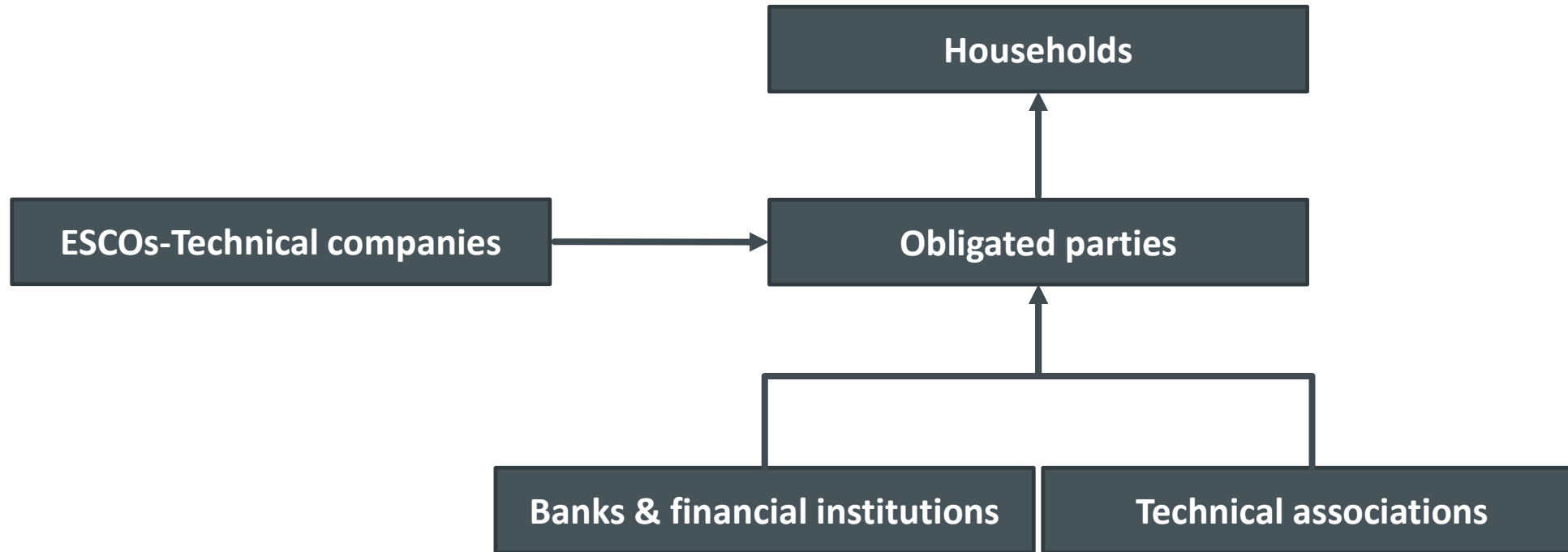
## Issues-Challenges

- **UK** - Distribution for Apr.2015-Mar.2017 (in % of number of the 611 577 actions installed): cavity wall insulation (30%), boiler replacements (26%), loft insulation (14.5%), heating control measures (14.5%), solid wall insulation (8%).
- **UK** - Difficulties to target the most vulnerable households were mentioned, while the targets have been decreasing over the years. In parallel, a new pilot approach is now tested by offering the flexibility for OP to achieve up a target with partnerships with local authorities that will identify for them households in needs of intervention.
- **UK** - It was also found more effective to allow installing actions in buildings next to eligible households.

## Issues-Challenges

- **France** - Local authorities, national agency for housing and social housing authorities are also eligible for participation in the scheme. Combination of the EEOS with the white certification scheme.
- **Austria** - The bonus for actions on fuel poverty has been used in a limited extent, as the corresponding programmes take longer time to develop and may be more difficult to implement.
- **Denmark** - Households contribute more to the scheme than they get back (cross-subsidising). Low additionality for actions in households. Bad quality of work and wrong calculation of savings made by some of the independent contractors.

# Proposed business model for EEOS



***Thank you for your attention!!!***