

An aerial, top-down view of a dense urban environment, likely a city center, with numerous high-rise buildings and a complex network of streets. The entire image is overlaid with a semi-transparent blue filter. In the center, there is a white logo consisting of a stylized 'a' followed by three horizontal lines, and the word 'ambience' in a lowercase, sans-serif font.

a≡ ambience

AEPC Market potential and outlook

BELESCO/AmBIENCE joint webinar

20 April 2021

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Agenda

- What are key features of AEPC?
- What is driving market potential?
- Market potential
- Market outlook
- Conclusions

Key features of AEPC



- **Integration of flexibility for enhanced CO₂ and cost savings**
- **Electrification potential with heat pumps, in combination with envelope insulation**
- **Optimize PV solar panel auto-consumption**
- **Savings guarantees, based on M&V protocols**
- **ESCO financing to finance extra hardware cost and Active Control capex**

What is driving AEPC market potential

- **Regulatory environment**
- **Current EPC/M-EPC market potential**
- **Flexibility potential, linked to**
 - **Technology**
 - **Applications**
 - **Customer acceptance**
- **Dynamic pricing availability and market potential**
- **Business case comparison of AEPC vs EPC**
- **Existing aggregator market**
- **Collaboration potential with Aggregators**
- **ESCO & Facilitator uptake of the AEPC model**

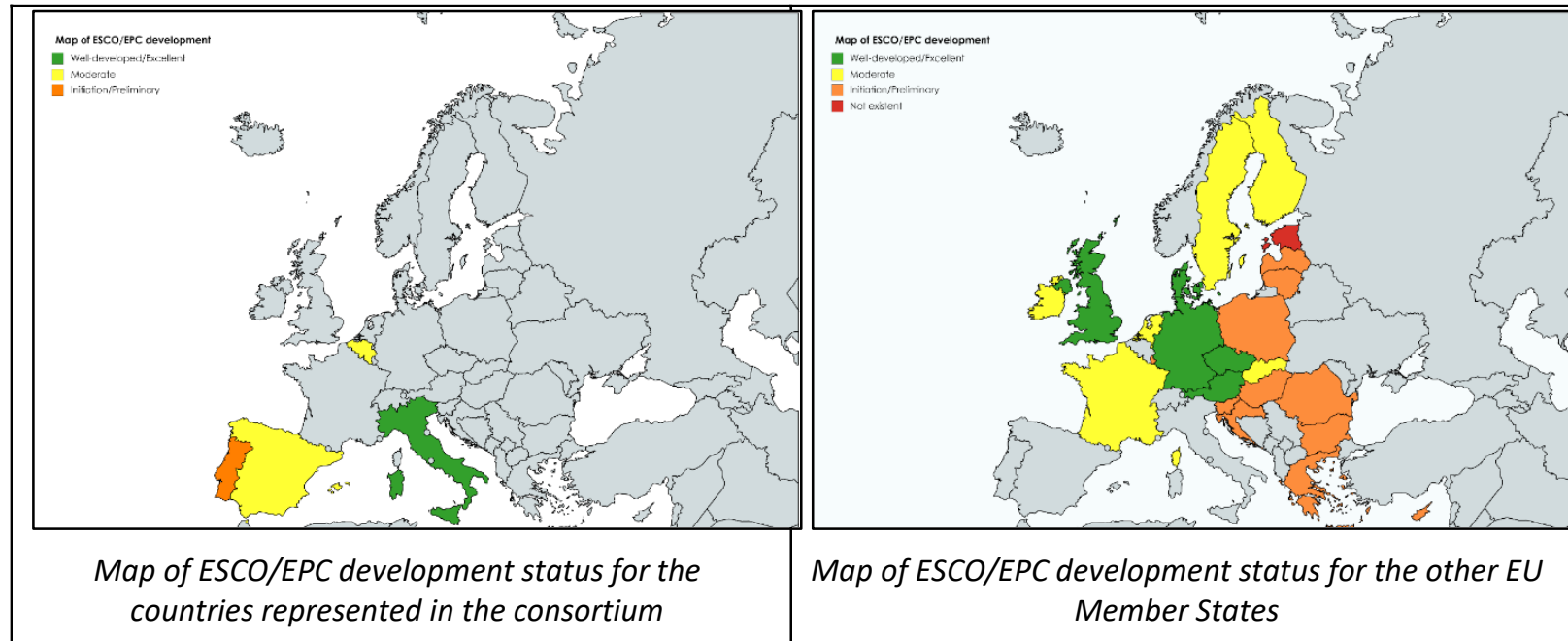
Regulatory and market status on EPC

Detailed survey of directives, policies, measures and regulation that are relevant for Active Building EPC concept at MS level

1. **Current status of EPC/ESCOs** (Main regulations, directives and polices on EPC; Main types of EPC implemented; Main actors involved; ESCO market overview (e.g., number of ESCO, volume of ESCO projects, application sectors, market longevity, etc))



This country snapshot has been found realistic for the countries represented by stakeholders in the webinar



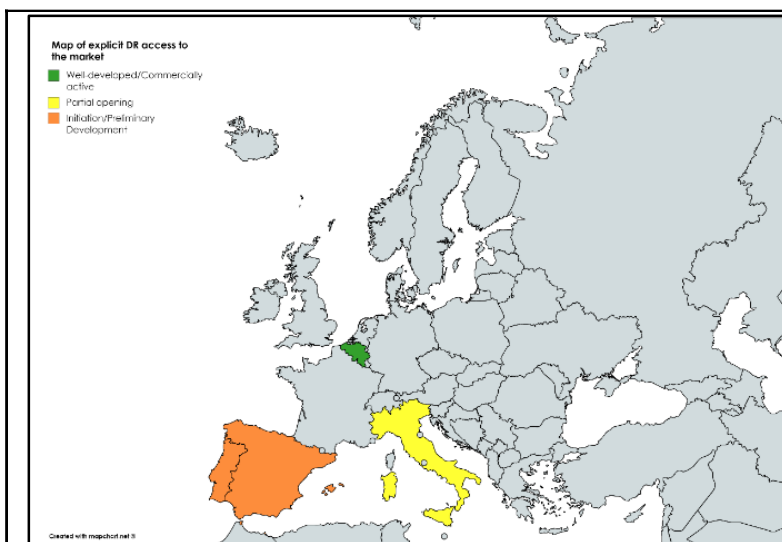
Regulatory and market status on flexibility

Detailed survey of directives, policies, measures and regulation that are relevant for Active Building EPC concept at MS level

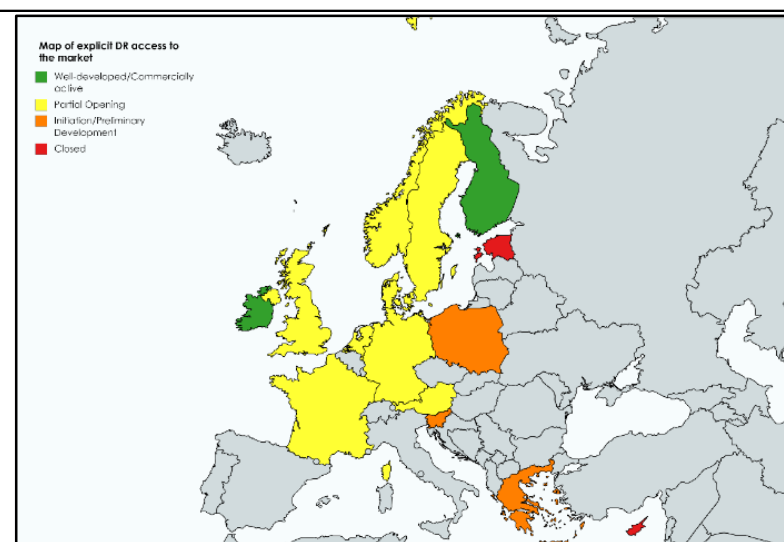
1. **Current status of DR services**, through the analysis of the implicit DR and main type of schemes implemented, explicit DR and demand access to the market to understand to which extent demand is allowed as a resource within the different national electricity markets, independent aggregators, regulations/policies supporting aggregation of distributed energy resources, etc.



This country snapshot has been found realistic for the countries represented by stakeholders in the webinar



Map of the status of buildings' flexibility aspects for DR services for the countries represented in the consortium



Map of the status of buildings' flexibility aspects for DR services for the other EU Member States

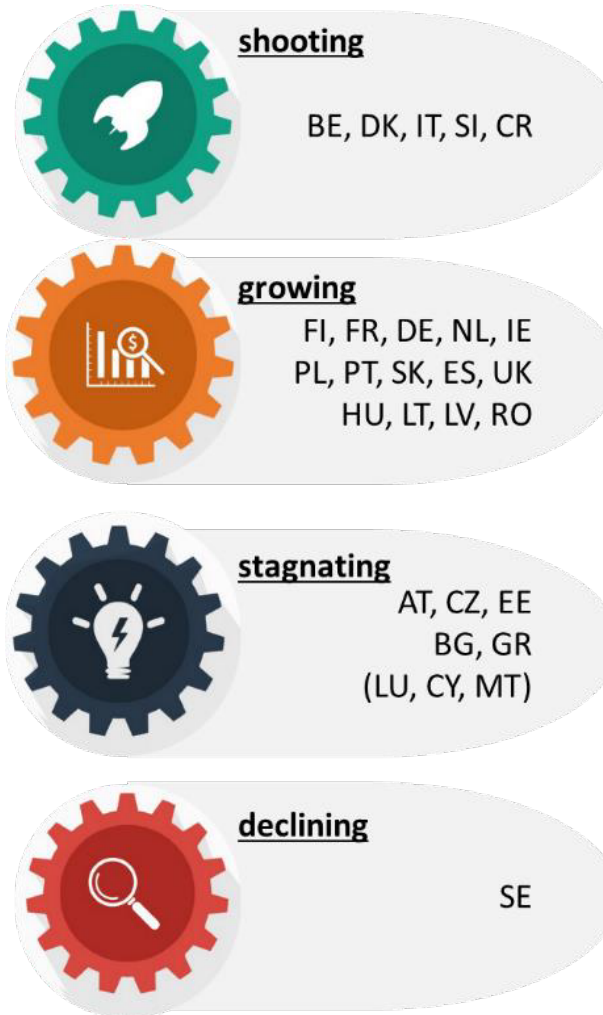
General drivers for AEPC

FLEX EPC	BE	IT	ES	PT
BE				
IT				
ES				
PT				

No country in the EU is fully green

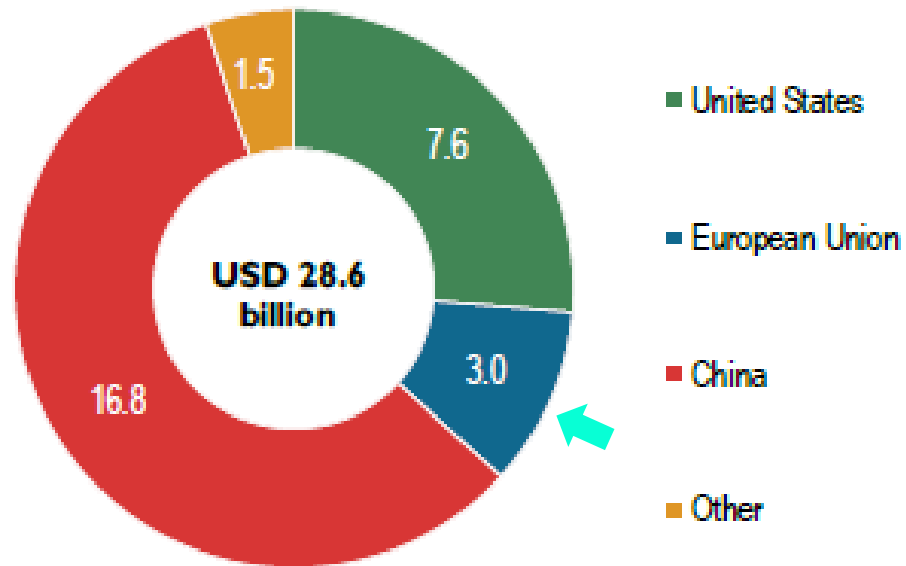
Energy Services Market dynamics per EU country

Source: Energy Service Market in the EU, JRC , 2019

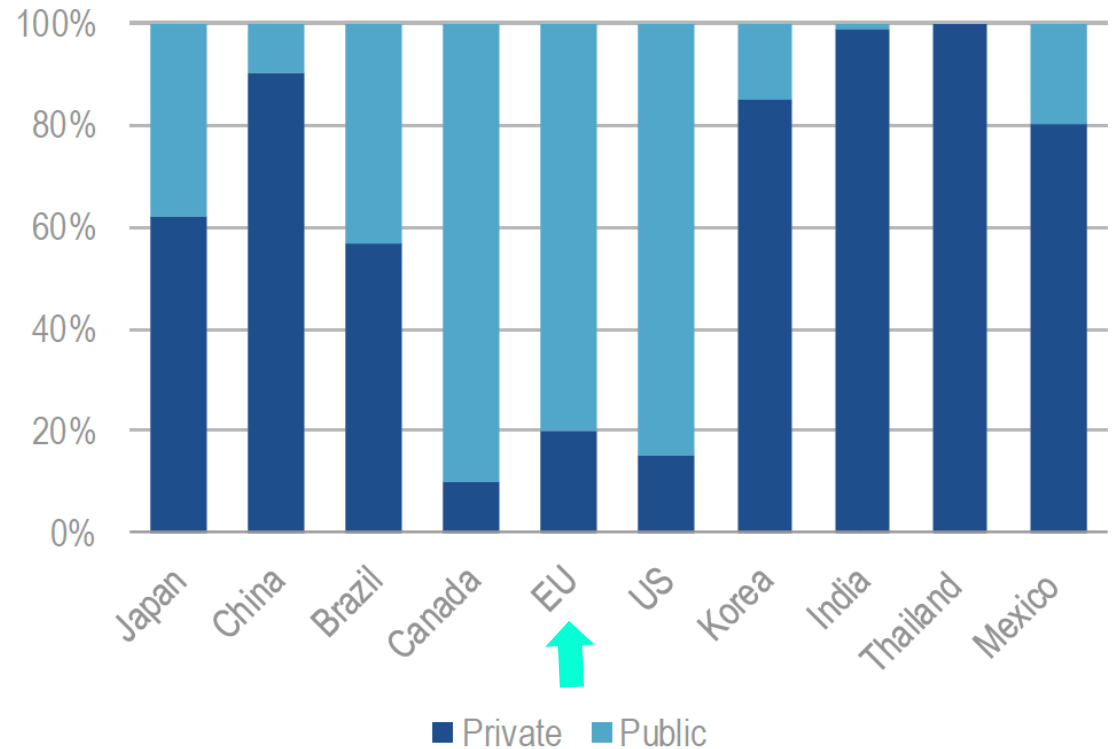


The ESCO market (not only EPC)

Source: «ESCO market: revenue by region», Energy efficiency 2018 – International Energy Agency



ESCO Market in 2018



Estimated EPC public building market size (2020)

source: Energy Performance Contracting in the Public Sector of the EU – 2020, JRC, 2020



MS	Number of contracts	Overall size (m€)	Public employment (x1000)	Market/ public sector (€/employee)	Public buildings (Mm2)	Market/ public sector (€/m2 x1000)
AT	11	6.5	347	19	70	93
BE ¹²⁰	11	20	1064	19	50	400
BG	10	3	138	22	30	100
HR	50	25	317	79	10	2500
CY ¹²¹	0	0	58	0	1	0
CZ	25	21	532	40	50	420
DK	9	70	717	98	55	1273
EE ¹²²	1	1	118	8	2	500
FI	5	3.5	536	6.5	50	70
FR ¹²³	50	70	6180	11	355	197
DE	58	90	4609	20/65	390	231
GR ¹²⁴	8	100	566	176	20	5000
HU ¹²⁵	20	2.8	873	3	50	56
IE	4	16.6	298	56	20	830
IT	230	250	3233	77	140	1786
LV ¹²⁶	6	12.6	227	55	10	1260
LT ¹²⁷	6	3.2	315	10	15	213
MT	-	-	33	-	1	-
NL ¹²⁸	-	-	844	-	165	-
PL	13	39	2527	15	165	236
PT	13	50	658	76	35	1429
RO	0	0	1190	0	35	0
SK	25	25	350	71	70	357
SL	44	96	163	590	2	48000
ES	59	60	2479	24	135	444
SE	1	10	1079	9	80	125
sum	617	965	29459	1428	2058	63830
Avg	27	42	1091	62	76	2775

The EU ESCO Market per country (2019) (1)

Source: Energy Service Market in the EU, JRC , 2019



MS	first ESCO ⁹	Number of ESCOs ^{10 1112}					ESCO market, EUR million annual ¹³
		2007	2010	2013	2015	2018	2018
Austria	1995	ca. 30	5-14	over 50	41	400 (EnS); 27 (EES); 36 (ESC)	30-40 (only public buildings)
Belgium	1990	ca. 30	13-15	10-15	10-15	6-13	20-30
Bulgaria	1995	1-3 (12)	20	7-12 (?)	15	12	Less than 10
Croatia	2003	1(-2)	2	10	10	8-15	20 (EnS); 14 (ESCO)
Cyprus	2016	0	0	0	19	22	0
Czech Rep.	1993	7 (15)	8-10	20	15	15	9-15
Denmark	ca. 2010	4-5	10	15-20	15-20	4	70
Estonia	ca. 2014	2	2	2 (3?)	2-3 (<10)	4	5
Finland	2000	9-11	8	5-8	6-8	15	6.5
France	1800's /1937	3 (100)	10+100	350	300	45	13.5 billion (EnS); 40-60 million (EnPC)
Germany	1990-1995		250-500	500-550	ca. 500	560 (EnS); 138 (EnPC)	9 billion (EnS); 7.7 billion (EnPC)
Greece	ca. 2003	0-3	2	5	47	86 (3 providing EnPC)	n/a
Hungary	1990s		20-30	10	ca. 8-9	10 (5 EnPC)	n/a
Ireland			15	ca. 30		25	20
Italy	early 1980s	15-25	50 (100)	50-100	200-300	1500 (EnS); 340 (ESCO)	2 billion

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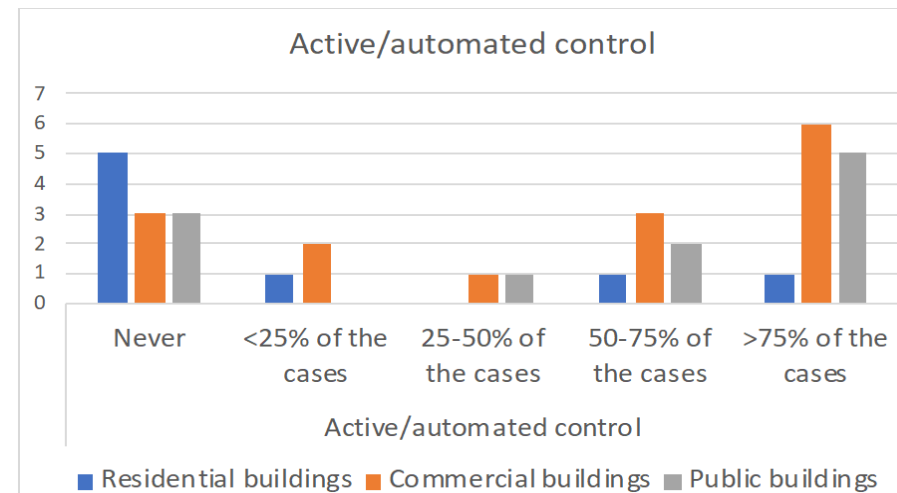
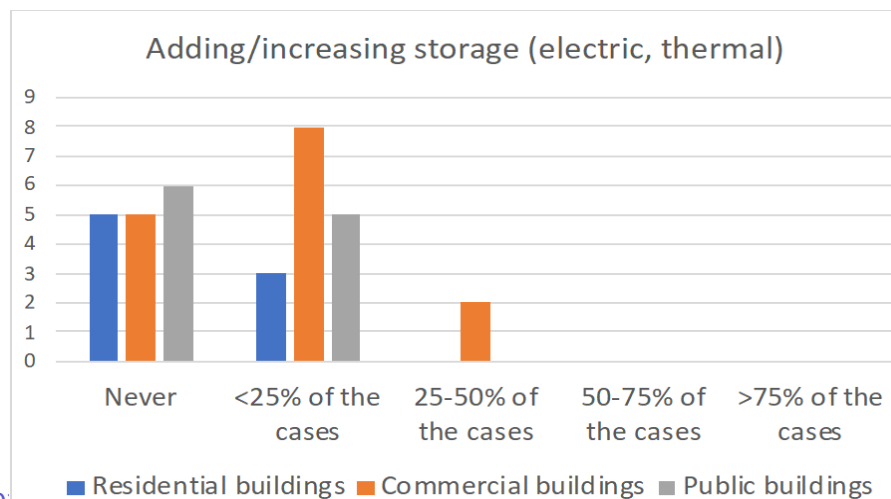
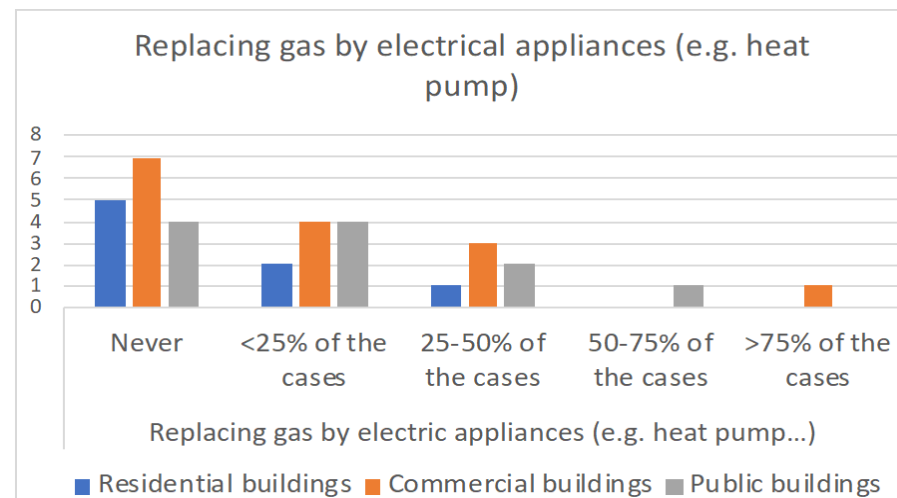
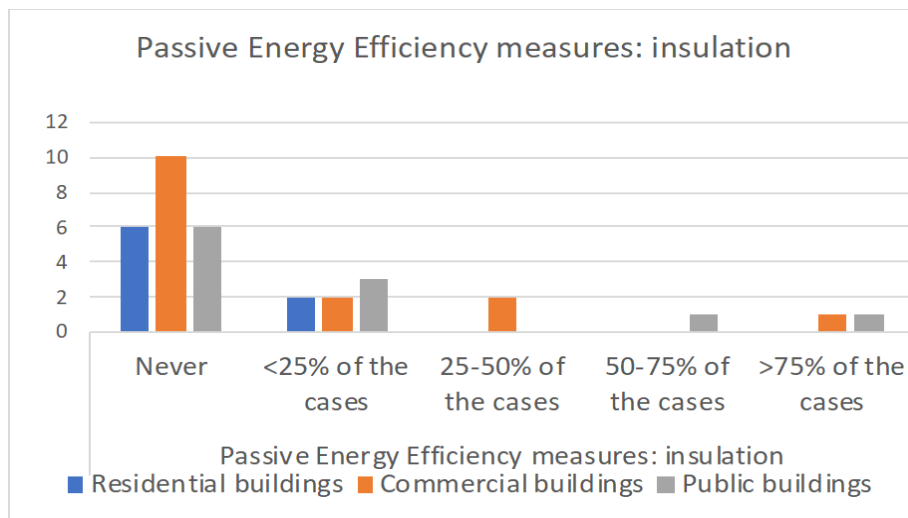
The EU ESCO Market per country (2019) (2)

Source: Energy Service Market in the EU, JRC , 2019

MS	first ESCO ⁹	Number of ESCOs ^{10 1112}					ESCO market, EUR million annual ¹³
		2007	2010	2013	2015	2018	2018
Latvia	2001	40	5	8	50-60	60 (EnS); 3-6 (ESCOs)	2-3
Lithuania	1998	6	6	3-5	6	n/a	n/a
Luxembourg	1990s	3-4	3-4	3-6	3-6	n/a	n/a
Malta	not yet	0	0	0	0	n/a	n/a
Netherlands	mid 2000	very few	50	50	100	57 (EnPC): 28 public, 27 private	90-150
Poland	1995	<5	3-10	30-50	3-4 (30)	25 (EnS), 20 (EnPC)	n/a
Portugal	n/a	ca. 7-8	10-12	n/a		12-15	50-100
Romania	1996	2	14	15-20	20	7-13	47
Slovakia	1995	30	5	6-8	8 (20-50)	40 (10 EnPC providers)	
Slovenia	2001	1-2	2-5	5-6	5-6	10 (4 EnPC providers)	25 million (EnPC in public sector only)
Spain	n/a	ca.100	> 15	20-60	1000	70	1-1.5 billion
Sweden	1978	12-15	5-10	n/a	4-5	~20	3.79 (public sector only)
UK	1966	20-24	20	30-50	>50	136 (EES); 62 (ESCOs);	108.3

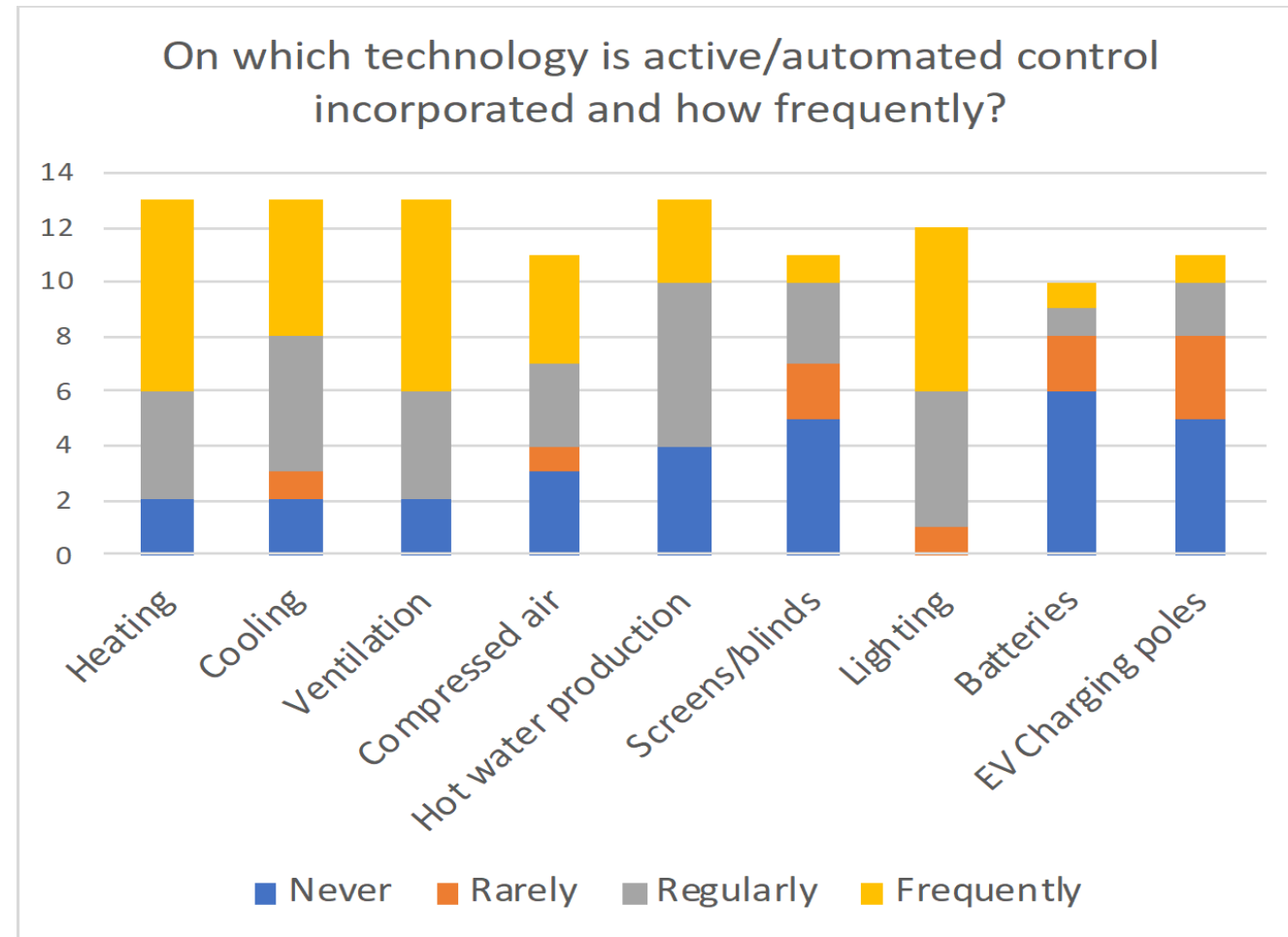
ESCOs as Flex Providers?

Source: AmBIENCE survey, 2020



ESCOs' (as Flex Providers) use of Active Control today

Source: AmBIENCE survey, 2020



Business case EPC vs AEPC

Simulation for a uninsulated residential building

Project Cashflow KPIs				
		IRR	NPV	Discounted Payback Period
Option 1: gas	EEM only	5,00 %	€ 27.616	26,07 years
Option 2: HP	EEM only	4,90 %	€ 30.789	26,63 years
	EEM + DR	5,10 %	€ 33.702	26,00 years

Does this allow us to estimate the AEPC market potential?

- It remains very difficult because of the amount of variables
- The current EU annual ESCO Market is estimated at €1-3 Bn dollars
- There is high potential for electrification, in combination with solar (BI)PV, although the pace will depend on price evolutions with 2 conflicting tendencies
- The need to increase ambition levels will increase the need for deeper energy renovation, making heat pumps even more feasible
- Dynamic prices are likely to become more commonly available in ± 5 year
- An improvement in the business case of AEPC vs EPC of 5-20% is realistic
- It is not unlikely that 20 – 30% of the EPC projects will become AEPC projects in the next 5 – 10 years

Thank you for your attention!

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