RAP® Energy solutions for a changing world

Costs and benefits of Energy Efficiency Obligations: a review of European programmes

eceee Summer Study 2017

Dr Jan Rosenow & Edith Bayer

Presqu'île de Giens, June 2017

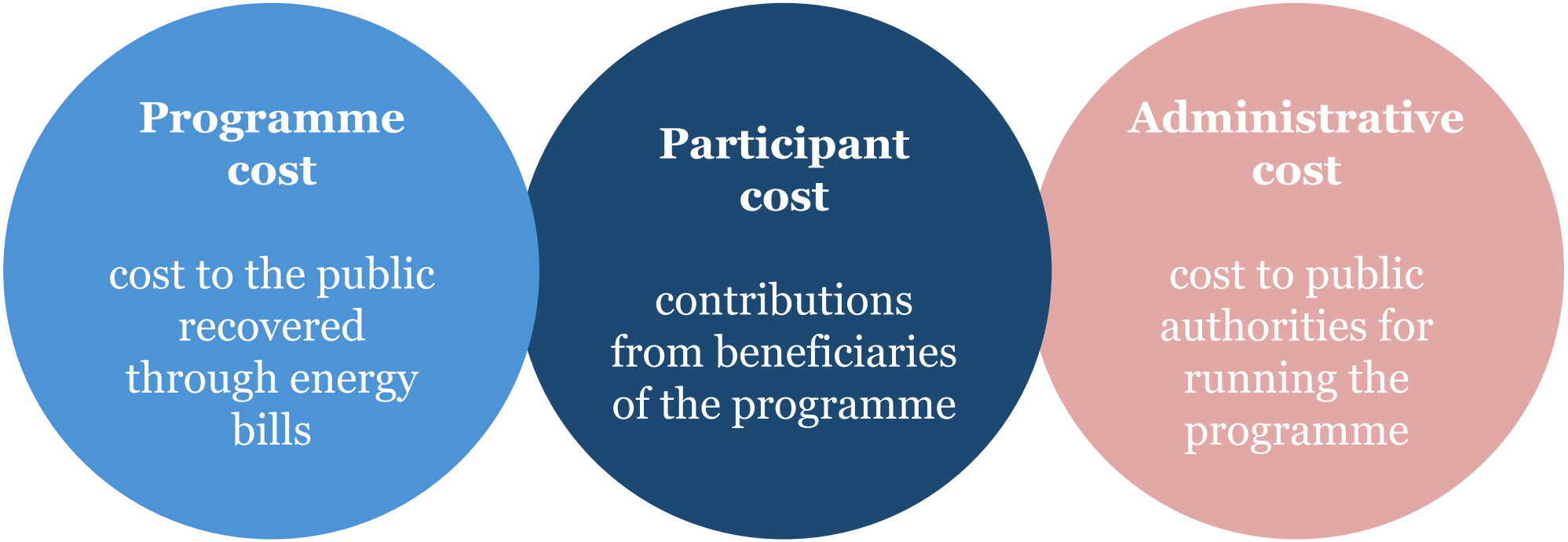
The Regulatory Assistance Project (RAP)®

Outline

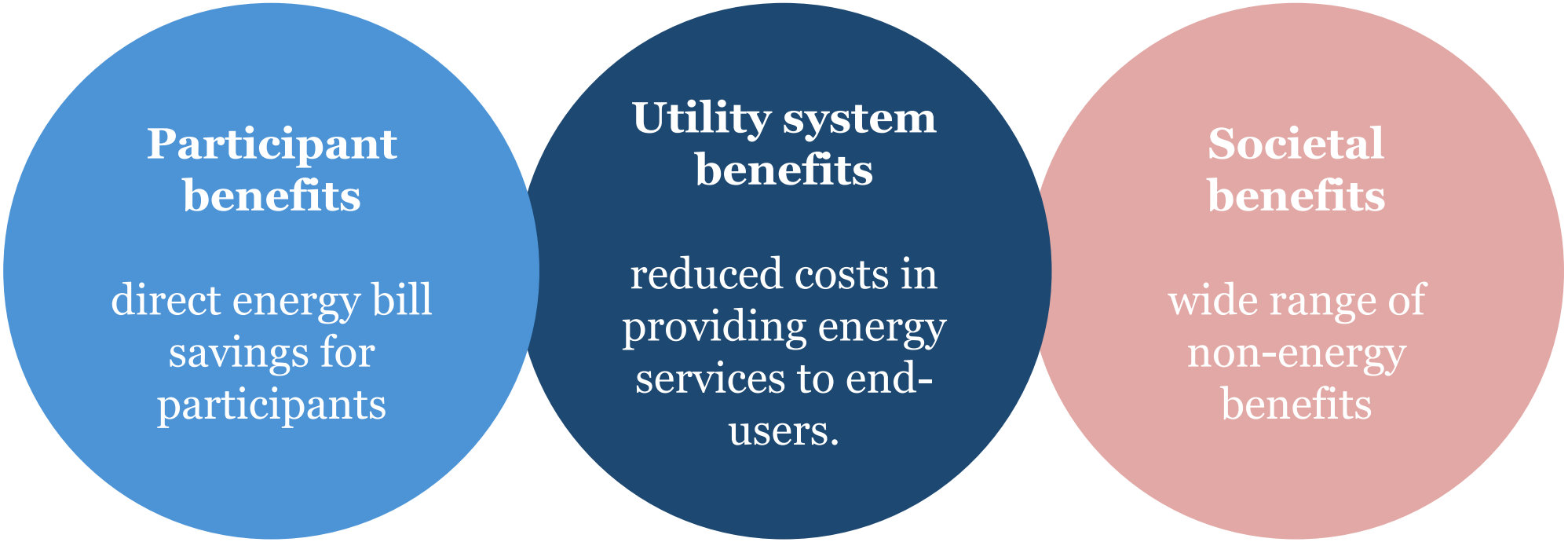
1) Defining costs and benefits of EEOs
2) Costs of EEOs
3) Benefits of EEOs
4) Conclusions

Defining costs and benefits of EEOs

Costs of EEOs



Benefits of EEOs



Costs of EEOs

Programme costs

	Time period	Energy company costs (million Euro/ year)	Energy company costs (Euro/ capita/ year) *
UK	2008-2012	1,052	16
Denmark	2015	185	33
France	2011-2013	390	6
Italy	2014	700	12
Austria	2015	95	11

** shown on per capita basis solely for the purpose of allowing for comparison; this does not indicate the amount of money paid by individuals*

Source: based on Bach (2016); BGBI (2014); Deloitte and Grontmij (2015); Energieinstitut der Wirtschaft (2015); ENSOL (2015); Ipsos MORI et al. (2014); Ministère de l'écologie, du développement durable et de l'énergie (2014)

Participant costs: typically ~0.5-2 times programme costs

Country	Share of private investment
US	141% of programme costs
UK	87% of programme costs in 2002 to 2005 and 44% in 2005 to 2008 (residential sector only, ~50% low-income households)
France	37% of programme costs (EEOs operate together with tax rebates)
Denmark	200% of programme costs (industry sector only)

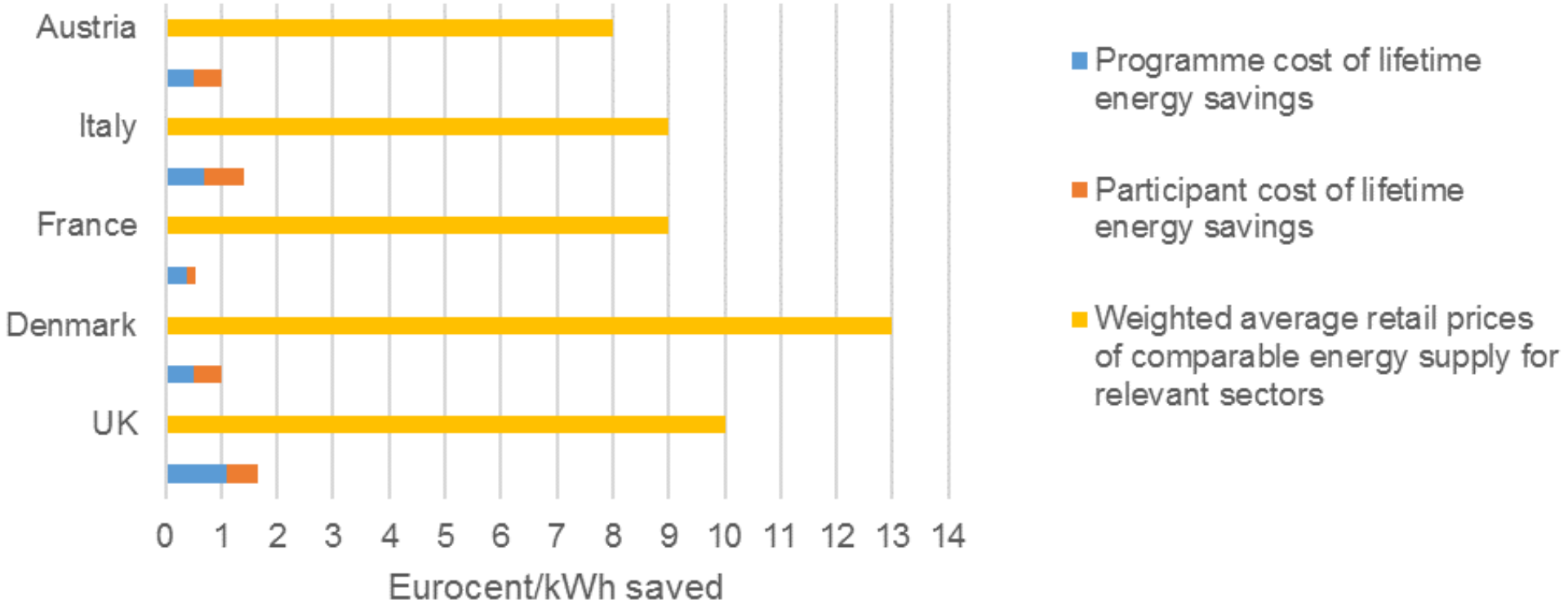
Sources: ACEEE (2014) and Rohde et al. (2014)

Administrative costs of EEOs

	Time period	Administrative costs (% of overall programme costs)
UK	2008-2012	0.2%
Denmark	2015	0.3%
France	2011-2013	0.4%
Italy	2014	1.4%
Austria	2015	not available yet

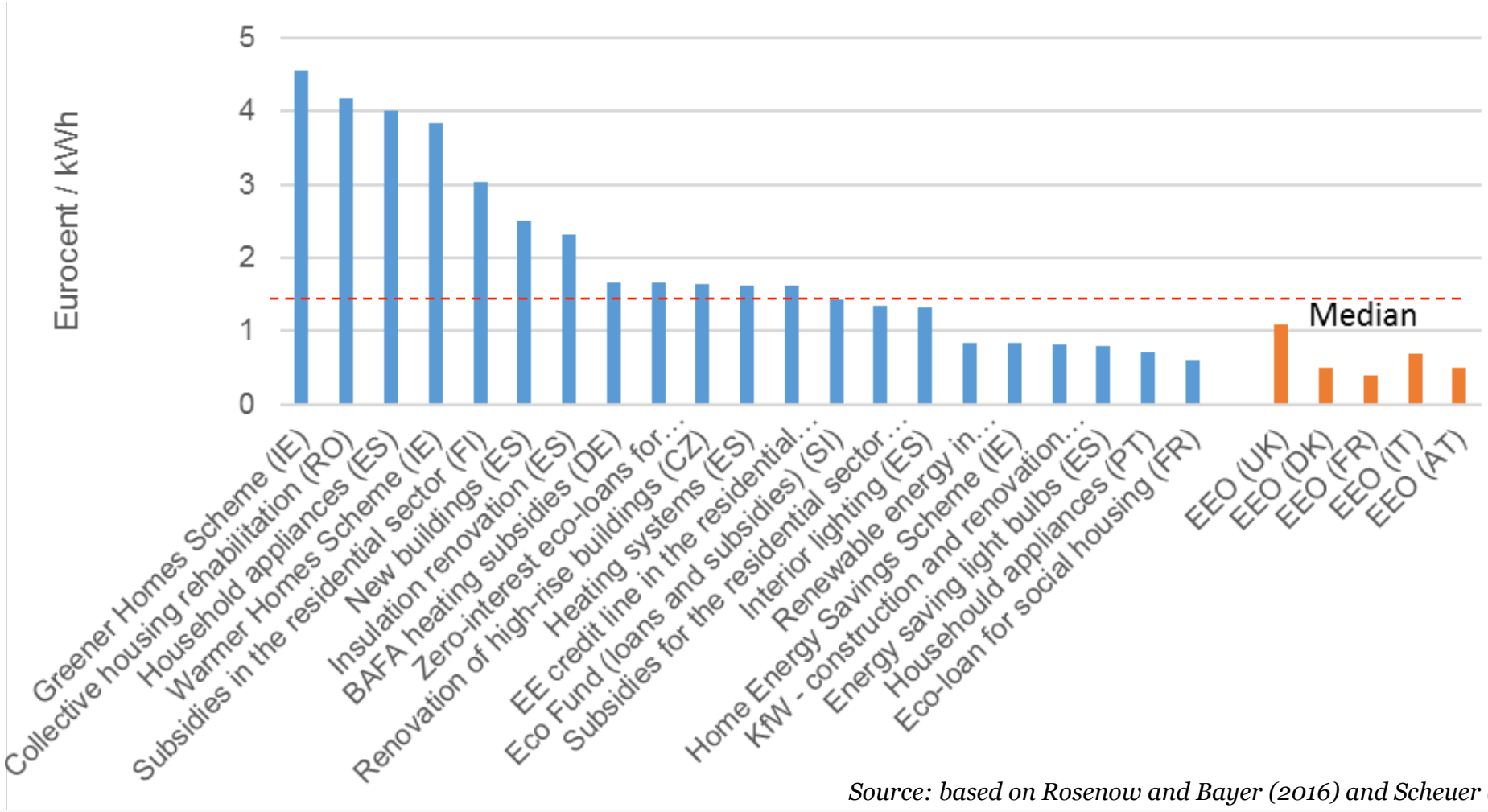
Sources: DECC (2010) and ENSPOL (2015)

Negawatts of EEOs 4-5 times cheaper than Megawatts



Sources: cost per kWh taken from Rosenow and Bayer (2016); average cost per kWh supplied taken from Eurostat (2015); data on energy consumption used for calculating weighted average taken from ODYSSEE Database

Comparison with other EE policies



Source: based on Rosenow and Bayer (2016) and Scheuer (2013)

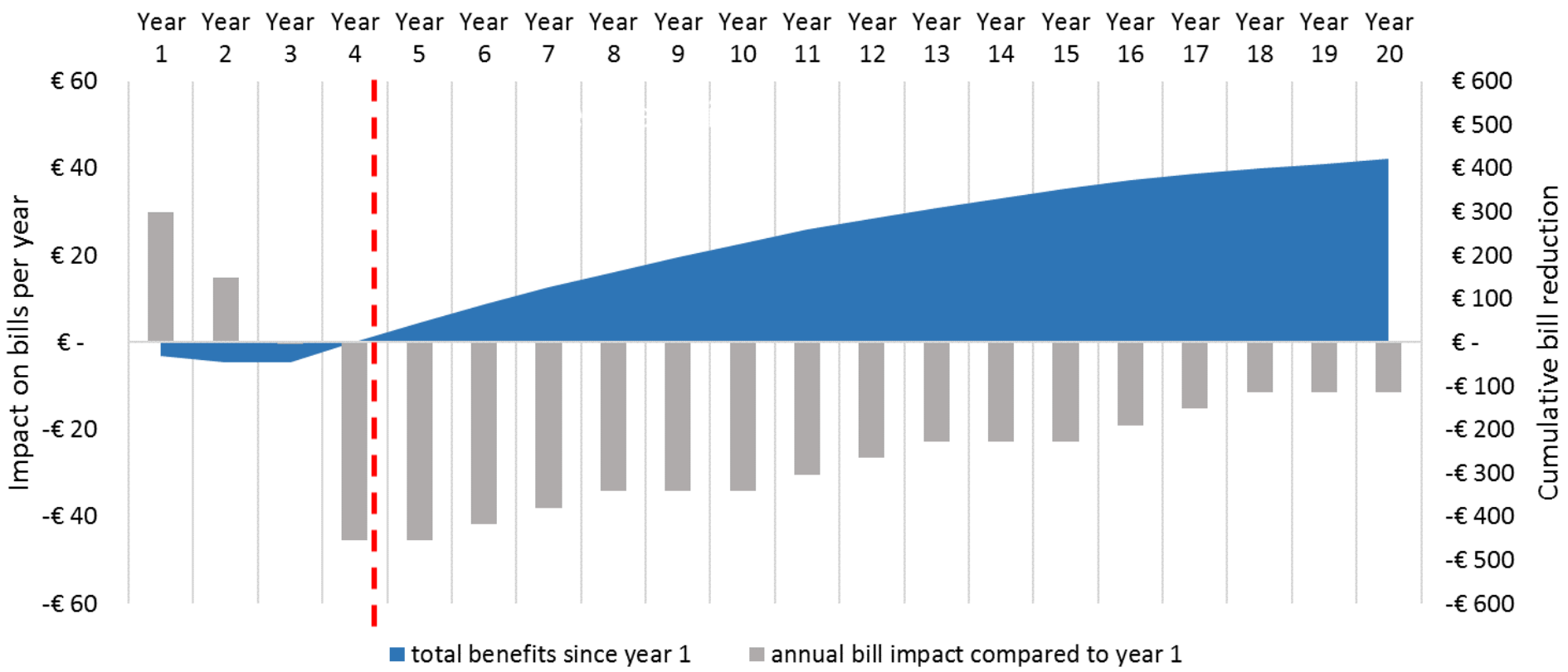
Benefits of EEOs

Impact of EEOs on energy consumption

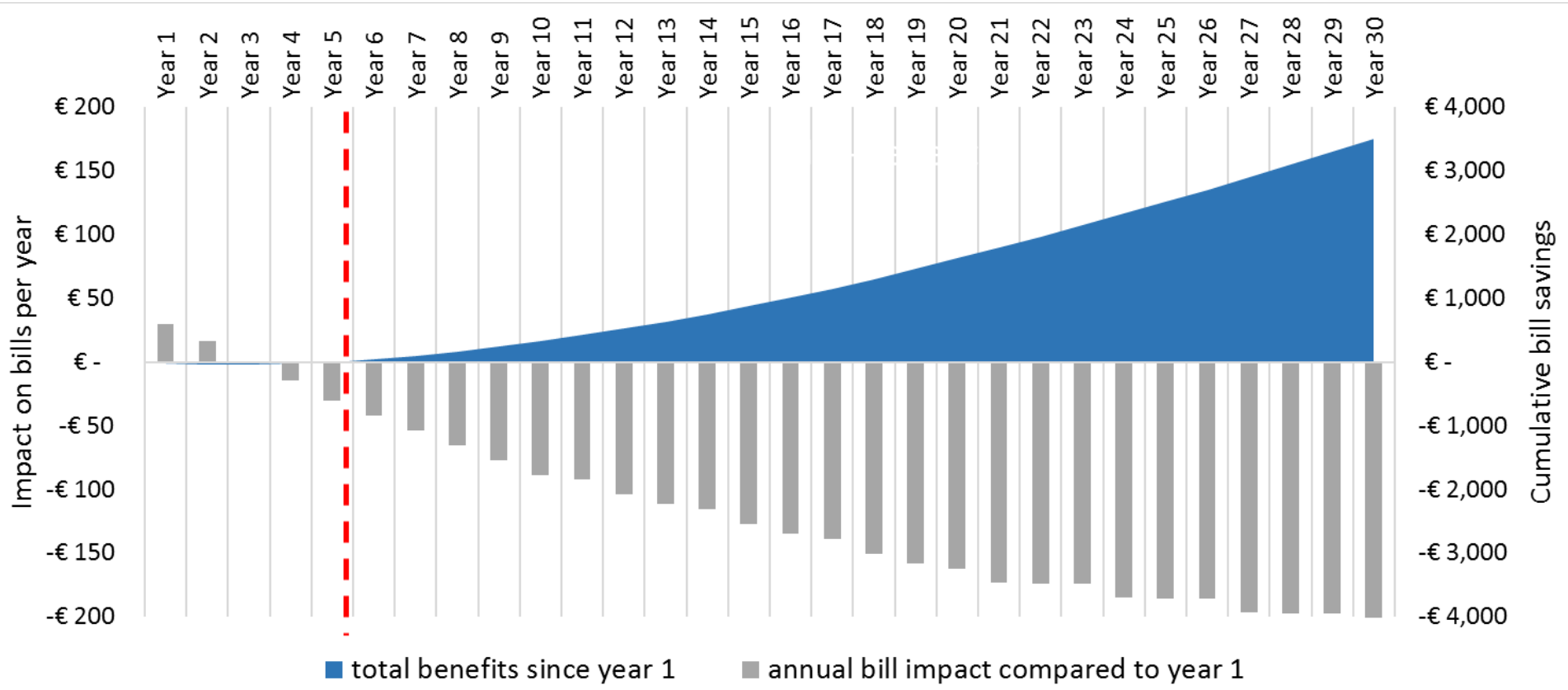
	Time period	Final energy savings per year (ktoe)	Reduction of final energy consumption per year	Sector
UK	2008-2012	237	0.5%	household sector
Denmark	2015	291	4.2%	all sectors
France	2011-2013	377	0.4%	all sectors
Italy	2015	500	0.4%	all sectors
Austria	2015	136	0.9%	household and industry sectors

Source: authors' calculations based on Austrian Energy Agency (2015), Bolton (2014), Danish Energy Agency (2015), Danish Energy Agency (2014a), Danish Energy Agency (2014b), DECC (2015), Ministry of Economic Development (2014), Ofgem (2013), ONS (2015), Trauchessec (2016)

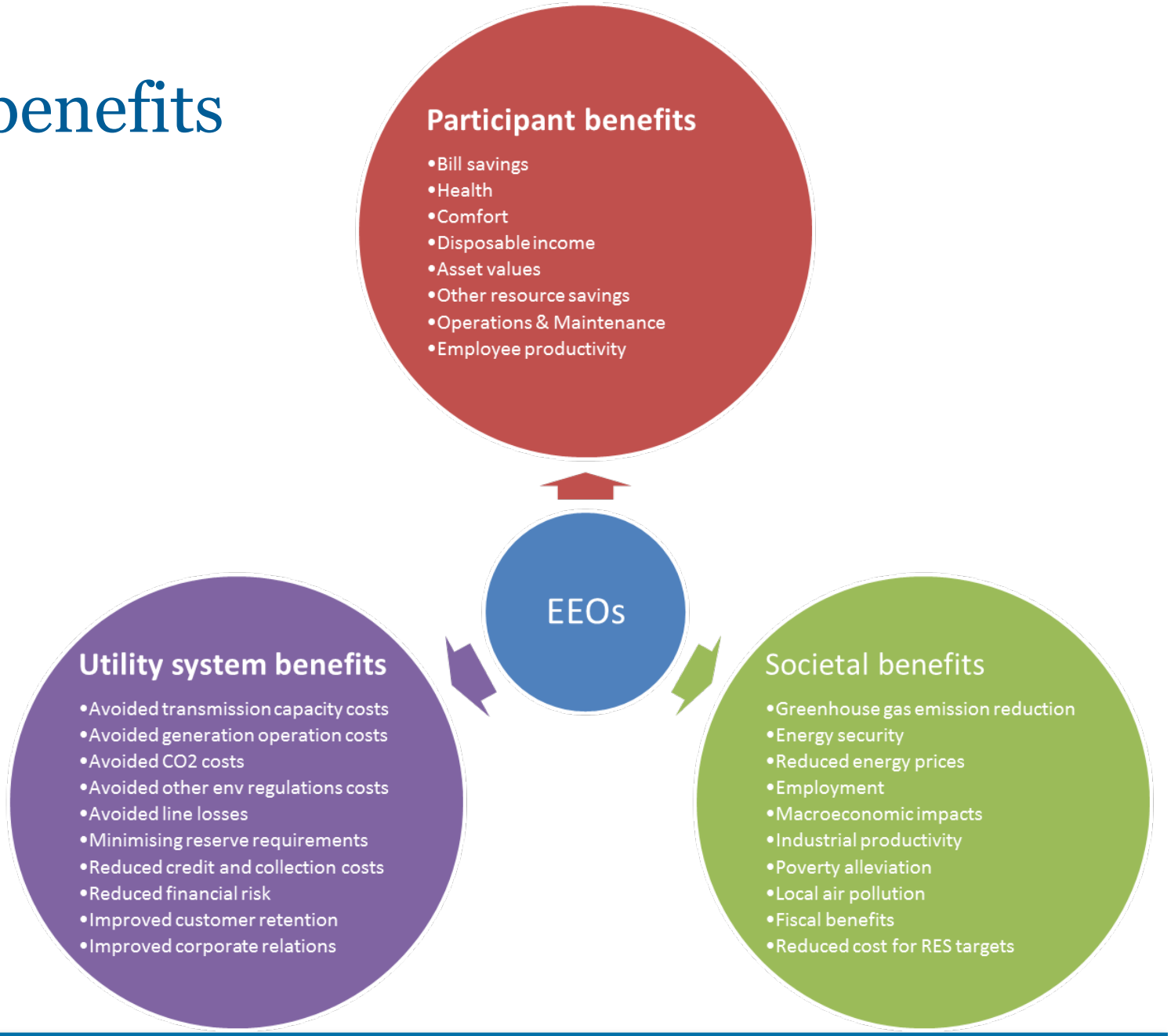
Impact of 3-year EEO on energy bills



Impact of 30-year EEO on energy bills



Multiple benefits of EEOs



Conclusions

Conclusions

1) Data shows high cost-effectiveness but heterogeneity of data complicates comparison
2) Uncertainties around estimates of savings remain
3) Increasing evidence for multiple benefits
4) Multiple benefits typically at least partially ignored in policy appraisal

Further reading

Rosenow, J., Bayer, E. (2017): Costs and benefits of Energy Efficiency Obligations: A review of European programmes. *Energy Policy* 107, pp. 53-62

Rosenow, J., Cowart, R., Thomas, S., Kreuzer, F. (2017): Market-Based Instruments for Energy Efficiency. Policy Choice and Design. IEA/OECD: Paris

Fawcett, T., Rosenow, J. (2016): The Member States' plans and achievements towards the implementation of Article 7 of the Energy Efficiency Directive. Report for the European Parliament

RAP® Energy solutions for a changing world

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power sector. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

Dr Jan Rosenow, email: jrosenow@raponline.org web: eng.janrosenow.com

The Regulatory Assistance Project (RAP)®

Beijing, China • Berlin, Germany • Brussels, Belgium • Montpelier, Vermont USA • New Delhi, India

www.raponline.org