



ENERGY EFFICIENCY - BUT AT WHAT COST?

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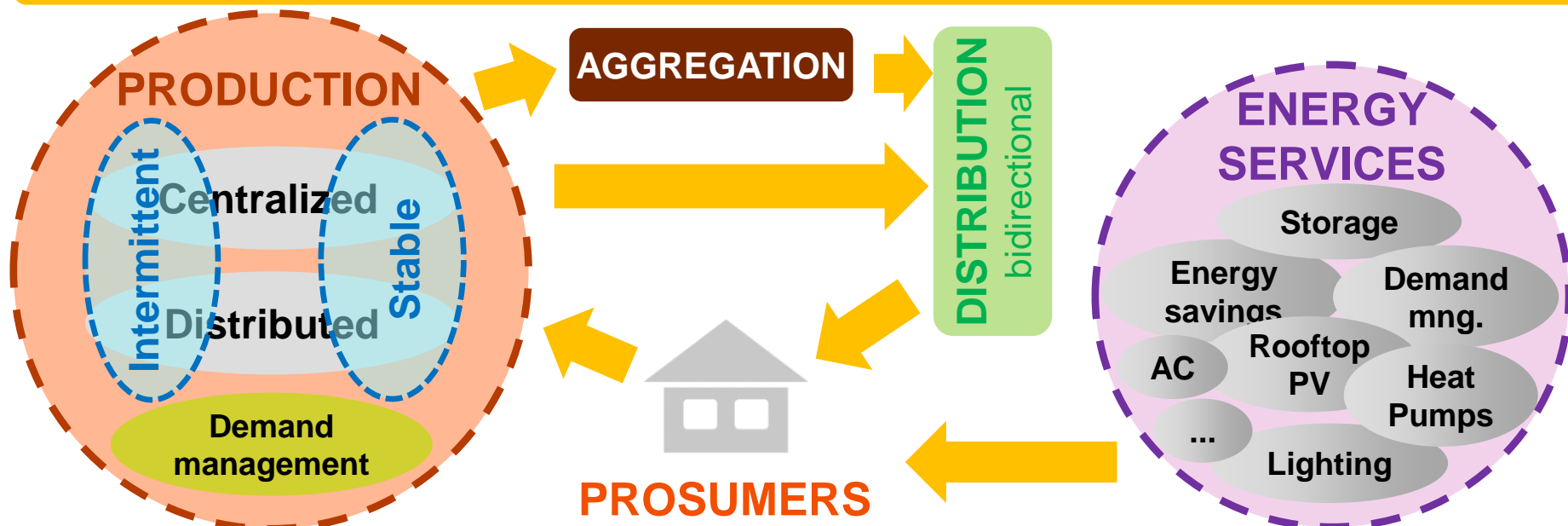
ENERGY MARKET IS SHIFTING FROM A „SIMPLE“ COMMODITY PRODUCTION AND DELIVERY TOWARDS MORE SOPHISTICATED INTERACTIONS WITH CUSTOMERS



TRADITIONAL ENERGY VALUE CHAIN




NEW ENERGY MARKET ENVIRONMENT



ČEZ OFFERS CUSTOM-DESIGNED COMPREHENSIVE ENERGY SOLUTIONS AND CUSTOMER ORIENTED SERVICES...



- Energy services, including energy savings, have been offered by ČEZ subsidiary ČEZ ESCO founded in 2014
- In 2015 (first year of its existence), only slightly more than 20% of the EBITDA came from the energy services business, the rest was achieved by the sale of the commodity
- In the first two years, ČEZ ESCO focused on the **acquisition of the knowledge base and competences** by acquisition of existing companies and/or creation of its internal expert teams

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- ČEZ ESCO now employs **1200 experts** in 8 subsidiaries
 - For the first time, ESCO 2017 profits from energy services will be higher than from commodity deliveries

... AND MARKET-BASED ENERGY SAVINGS ARE IMPORTANT PART OF ENERGY SERVICES PORTFOLIO



Warranted Energy Savings (EPC)

- For public-sector customers, CEZ ESCO offers to implement comprehensive set of measures to reduce energy intensity through the EPC method.
- Reference: **Energy savings at the National Theatre**, having brought overall energy savings (more than 50% of the original costs), guaranteed annual savings of at least 9.9 million CZK and lower CO₂ emissions.

Tailor-Made Energy Services for Companies

- For customers from private sector, CEZ ESCO offers to reduce energy intensity and especially operating costs.
- Reference: **Energy savings at Jalta Hotel** in Prague, guaranteeing minimum financial savings amounting to 344,000 CZK per year; The real savings achieved were several times higher, delivering also gradual modernization of energy economy




HOWEVER, FULFILMENT OF THE 2030 EED OBLIGATIONS WILL REQUIRE SUBSTANTIAL INVESTMENTS FROM EU MEMBER STATES



Investment costs needed to fulfill higher of the EED 2030 obligations (30% decrease of final consumption or 1,5% p.a. savings obligation)
% GDP 2016

% GDP	AT	BE	BG	CY	CZ	DK	EE	FI	FR	DE	GR	HU	IE	IT
Average estimate*	19%	29%	21%	17%	17%	15%	17%	22%	15%	17%	9%	17%	4%	8%
Lower estimate*	7%	10%	7%	6%	6%	5%	6%	8%	5%	6%	3%	6%	1%	3%
Upper estimate*	29%	44%	33%	25%	26%	23%	27%	34%	23%	26%	14%	26%	6%	12%

% GDP	LV	LT	LU	MT	NL	PL	PT	RO	SK	SI	ES	SE	UK
Average estimate*	19%	14%	26%	7%	9%	48%	9%	17%	25%	13%	7%	12%	9%
Lower estimate*	7%	5%	9%	2%	3%	16%	3%	6%	9%	4%	2%	4%	3%
Upper estimate*	29%	21%	40%	10%	14%	73%	13%	27%	38%	19%	11%	18%	13%

 30% target > 1.5% p.a. obligation**

 1.5% p.a. obligation > 30% target

* IA estimates of energy efficiency intensities (table 12, IA Annexes p. 159):

Average (5 studies): 364 M EUR/PJ

Lower: 127 M EUR/PJ

Upper: 564 M EUR/PJ

EC estimates an additional total investment expenditure of €78 billion/year for increasing the target from 27% to 30% (IA p. 65) which translates into 440 M EUR/PJ

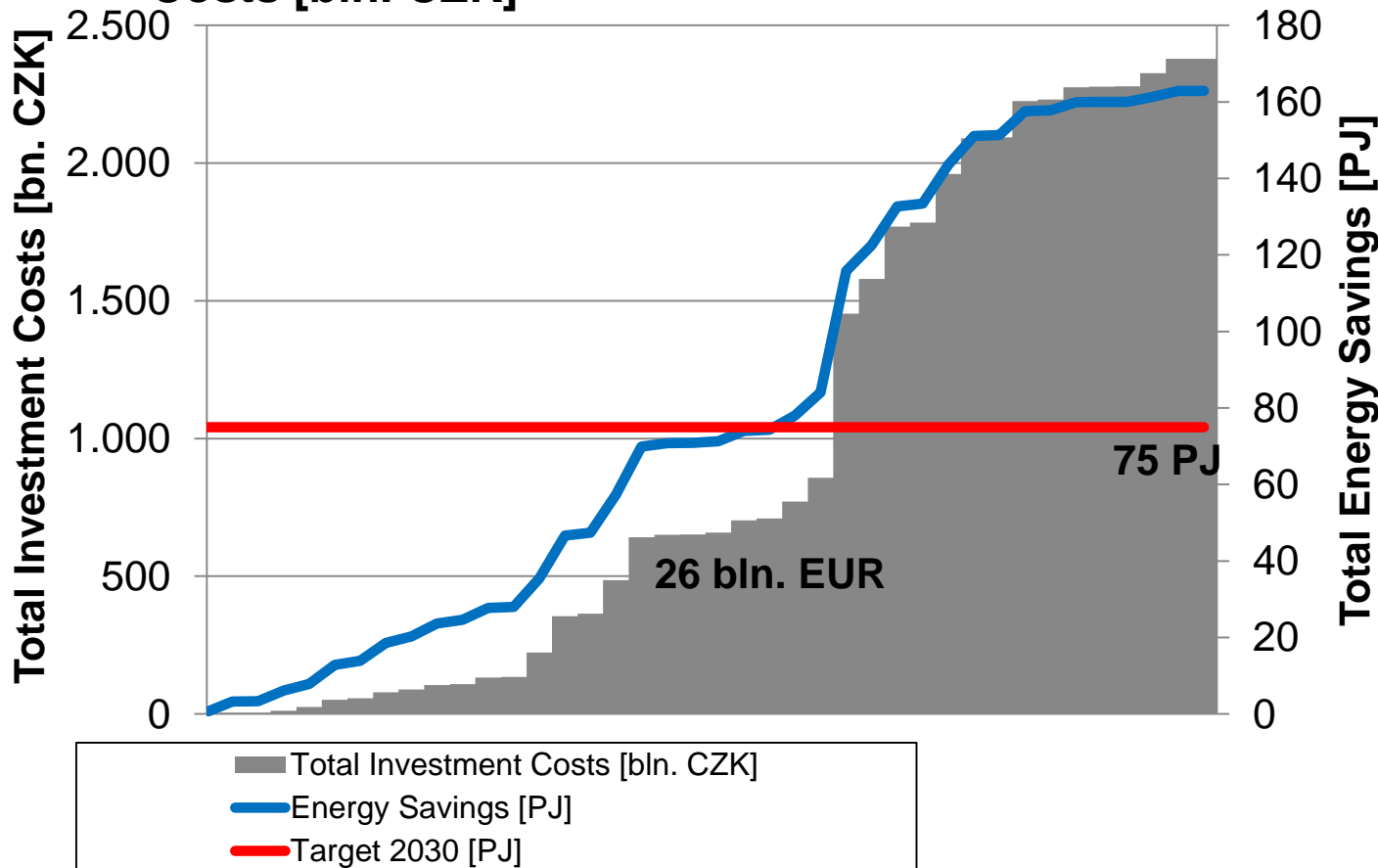
**Rough estimate: 11.25% (75% from 10*1.5%) from the base consisting of 2015-2020 average final consumption by PRIMES 2016 without 2015-2020 transport consumption by PRIMES 2016 minus 5.3% for final energy which is not being sold (assumption in the IA EED 2016)

A LOCAL INDEPENDENT STUDY SHOWS THE CZECH REPUBLIC WOULD NEED TO SPEND 700 BN CZK (MORE THAN 15% GDP) TO ACHIEVE ARTICLE 7



CZECH REP.

Energy Savings Potential - Total Investment Costs [bn. CZK]



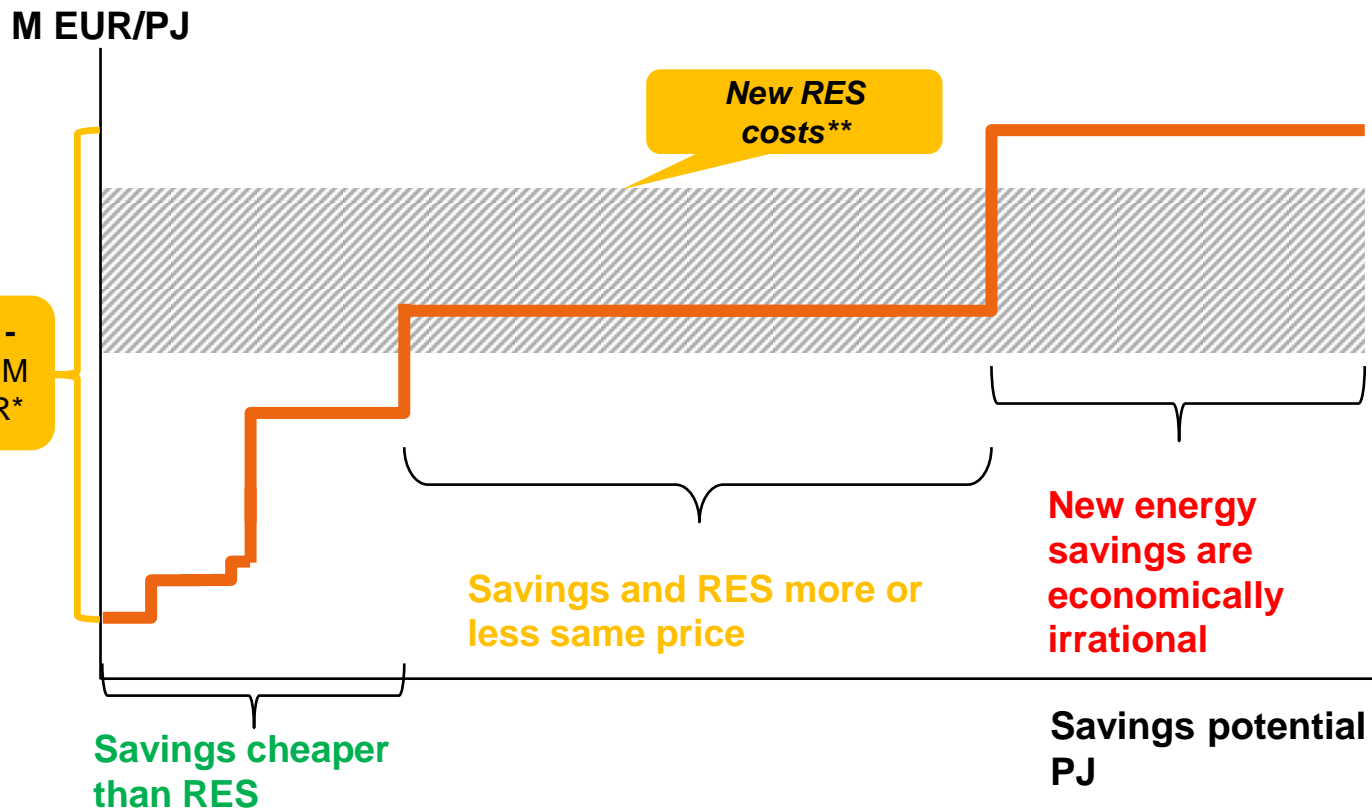
- Analysis shows that in order to reach 75 PJ of energy savings (required exclusively by Article 7), the investment costs of 700 bn CZK (26 bn. EUR) would be required during 2021-2030
- Graph reflects real potential of different energy efficiency measures

TOO AMBITIOUS ENERGY EFFICIENCY TARGET COULD EASILY BECOME COUNTERPRODUCTIVE IN TERMS OF COST-EFFICIENCY OF THE EU CLIMATE POLICY



ILLUSTRATIVE

Illustrative energy savings supply curve



- There are economical, market incentives to realize cost-effective savings measures
- Indeed, GDP has grown by 40% since 1995 while the energy consumption decreased in absolute terms
- Expenses increase faster than proportionally compared with the volume of required savings
- At some point, costs of energy savings measures become more expensive than cost of new RES and therefore it is irrational to realize them

* EC IA, (table 35, p. 265); increase from 27% to 30% will require an average cost of 440 M EUR/PJ according to the IA (p. 61)

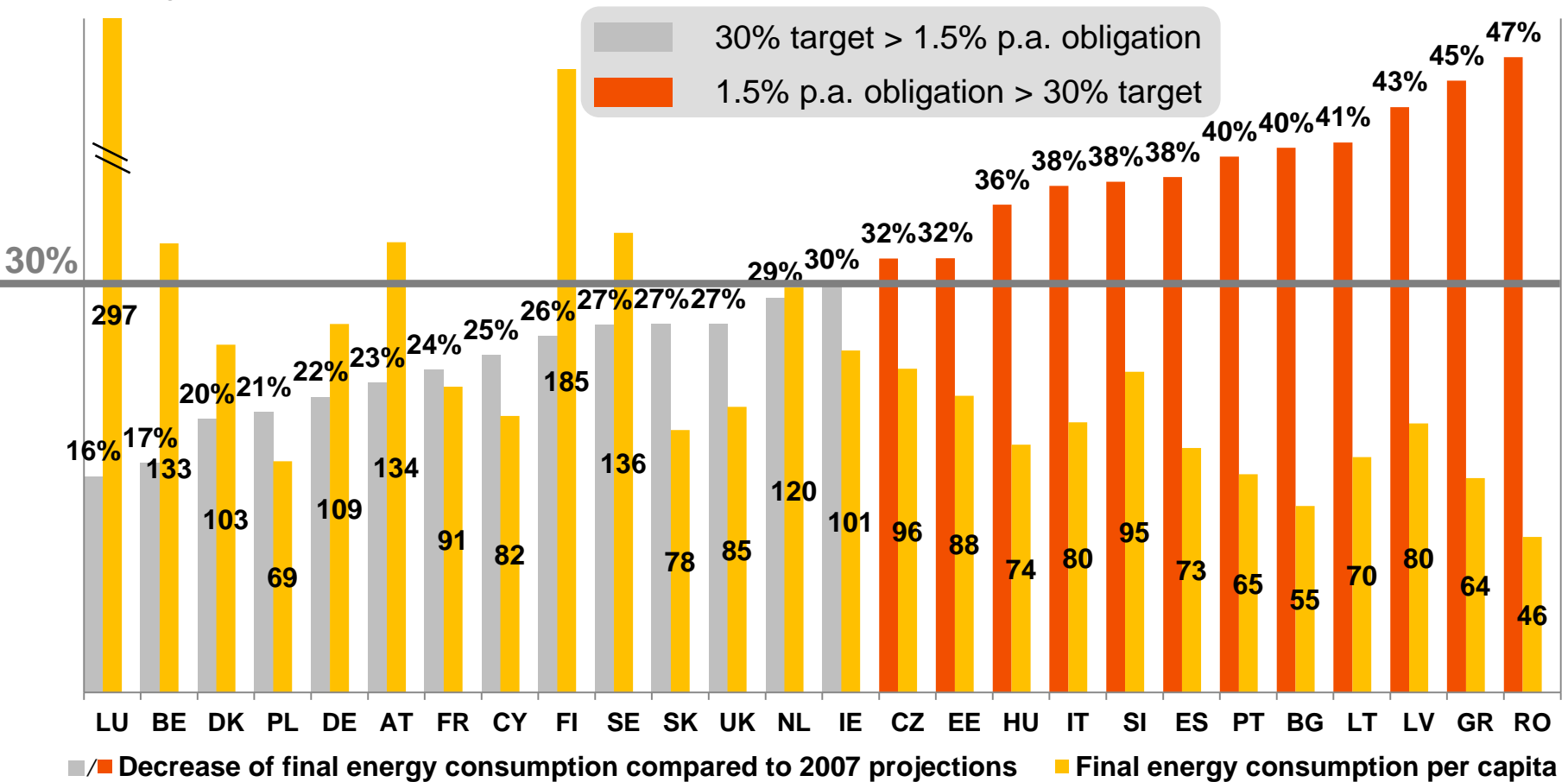
** Latest DE PV auctions cleared at 65.8 EUR/MWh which means 310 M EUR/PJ (27years with 4% discount factor)

EED PROPOSAL FORCES COUNTRIES WITH ALREADY LOW ENERGY CONSUMPTION PER CAPITA TO OVERACHIEVE THE EUROPEAN 30% TARGET



Decrease of the final energy consumption in 2030 after the 1.5% p.a. savings obligation* and consumption per capita

% against the 2007 reference scenario, GJ/cap 2015



* 30% target compared with 2007 energy consumption projection, 1,5% of 2016-2018 energy sales to final consumers, subject to some exemptions

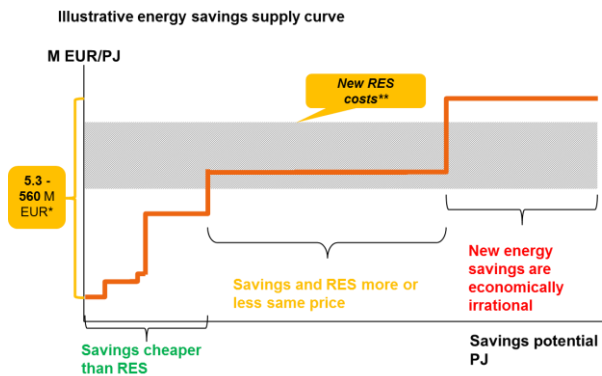
CONCLUSIONS



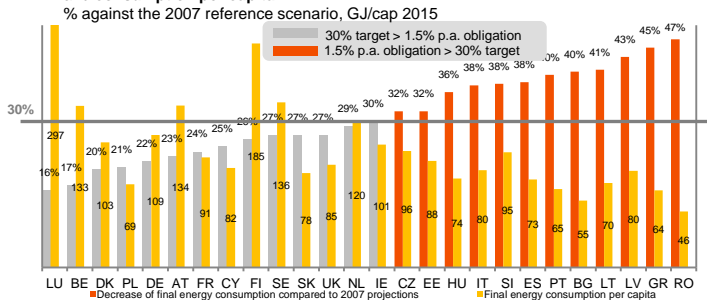
Based on presented views ...

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... CEZ Group proposes to:

- Allow for reflection of cost-efficiency of energy savings measures vis-a-vis other options to help MS to tackle associated high investment costs.
- Neutralize negative effect of overlapping climate policies by placing the volume of allowances equivalent to the emission savings achieved outside the EU ETS market by means of the RES and EE support schemes into the MSR.
- Create balance and establish link between Article 3 and Article 7, in order to prevent suboptimal choice of costly measures for energy savings while achieving EU energy efficiency targets.