

Living up to the expectations?

Monitoring the effects of Ecodesign and Energy Labelling
in Germany

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Background and Goals

“Study on the development of energy consumption and measures to promote product-related energy efficiency”

⇒ Consultancy services to the
Ministry of Economic Affairs and Energy



INSTITUT FÜR ENERGIE-
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? What are the German national savings
triggered by Ecodesign and Energy Labeling
for selected product groups?

Product Groups

- Boilers and combi-boilers
- Dedicated water heaters
- Electric motors
- Ventilation Units
- Household lighting
- Refrigerators and freezers



Credits...



Yifaat & Markus (Lighting)

Jürgen (Motors & Ventilation Units)



Tilman (Boilers & Water Heaters)

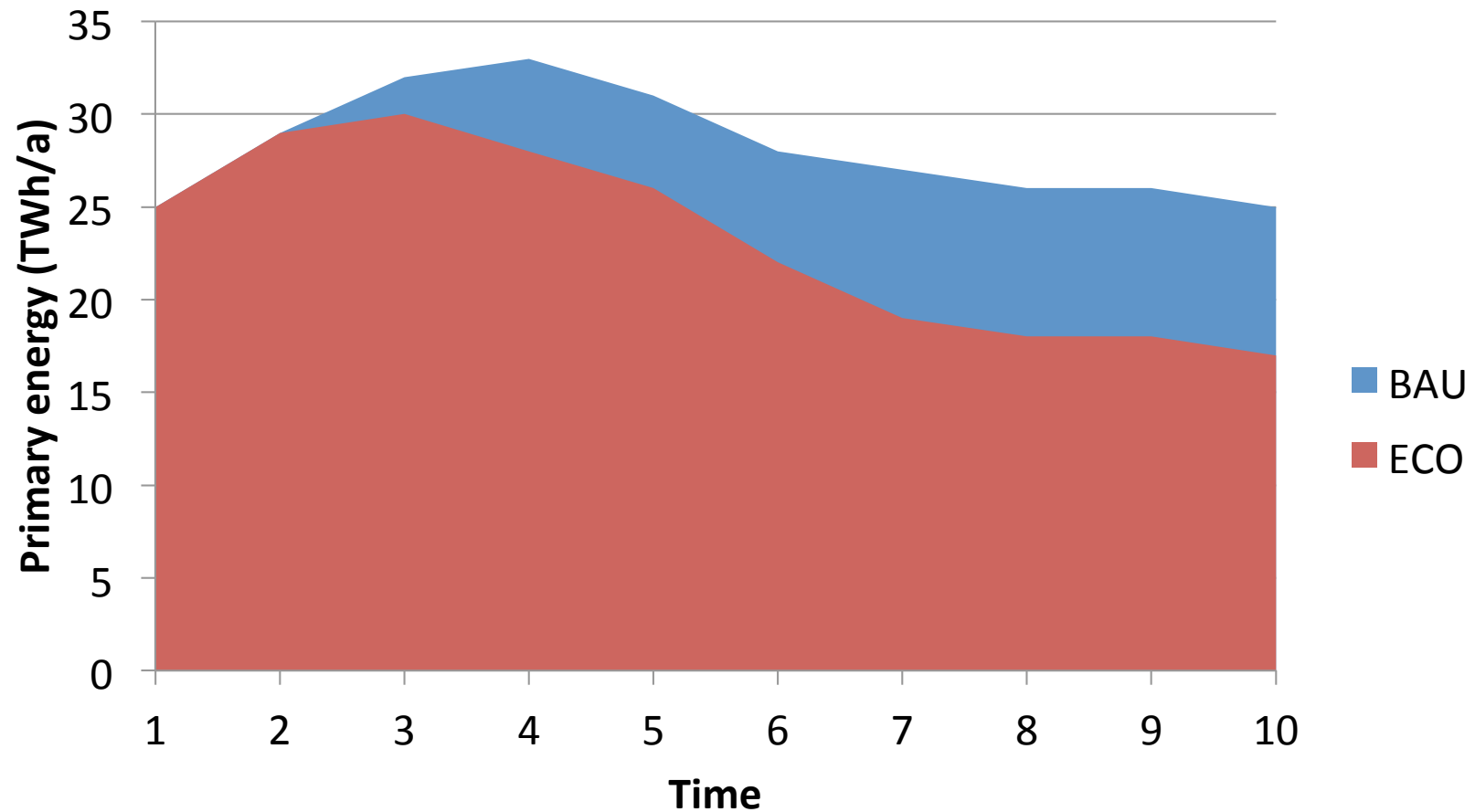


Ina & Britta
(Refrigeration)

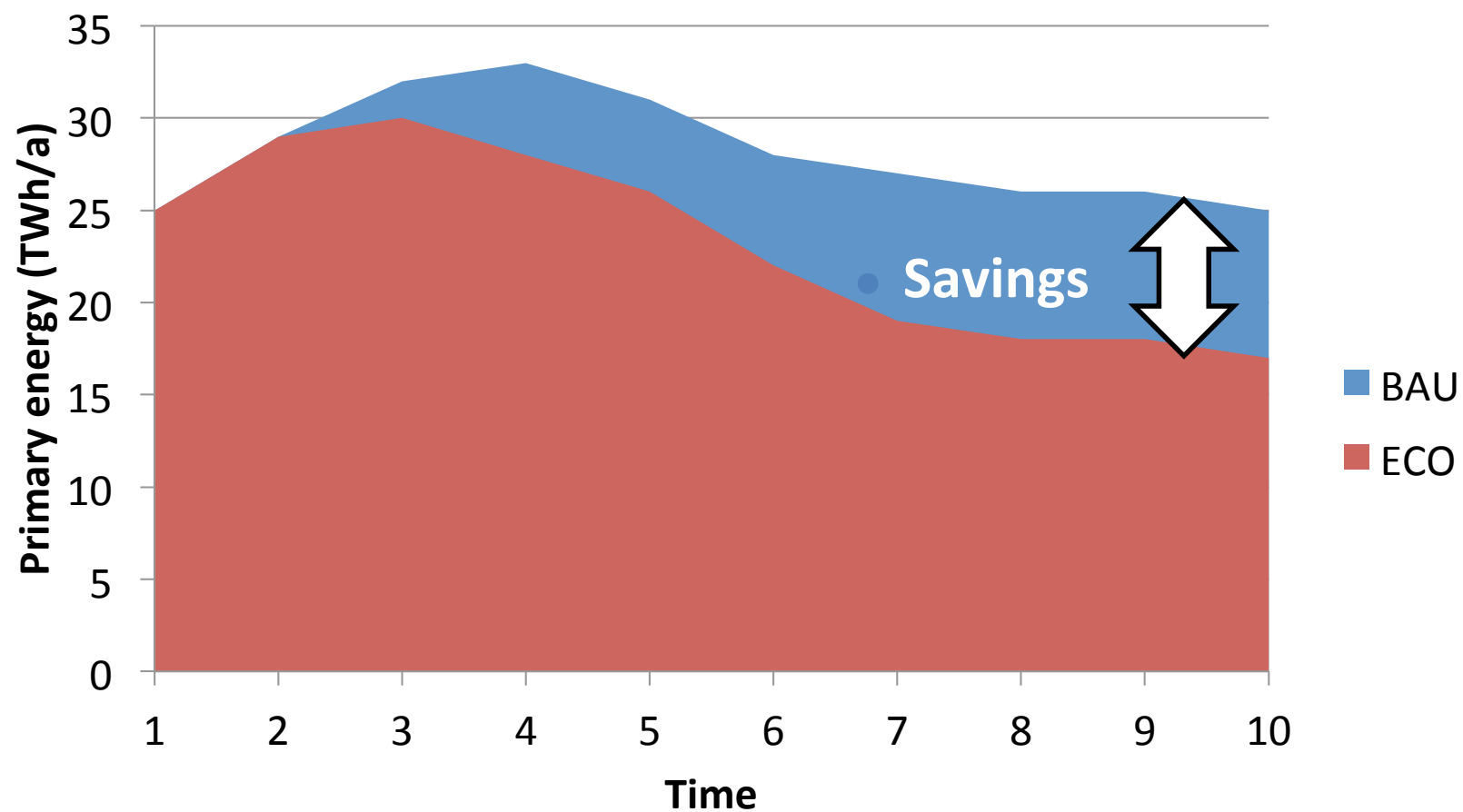


Uta (Review)

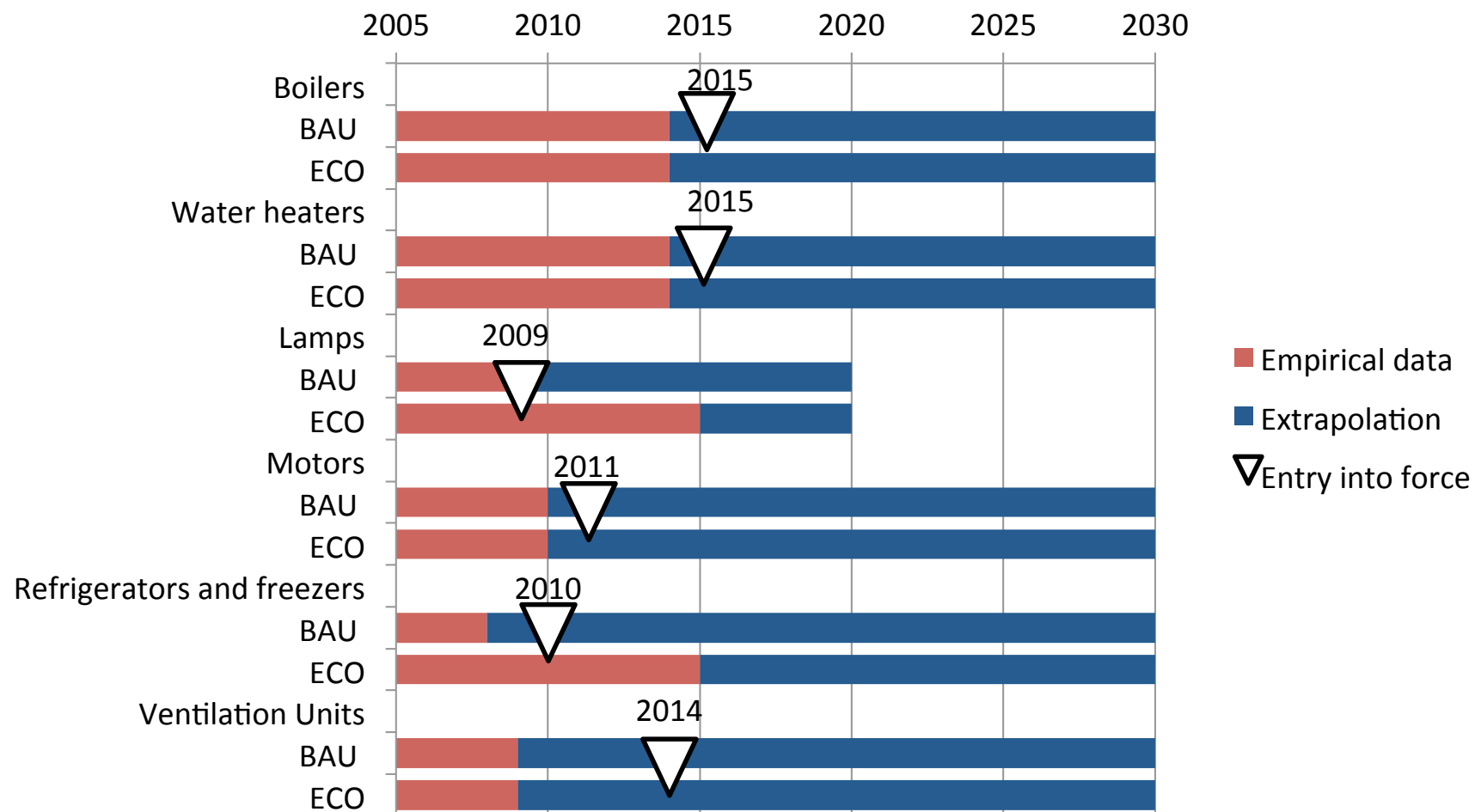
Approach(es)



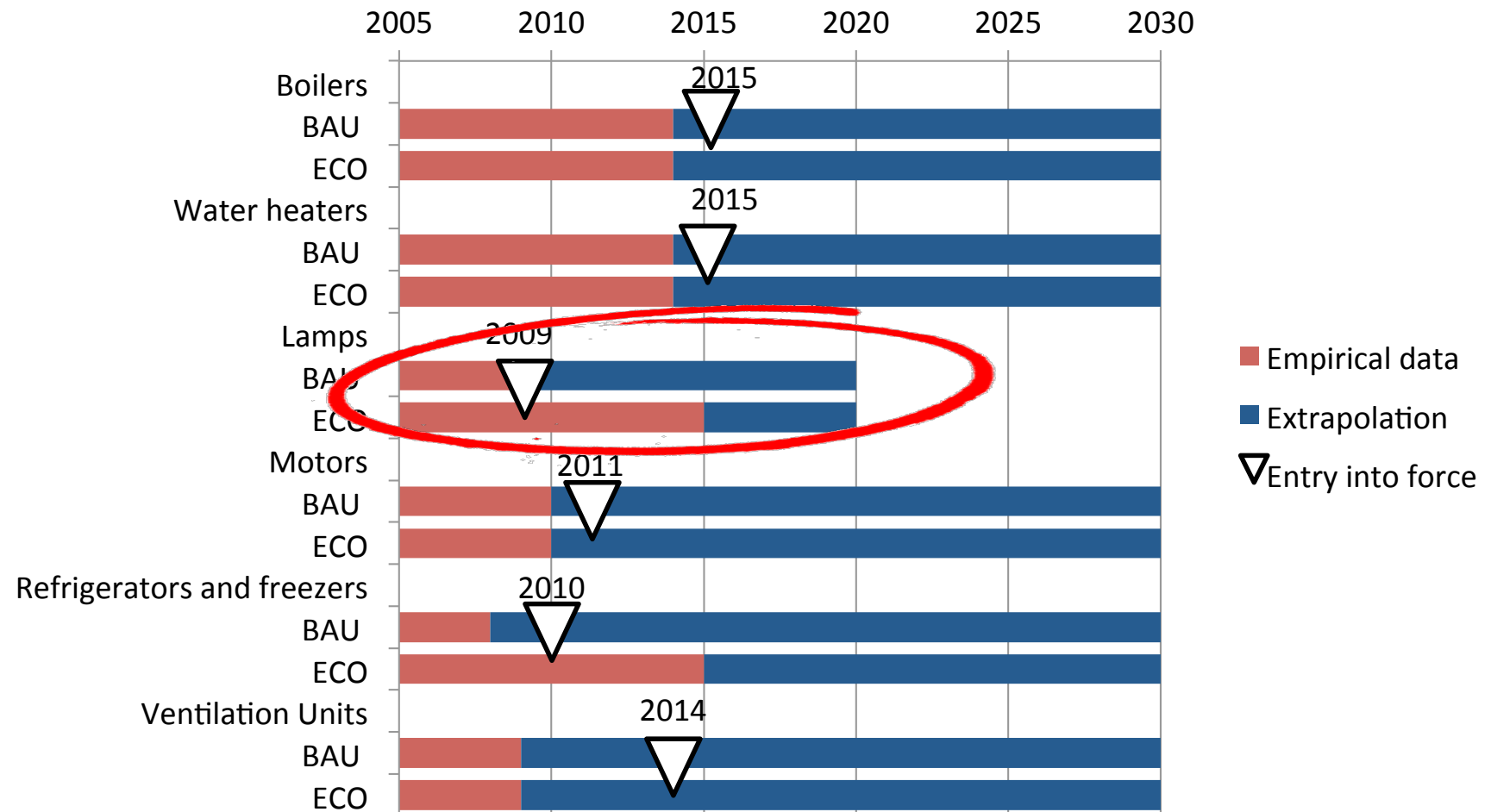
Approach(es)



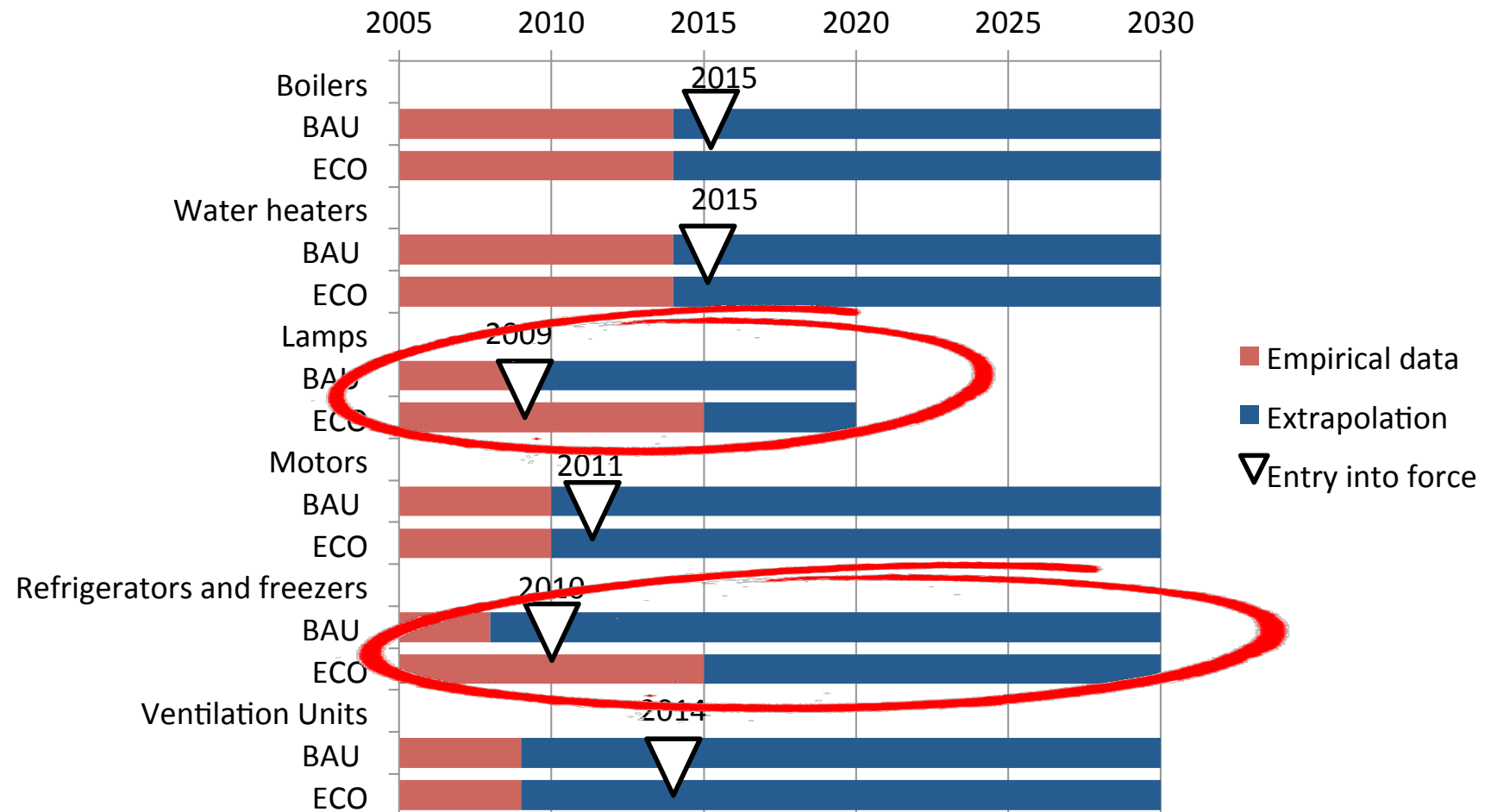
Data time series



Data time series



Data time series



Data Sources – Refrigerators and freezers

Sales	2006-2015 from GfK Differentiated according to energy class, volume, and type
Energy consumption	2006-2015 from GfK Differentiated according to energy class, volume, and type
Stock	Not available. Savings in stock were calculated as cumulated annual savings from Sales, starting from entry into force up to a maximum lifetime of 15 years

Calculating stock savings for refrigerators and freezers

Annual CHANGES in power consumption

	Consumption NEW		Consumption RETIRED		Delta
ECO		—			
	2005-2015 GfK 2015-2030 interpolated		2010-2025 identical => ignored 2026 = NEW 2011 etc.		
BAU		—			
	2005-2010 GfK 2010-2030 interpolated		2010-2025 identical => ignored 2026 = NEW 2011 etc.		

Annual savings

Annual changes BAU	—	Annual changes ECO	
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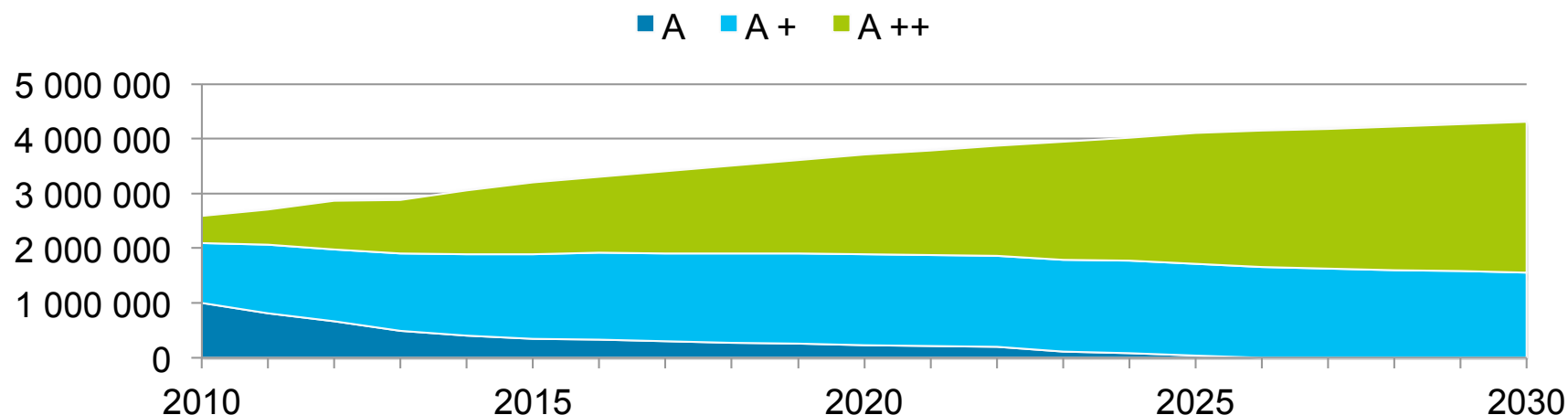
Total savings: Cumulated annual sav. 2010 + max. 15 years

Scenario assumptions – Refrigerators and freezers

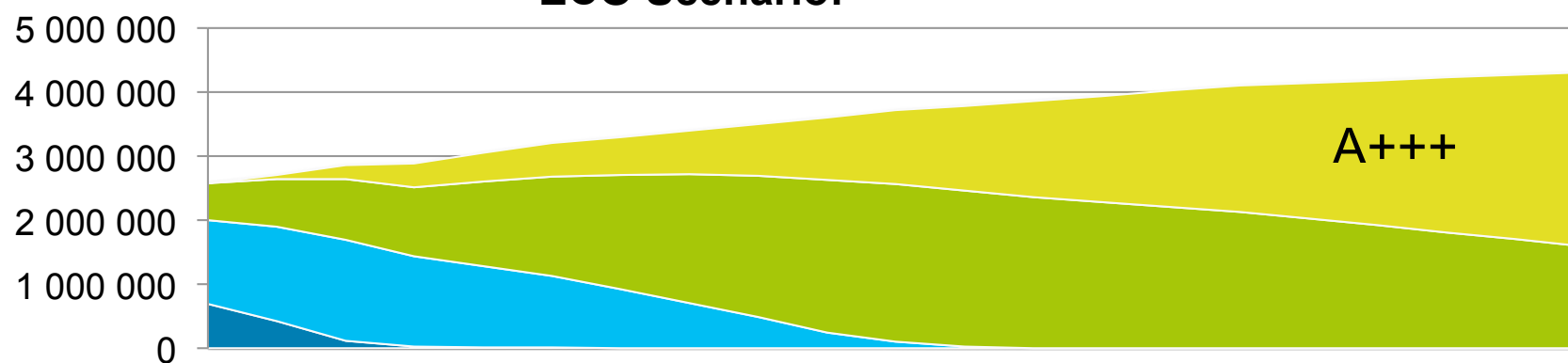
BAU	Total sales continue to grow slowly. No introduction of A+++ A++ increases steadily. A shares decrease quickly until 2015 and drain off slowly until 2025. A+ shares increase as they replace A, and decrease from 2016 on in favour of A++.
ECO	Total sales as in BAU. A+++ increases steadily. A+ shares decrease from 2015 on, and reach 0 by 2022. A++ shares increase as they replace A+, and decrease from 2022 on in favour of A+++.

Refrigerator (only) Results: Stock Development

BAU Scenario: Sales per efficiency class 2010 - 2030



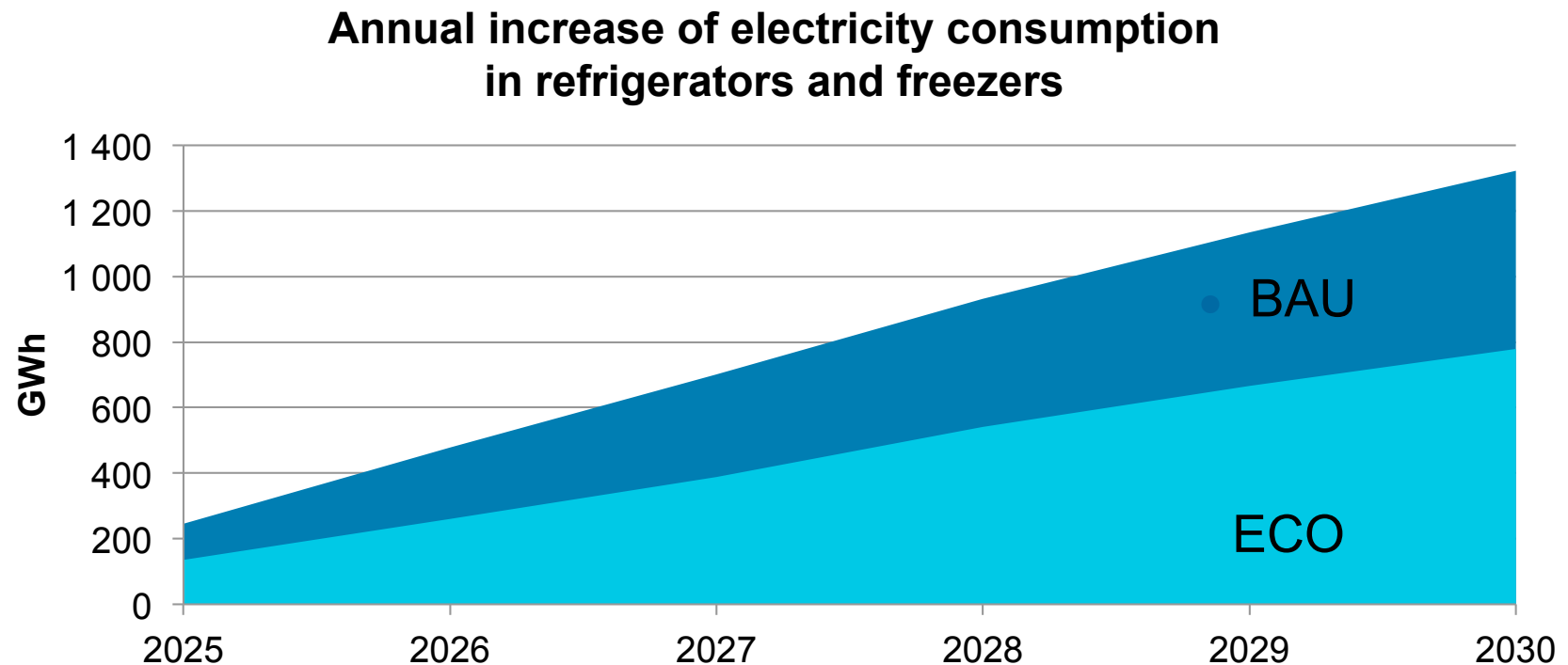
ECO Scenario:



Refrigerators (only): Savings

	Stock (cumulated annual) 2020	Stock (cumulated annual) 2030
Electricity savings (TWh/a)	0,7	1,6
Primary energy savings (TWh/a)	1,7	3,9
CO₂-mitigation [1000t]	258	581

But... What about total consumption?

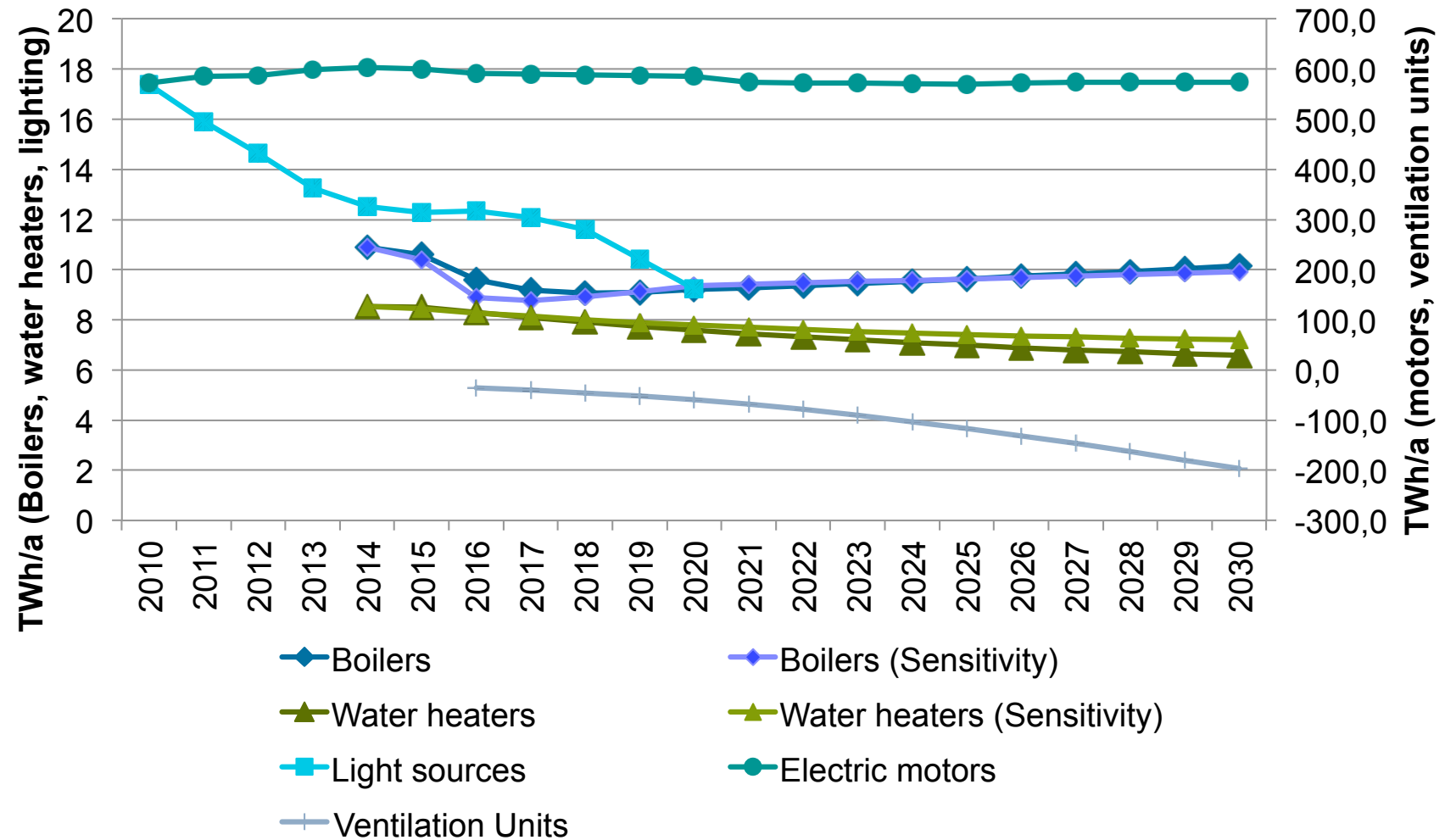


A sensitivity analysis where the increase in total sales is slowed down brings an absolute reduction in consumption.

Assumptions for sensitivity analysis

Annual increase in sales (%)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Refrigerators														
Main scenario (based on trend)	3	3	3	3	3	2	2	2	2	2	1	1	1	1	1
Sensitivity	3	3	3	2	2	2	1	1	1	1	1	1	1	1	1
	Freezers														
Main scenario (based on trend)	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Sensitivity	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Overall Results: There are primary energy savings...



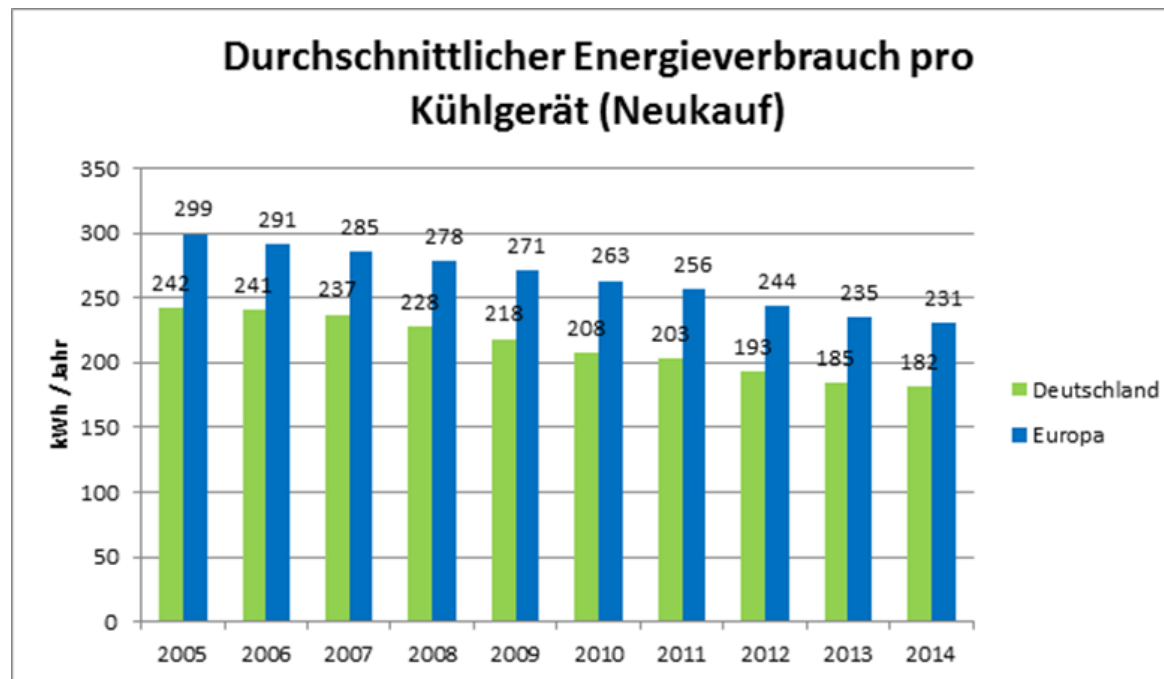
...but not as much as projected for the EU average.

	2030		
	Calculated	EU-28 share (GDP)	EU-28 share (pop.)
Boilers – Main scenario	22	157.3	121.9
Boilers - Sensitivity	24.1	157.3	121.9
Water heaters – Main scenario	27.7	60.0	46.5
Water heaters - Sensitivity	21	60.0	46.5
Light sources	7,1	73.4	56.9
Refrigerators and freezers – Main scenario	5.1	44.7	34.7
Refrigerators and freezers - Sensitivity	4.9	44.7	34.7
Ventilation Units	38.1	43.7	33.9

Discussion

Reasons for difference national / EU results

- Methodological: National assessment too conservative? => unlikely
- EU figures overestimated? => Possible (delays, implementation, surveillance...)
- Higher „baseline“ in Germany – National sales already more efficient? => Possible



Options for making the maximum out of Ecodesign and Energy Labeling

EU level

- timely implementation
- market surveillance
- Higher ambition

National level: Focus on energy consumption of stock:

- accelerated stock turnover through supporting timely replacement (boilers, cold appliances, storage water heaters).
- “sufficiency policy”; address number and size of appliances in households and heat demand via living space

Thank you for your attention!

Do you have any questions?

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