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Options for financing energy efficiency schemes to tackle energy poverty

SocialWatt capacity building workshop

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Questions for this session

- 1) How are EEOs financed?
- 2) Where can they be found and how much investment do they deliver?
- 3) What are other innovative approaches to energy efficiency finance?

Key differences EEOs and other EE policies

		Spending Level	
		<i>Predetermined</i>	<i>Not predetermined</i>
Savings	<i>Predetermined</i>	most EEOs in vertically integrated markets (US)	most EEOs in unbundled competitive markets (Europe)
	<i>Not predetermined</i>	energy efficiency auctions, grants, loans	on-bill finance, pay-for-performance

1 EEOs



Market-based Instruments for Energy Efficiency

Policy Choice and Design

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**RAP**

Energy solutions
for a changing world

Best Practices in Designing and Implementing Energy Efficiency Obligation Schemes

Research Report
Task XXII of the International Energy Agency
Demand Side Management Programme

Report prepared by:
The Regulatory Assistance Project



Investment and costs of EEOs

Public investment

cost to the public
recovered
through energy
bills

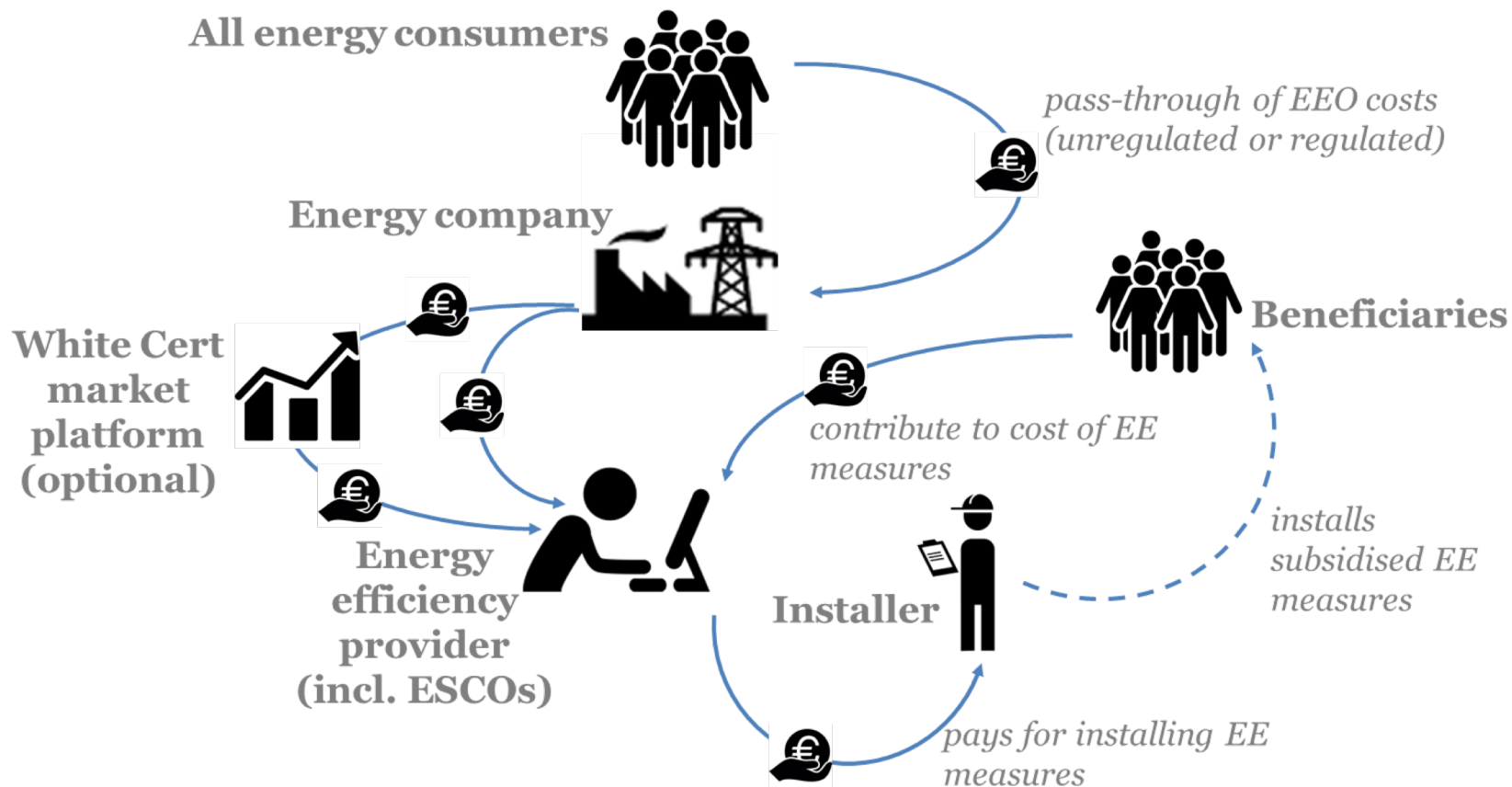
Private investment

contributions from
beneficiaries of
the programme

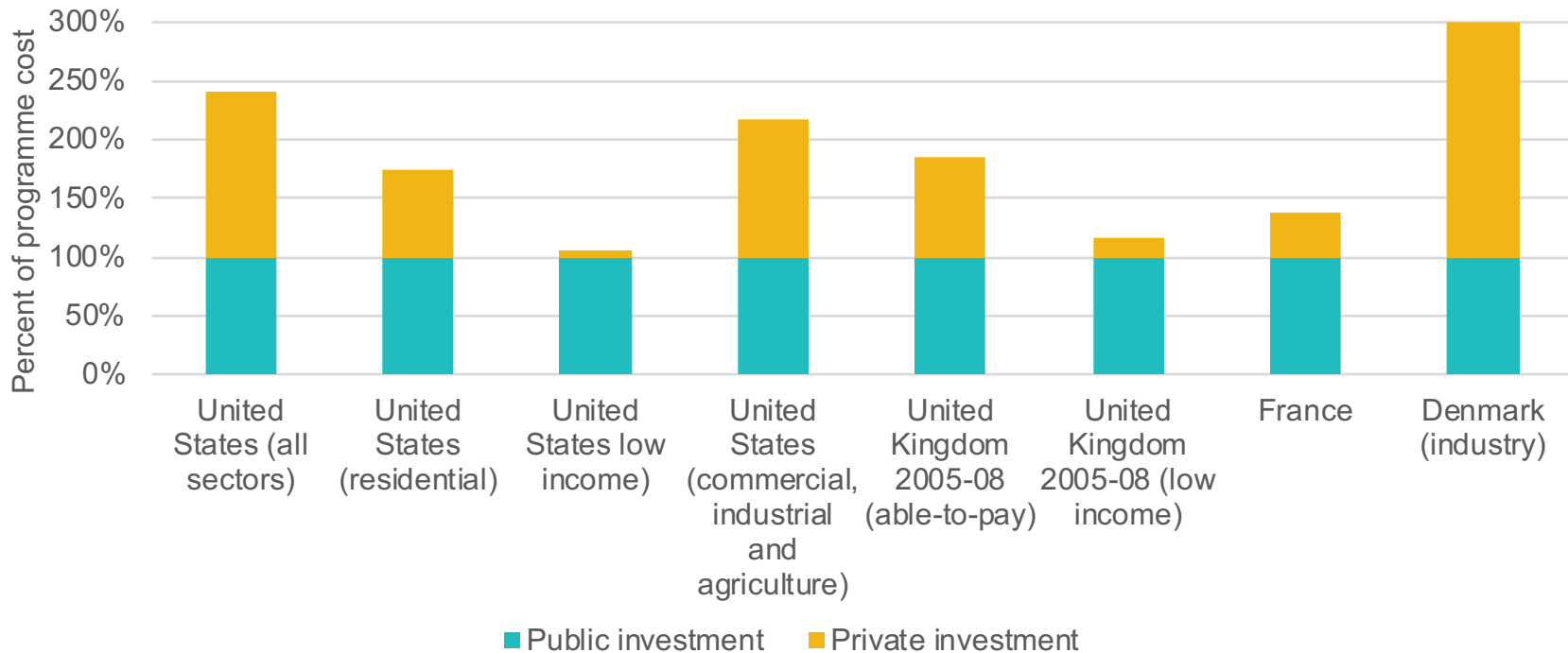
Administrative cost

cost to public
authorities for
running the
programme

Financial architecture of EEOs – common delivery models



Different EEOs reveal different leverage ratios



Source: Rosenow et al. 2017

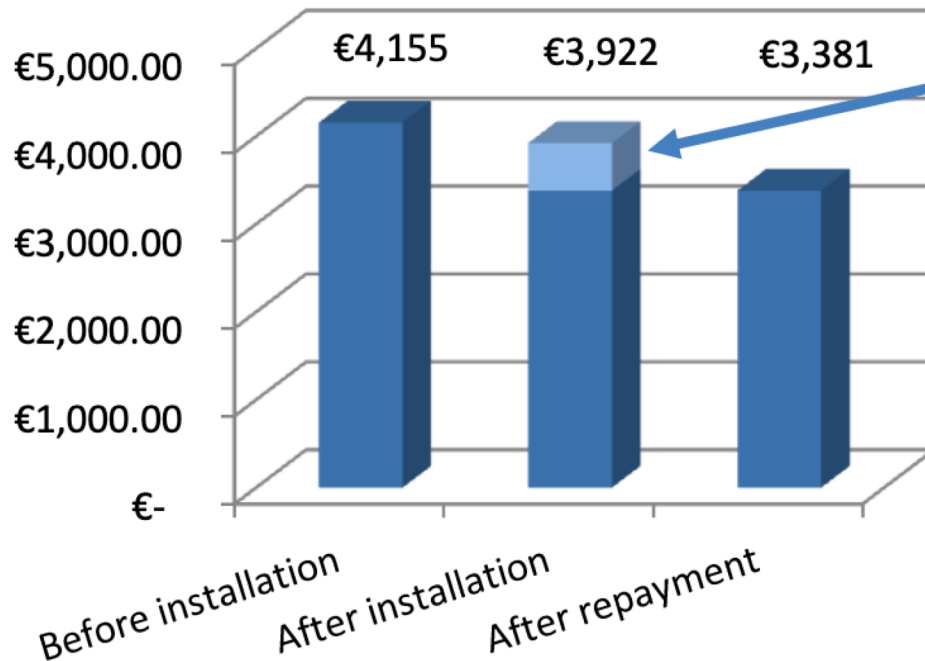
2 Innovative approaches



Innovative approaches

- 1) On-bill programmes**
- 2) Pay-for-performance programmes**
- 3) Auctions (stand-alone or as part of EEOs)
- 4) Standard offers (stand-alone or as part of EEOs)
- 5) Leasing model for heating equipment and appliances (can be done as part of any programme including EEOs)

On-bill finance



Cost components:

Technology/installation costs : 5,500€

Programme costs: 700€

Financing costs: 1,486€

Total costs: 8,224€

Costs over 14 years (75% lifetime):

On-bill charge: 541€/a

Savings before repayment: 233€/a

Savings after repayment: 774€/a

■ Charge on gas bill (p.a.)

■ Gas bill (p.a.)

Figure 3 - Exemplary calculation for on-bill financing applied for a boiler exchange in a single-family home

Source: Klope 2014

Diversity of approaches

- There are three main types of on-bill programmes:
 - **On-bill financing (OBF)**: utility is lender, funded by customers
 - **On-bill repayment (OBR)**: lender is third-party provider, utility acts as conduit and/or enhances offer
 - **Tariffed on-bill (TOB)**: efficiency upgrades not funded through loan but through utility offer that pays for upgrades under the terms of a new, additional tariff

P4P programmes



Experience and lessons
learned from P4P pilots
for energy efficiency



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P4P programmes

TRADITIONAL SUBSIDY SCHEME



Deemed savings
(assumption about
impact of measure)



One-off payment
(usually upon
installation)

PAY-FOR-PERFORMANCE SCHEME



Savings established
by comparing
metered energy
consumption to
baseline

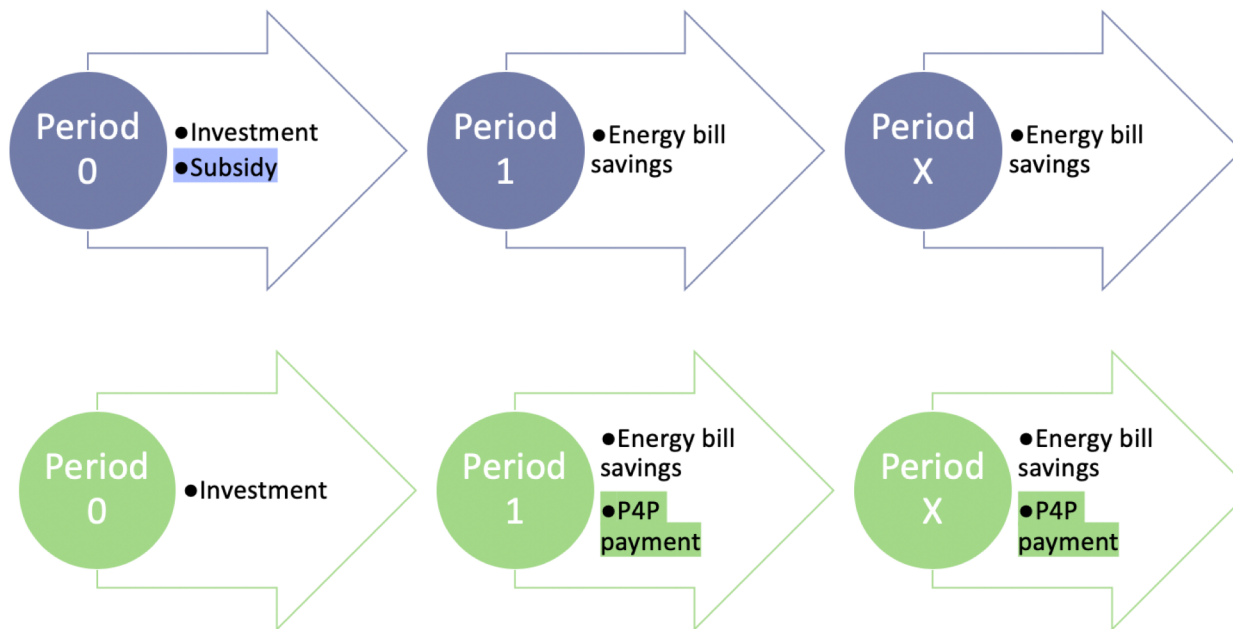


Payment
proportional to
energy saved,
delivered “as the
savings occur”



P4P programmes

CASH FLOWS: TRADITIONAL SUBSIDY VS. P4P



With P4P:

- ✖ Payment delayed
- ✖ Performance risk shifted



3 Conclusions



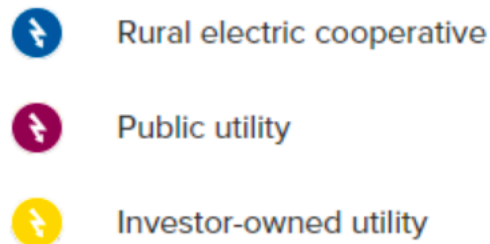
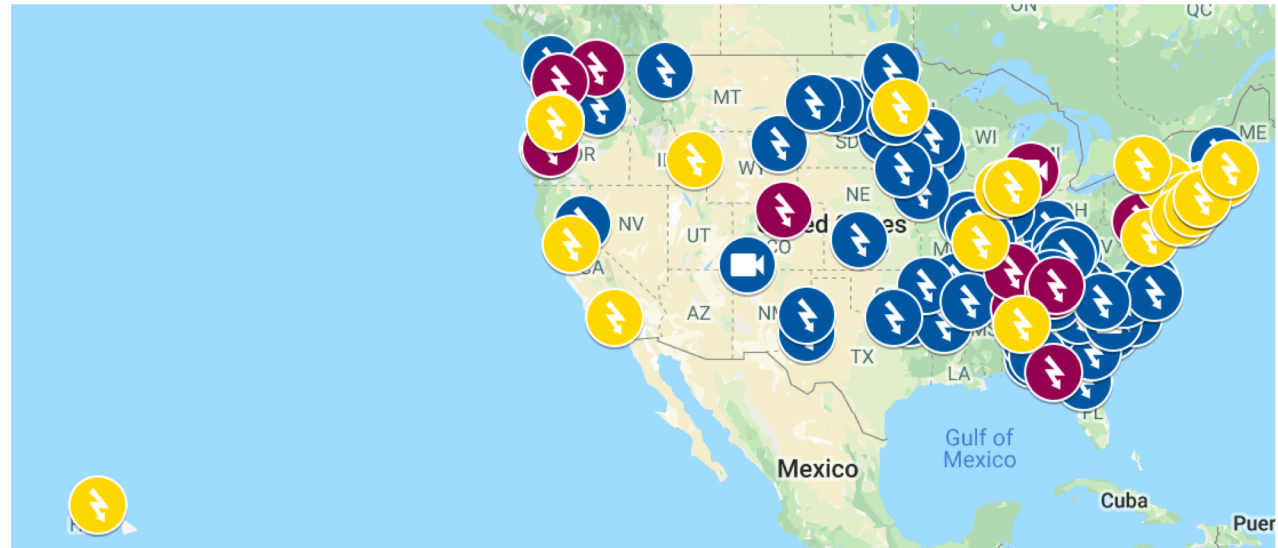
Conclusions

- EEOs are a well-established instrument with significant investment globally.
- Costs of EEOs mostly socialised through energy bills.
- Leverage ratios differ significantly and are low for low income customers.
- Plenty of innovative approaches that can be built into EEOs or operate stand-alone.

Addendum on-bill finance

Experience from the US positive

- 30+ years of history
- 45+ programmes in 2016
- 230,000 loans by 2014
- Rural co-ops and local utilities make up vast majority of on-bill programmes



Source: EESI 2019 and LBNL 2016

Experience in Europe mixed

- Limited experience so far
- UK Green Deal: most prominent example but failed
- Latvia SUNShINE: modest size
- RenOnBill: EU-funded H2020 project just started trying to replicate experience in US/Canada



Benefits

- potentially better loan performance and terms
- alternative underwriting practices giving access to credit also to customers with low credit score
- on-bill programmes can operating within existing utility programmes
- loan can be transferred as attached to meter
- split incentives taken care of

Barriers

- utility burden as unfamiliar activity
- complex consumer financial protections needed
- strict limits on maximum repayments can limit scope for financing deeper retrofits

Addendum P4P

REVIEW OF INTERNATIONAL EXPERIENCE WITH P4P

Large commercial buildings

NJBPU	NJ	
Energy Trust of Oregon	OR	
DCSEU	DC	
Seattle City Light	WA	
Puget Sound	WA	
Efficiency Vermont	VT	
IESO	ON	

Small commercial buildings

NYSERDA	NY	
BayREN	CA	

Residential buildings

PG&E	CA	
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Open programmes

BMWi/BAFA	DE	
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✖ Report reviews 11 case studies

✖ Mainly in North America

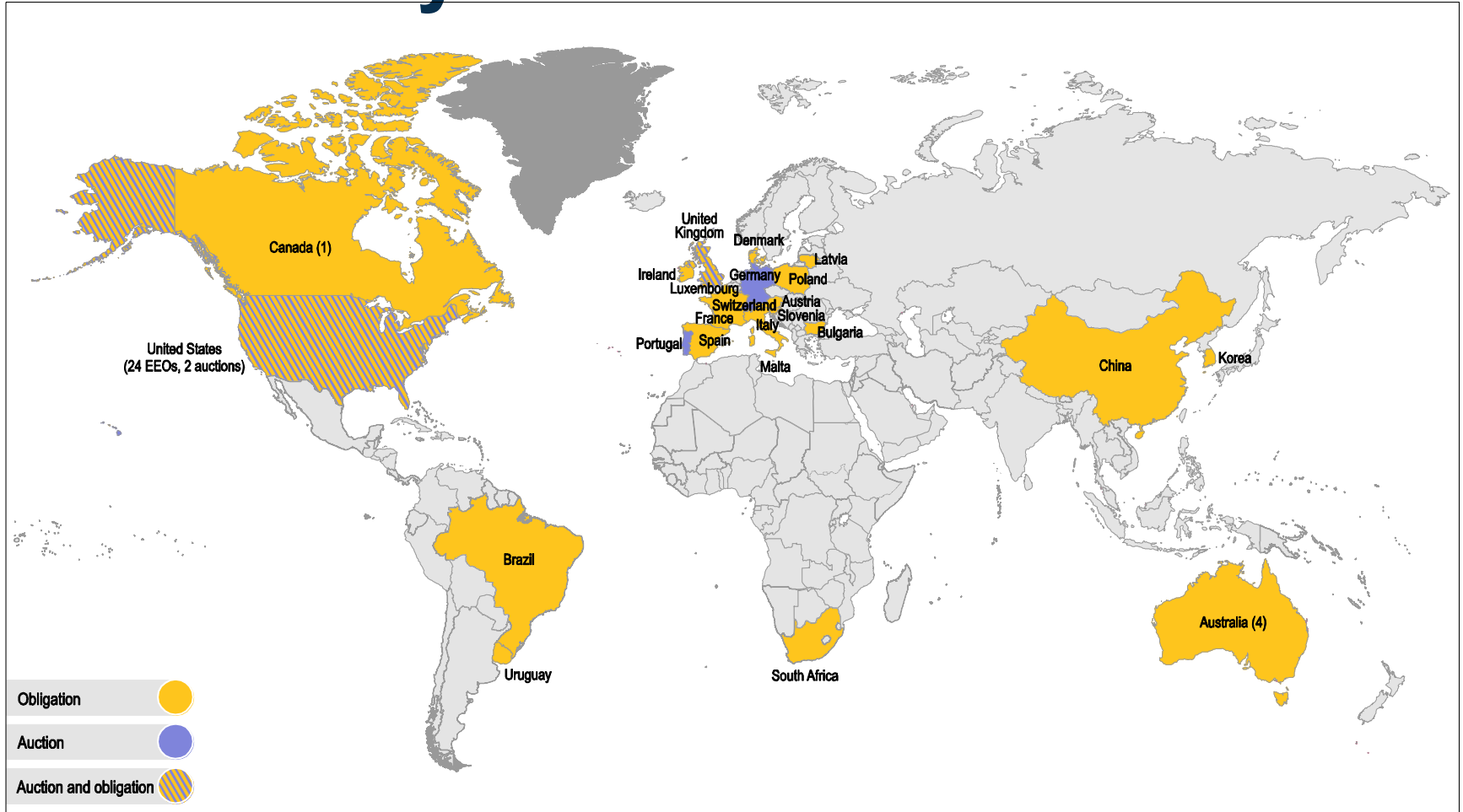
✖ Public authority, system operator or utility

✖ Often in the context of an energy efficiency obligation

✖ Large majority target large commercial buildings

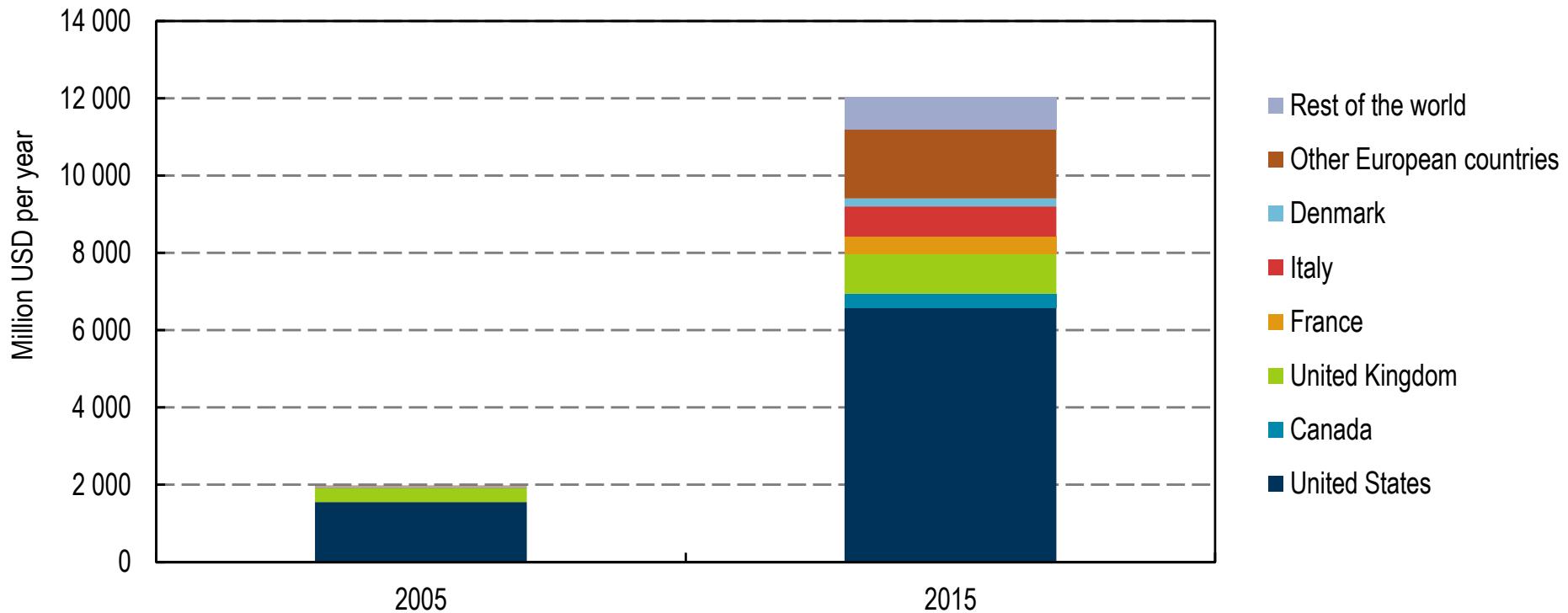
Addendum EEOs

Number of EEOs has quadrupled over the last ten years

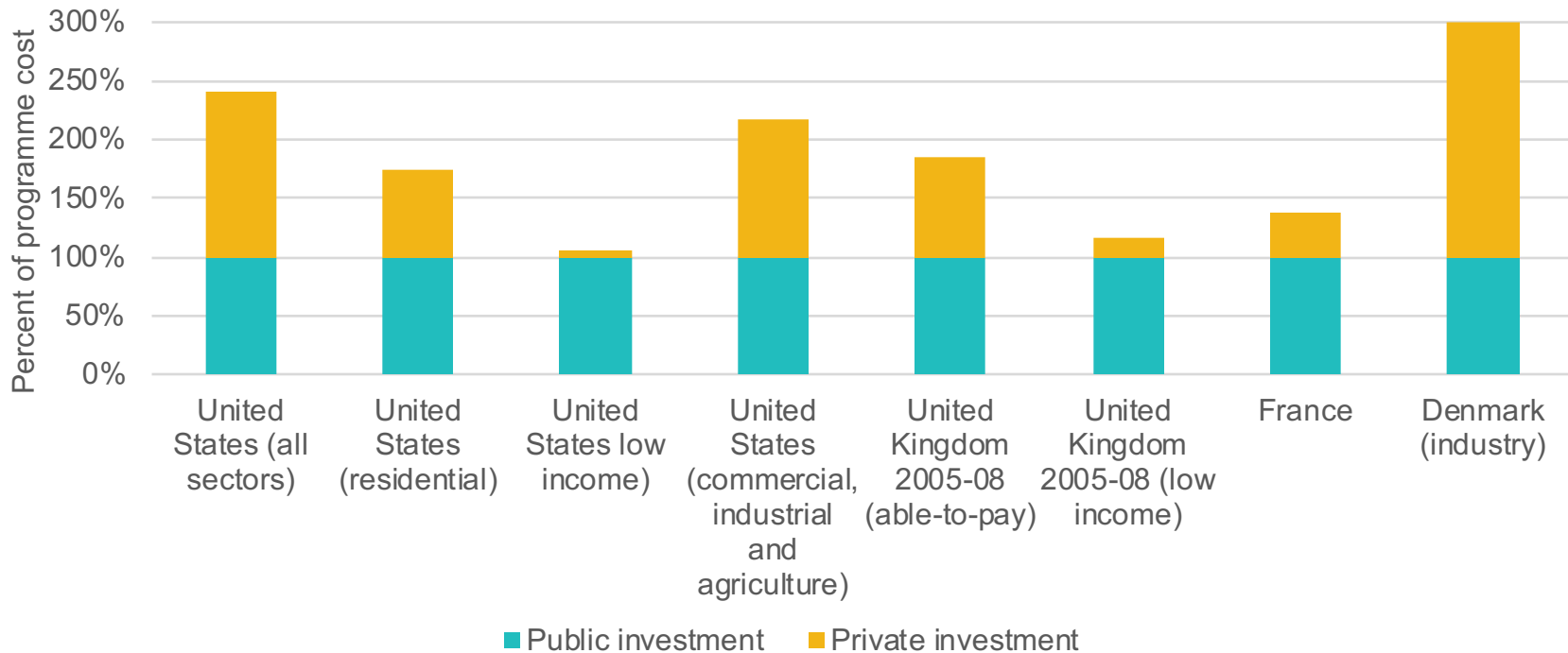


This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries, and to the name of any territory, city or area.

This led to a rise of public investment through EEOs



Different EEOs reveal different leverage ratios



About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org



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