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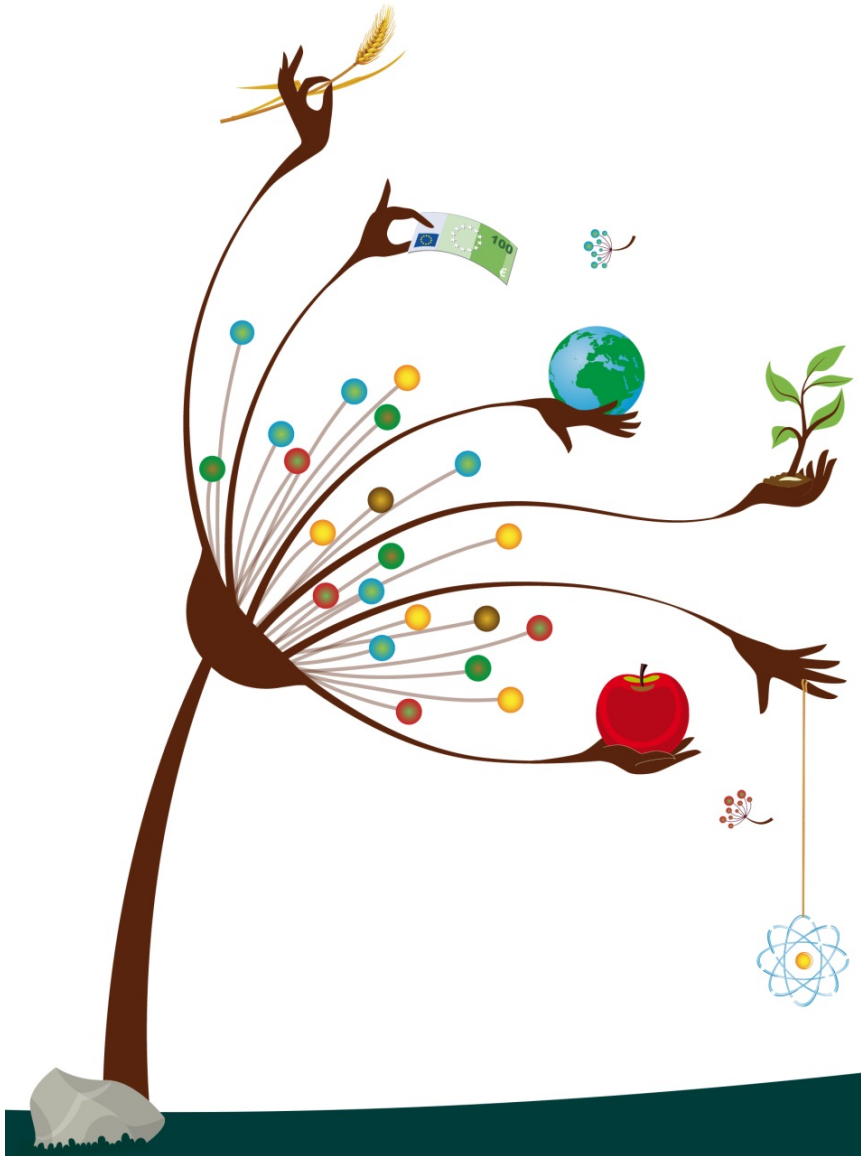

Implementation of the Energy Efficiency Directive: Progress, challenges & lessons learned

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1 June 2017

European Commission

Planning & reporting on energy efficiency

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Annual reports (EED Annex XIV)

(a) Energy statistics and explanation behind growth or stable consumption

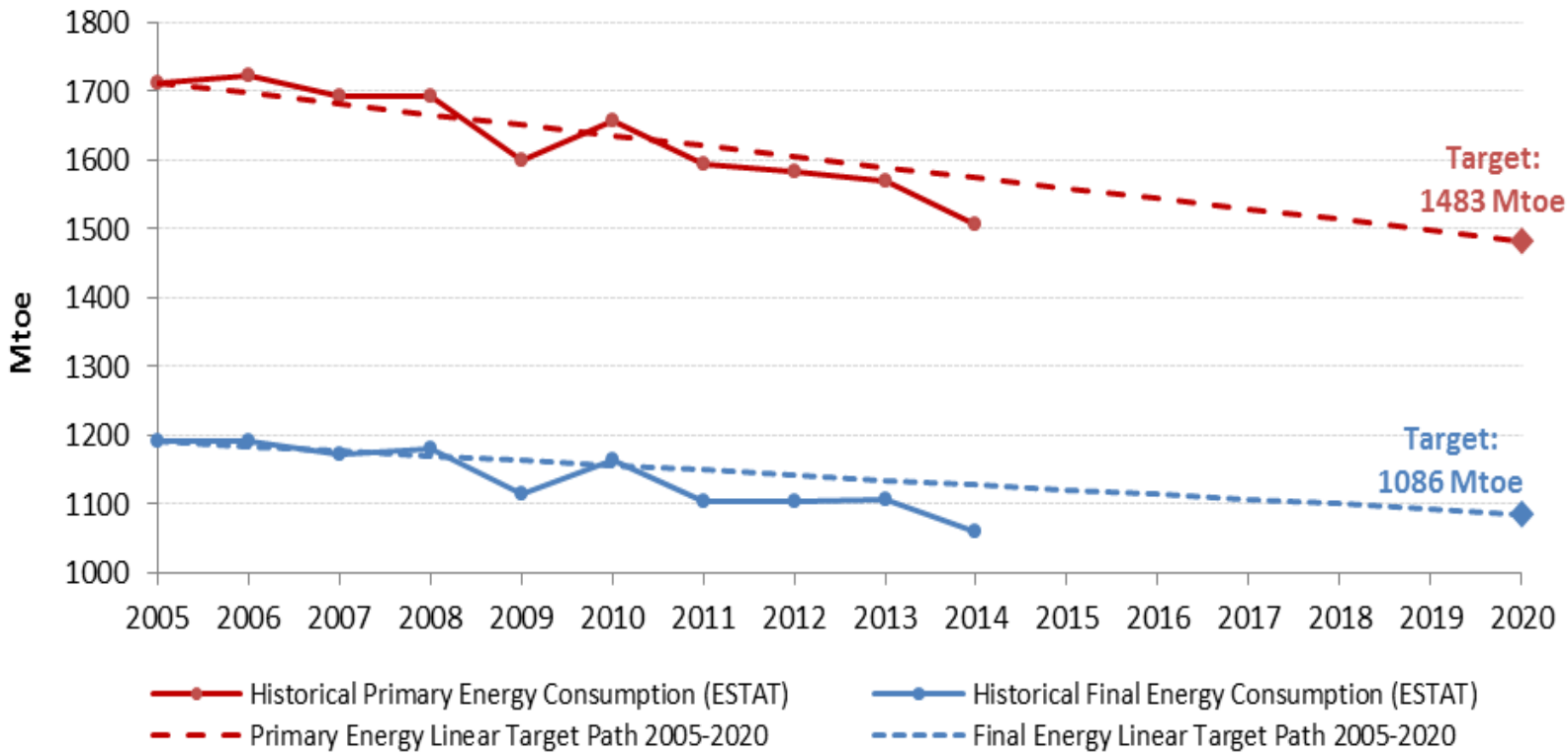
(b) Updates on major legislative and non-legislative measures implemented in previous year, contributing towards 2020 targets;

(c) -(d) Central government building stock and progress on renovation of central government buildings (Article 5)

(e) Progress achieved in implementing national energy efficiency obligation schemes or alternative measures (Article 7)

Targets

Good progress towards 2020 EU target



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Decomposition analysis

- Energy consumption trends are driven by several factors including economic activity, demography, efficiency improvements, lifestyle changes, etc.

- Decomposition analysis: separation of efficiency (Ei/Qi) from structural (Qi/Q) and activity changes (Q) where i represents sector (residential, industry, services, transport, agriculture)

$$E = \sum_{i}^{n} Q \cdot \frac{Q_i}{Q} \cdot \frac{E_i}{Q_i}$$

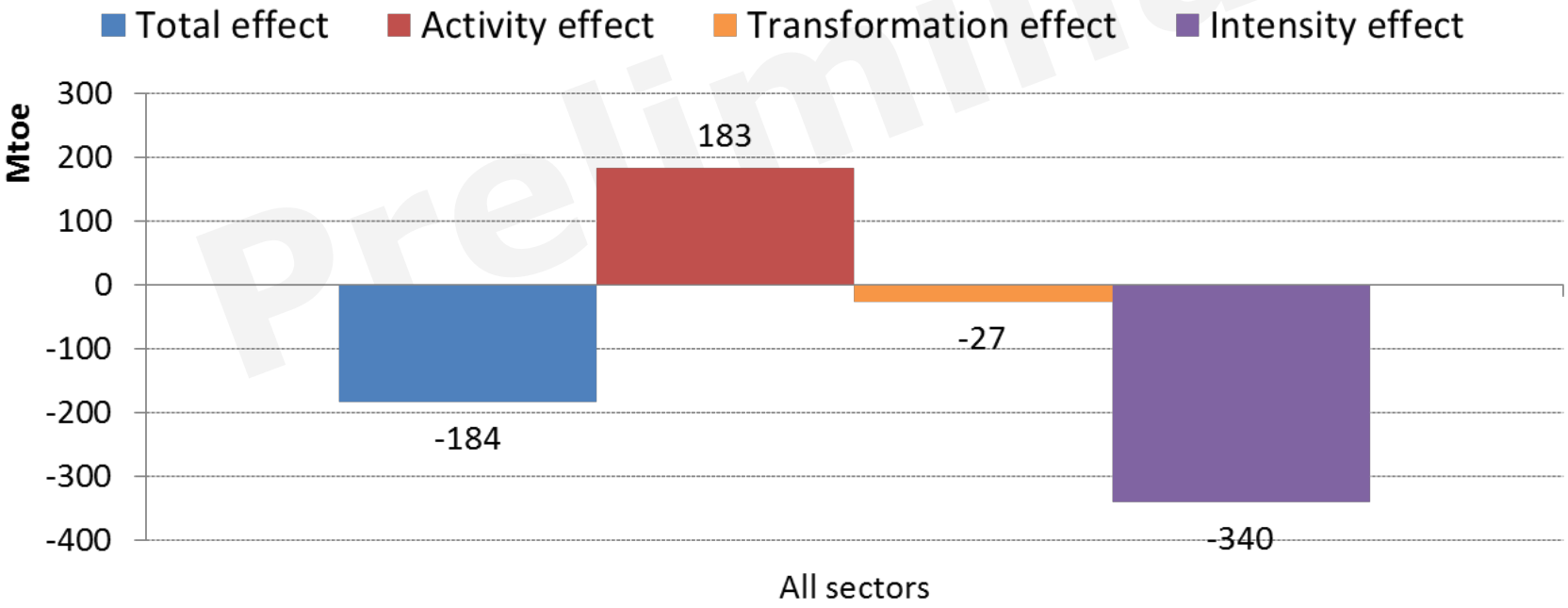
Main drivers considered

Effect	Explanation
Activity effect	It accounts for change in energy consumption due to changes in economic activity (e.g. GDP). The activity effect is positive if GDP or GVA grows due to additional energy demand of increased economic activity.
Structure effect	It represents the relative share of activity of individual sectors (e.g. GVAi/GVA) and accounts for changes in energy consumption due to change in the relative importance of sectors with different energy intensities. The structure effect is positive if sectors of high energy intensity grow more relative to less intensive sectors.
Intensity effect	Typically represented by ratio of primary or final energy consumption to GDP. It accounts for changes in total energy consumption due to technology advancements, efficiency improvements, policy and *other* effects. The intensity effect is negative if there is a drop in energy intensity.
Transformation effect	It is represented by the ratio of primary energy consumption to final energy consumption and accounts for the efficiency of the energy transformation system, reflecting changes in the transformation process, e.g. when fuel use is replaced with electricity. Negative transformation effect translates to increase in the overall efficiency of the transformation system.

EU level

Decomposition of primary energy consumption in 2005-2015

Base Year: 2005	Total effect	Activity effect	Transformation effect	Intensity effect
EU	-11%	+12%	-2%	-19%



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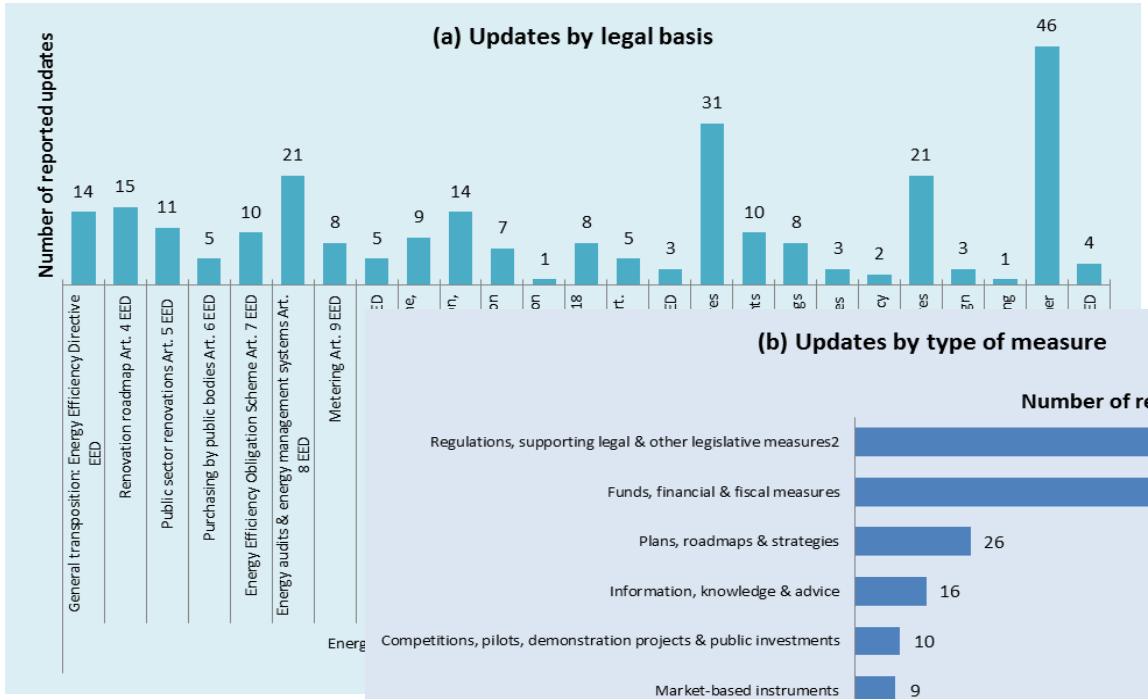
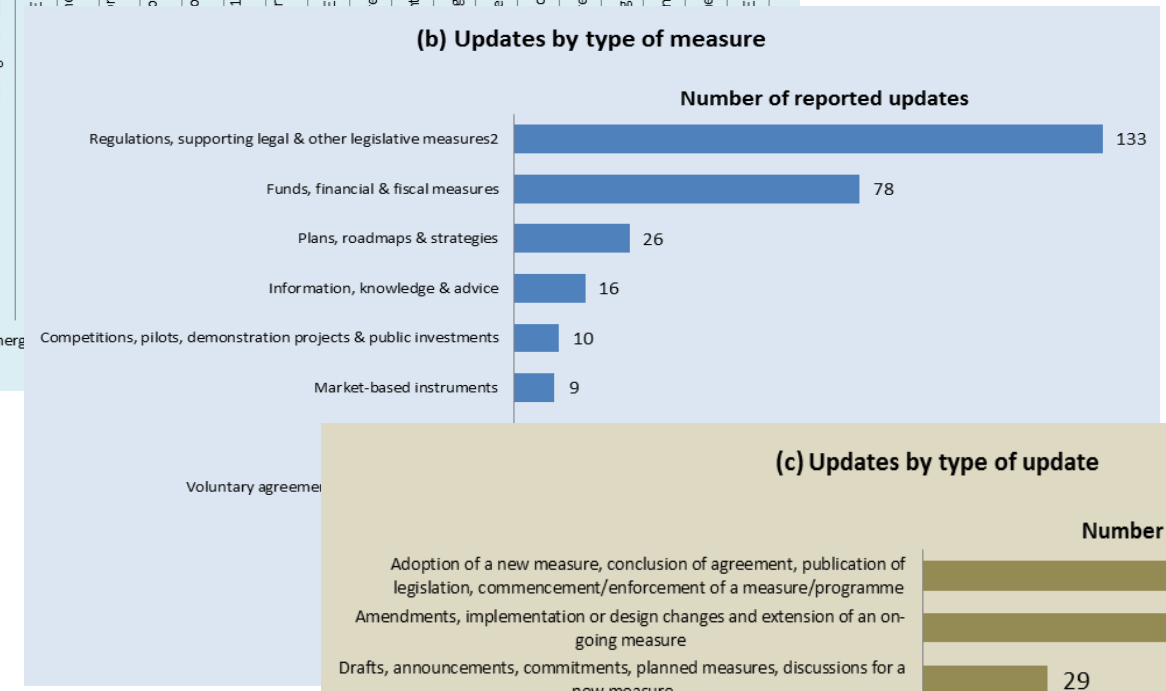
Reasons for growth or stable consumption

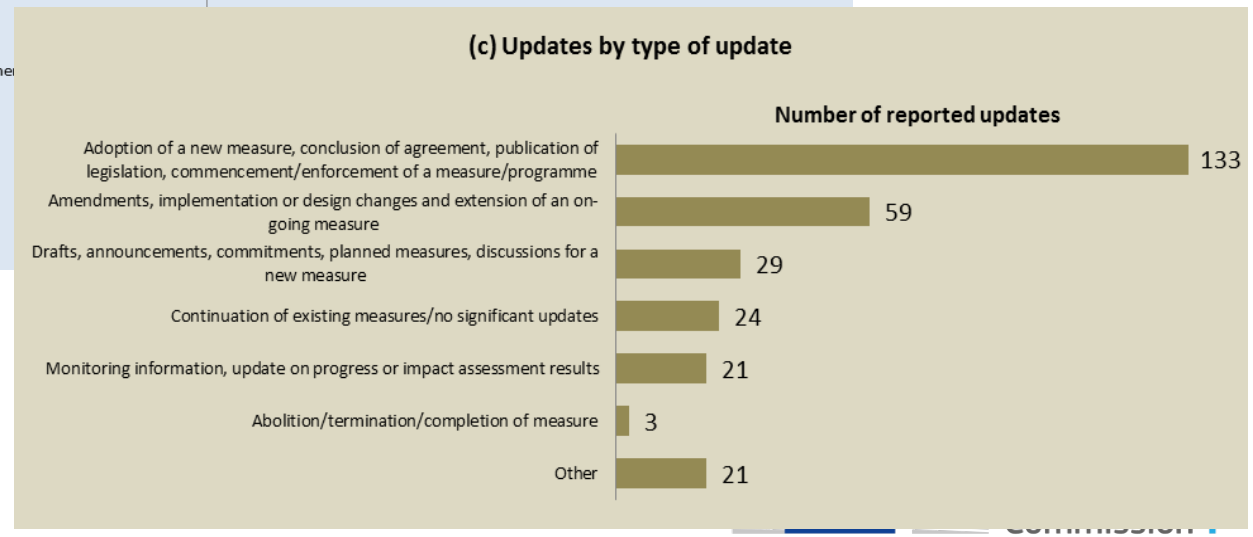
DE	Transport	Increase in passenger kilometres by around 2.0 % and tonne kilometres by around 1.3 % (final energy consumption per kilometre in transport however fell further in 2013-2014)
EE	Transport	Growth of fuel supply for international aviation, structural changes in transport modes and decreased energy price
UK	Transport	Fall in petrol and diesel prices of 11% seen over 2014 will have slowed the reduction seen in this in recent years and passenger kilometres increased by 2% since 2013 having been flat since 2010.
LV	Services	Gross value added of services increased by 3.7%
MT	Services	Significant increase in tourist arrivals, entailing a 5% growth in terms of bed-nights stayed, which is associated with relatively energy intensive activities such as aviation, automotive transport and HVAC (particularly
PT	Services	Rise in working hours in the public sector from 7 to 8 hours per week
RO	Industry	Increase in gross added value of industry (3.3%)
HU	Industry	Increase of industrial gross value added by 7%

Implementation of key Directive provisions

Main policy updates







Central government renovations

Article 5 default approach [m2]

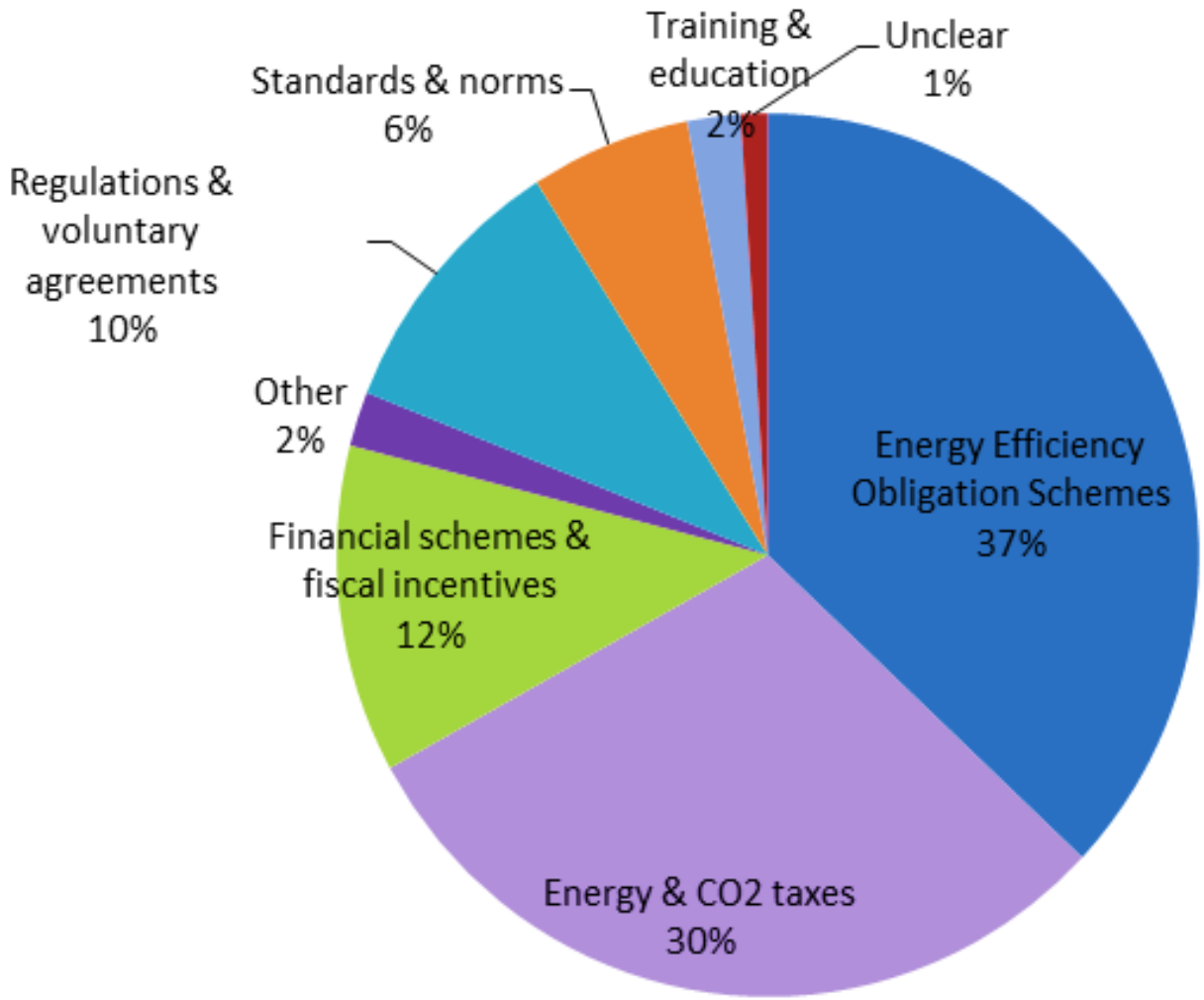
	2014			2015		
	Requirement	Achievement	%	Requirement	Achievement	%
BG	225,669	59,540	26%	155,805	72,000	46%
EE	27,432	17,022	62%	27,432	56,321	205%
EL	9,291	-	-	9,291	-	-
ES	336,007	306,550	91%	318,833	382,581	120%
HU	14,655	18,200	124%	14,577	11,184	77%
IT	412,919	561,090	136%	409,203	468,243	114%
LT	66,703	49,811	75%	32,063	-	-
LU	4,785	0	-	4,281	4,281	100%
LV	77,680	232,635	300%	77,680	0	-
SI	21,249	0	-	21,249	0	-

Article 5 alternative approach [MWh]

	2014			2015		
	Requirement	Achievement	Share	Requirement	Achievement	Share
AT	1,750	4,018	230%	1,697	6,318	372%
BE	665	-		650	-	
CY	3,316	3,477	105%	3,316	3,427	103%
CZ	6,168	6,367	103%	6,168	5,535	90%
DE	-	6,500		-	7,116	
DK	-	-		-	-	
FI	1,285	9703	755%	1,246	5772	463%
FR	413,500	-		413,500	-	
HR	1,358	3,053	225%	1,358	17,044	1255%
IE	1,303	NR		1,303	470	36%
MT	793	0	0%	793	0	0.0%
NL	60,833	-		60,833	31,667	52%
PL	4,536	4,483	99%	4,536	4,535	100%
PT	634	0	0%	634	-	
RO	-	-		-	15,318	
SE	3,219	7,220	224%	3,123	18,400	589%
SK	52,170	850	2%	52,170	54,770	105.0%
UK	63,300	272,200	430%	66,600	116,300	174.6%

Energy efficiency obligations schemes

Article 7 overview of achieved savings



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Article 7 obligation schemes

	Combined with altern. Measures	2014 requirement (ktoe)	2014 savings (ktoe)	2014 savings against expected annual savings (%)	Expected cumulative savings in 2014-2020 (ktoe)	2014 savings against cumulative savings (%)
BG		69	15	22%	1,942	1%
DK		238	204	86%	3,841	5%
IE	)	73	71	97%	2,164	3%
EL*	)	100	74	74%	3,333	2%
ES	)	493 (p)	565		15,979	4%
FR	)	738	1,585	215%	31,384	5%
HR	)	29	2.5	9%	1,296	0%
IT	)	850	1,232	145%	25,502	5%
LV	)		5		851	1%
LU			0	0%	515	0%
MT	)	0.62	1.47	238%	56	3%
AT	)	400 (p)	714		5,200	14%
PL			403		14,818	3%
SI	)	23	18	76%	945	2%
UK	)	2,347	2,382	101%	27,859	9%

Article 7 alternative measures only

	2014 requirement [ktoe]	2014 achievement [ktoe]	Share %	Expected cumulative savings in 2014-2020 [ktoe]	2014 achievement against cumulative savings (%)
BE	247 (p)	180		6,911	3%
CZ	173 (p)	65		4,841	1%
DE	2,844	2,548	90%	41,989	6%
EE*	48	41	87%	610	7%
CY	6.5	2.2	34%	242	1%
LT*		38		1,004	4%
HU	75	75	100%	3,680	2%
NL	373	666	179%	11,512	6%
PT	53	46	88%	2,532	2%
RO	346	364	105%	5,817	6%
SK	71	72	101%	2,284	3%
FI		561		4,213	13%
SE	997	252	25%	9,114	3%

Conclusions

Good progress towards 2020 targets but use of decomposition analysis is critical in assessing factors affecting energy consumption trends – work in progress

More efforts are needed by several Member States in the coming years:

- 12 MSs achieved their Article 5 target in 2014-2015
- 8 MSs reached/exceeded expected 2014 savings under Article 7

Moving towards future reporting and planning under Energy and Climate Plans

- Reporting template used in Annual Reports has been useful
- Experience with existing reporting processes on Energy Efficiency should be taken into account in new reporting/planning framework

Stay in touch

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