



**CEZ EXPERIENCE  
ON  
ENERGY EFFICIENCY**

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***Eficienta energetica, conditie esentiala pentru o  
dezvoltare durabila, Bucuresti, 29-30 martie 2017***

# CEZ GROUP IS AN INTERNATIONAL UTILITY WITH A STRONG POSITION IN CEE

## CEZ Group in Poland (100% stake in Skawina, 100% in Chorzow)


Installed capacity (MW)	681
Electricity generation, gross (TWh)	2.9
<b>Generation market share</b>	<b>1.9%</b>
Number of employees	412
Sales (EUR million)	251

## CEZ Group in the Czech Republic

Installed capacity (MW)	13,351
Electricity generation, gross (TWh)	56.6
<b>Generation market share</b>	<b>67.5%</b>
Distributed electricity (TWh)	33.3
<b>Distribution market share</b>	<b>63%</b>
Number of employees	20,383
Sales (EUR million)	5,715

## CEZ Group in Turkey (50% stake in SEDAS through AkCez, 37.36% stake in Akenerji)

Installed capacity (MW)	1,289
Electricity generation, gross (TWh)	4.6
<b>Generation market share</b>	<b>1.8%</b>
Distributed electricity (TWh)	8.5
<b>Distribution market share</b>	<b>3%</b>

 Energy Assets



## CEZ Group in Romania (100% stakes in CEZ Distributie, CEZ Vanzare, Tomis Team, Ovidiu Development, TMK Hydroenergy Power)

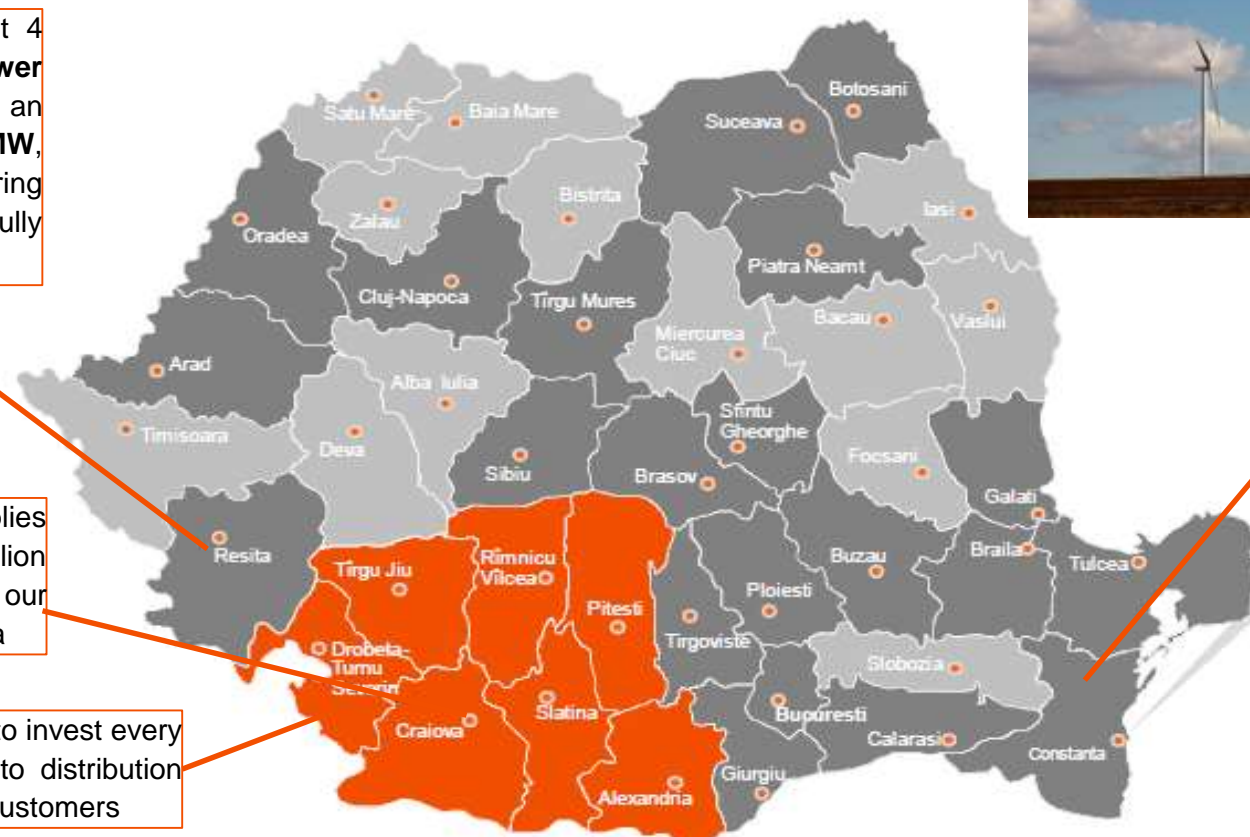
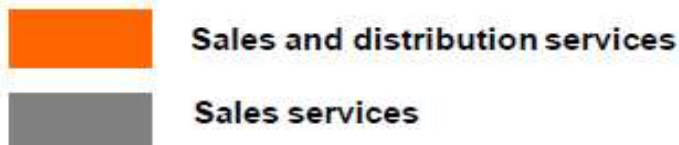
Installed capacity (MW)	622
Electricity generation, gross (TWh)	1.3
<b>Generation market share</b>	<b>2.2%</b>
Distributed electricity (TWh)	6.4
<b>Distribution market share</b>	<b>12%</b>
Number of employees	1,787
Sales (EUR million)	480

## CEZ Group in Bulgaria (67% stake in CEZ Razpredelenie Bulgaria, CEZ Electro Bulgaria, 100% in TPP Varna, 100% in Free Energy Project Oreshets, 100% in Bara Group )

Installed capacity (MW)	1,267*
Electricity generation, gross (TWh)	0.006*
<b>Generation market share</b>	<b>0.0%</b>
Distributed electricity (TWh)	9.3
<b>Distribution market share</b>	<b>28%</b>
Number of employees	3,249
Sales (EUR million)	894



# CEZ GROUP ALREADY INVESTED 2,5 BILLION EUROS IN ROMANIA



At end 2010, CEZ bought 4 small **micro-hydropower plants** close to Resita, with an installed power of **18 MW**, spending **20 mil.Euro**; during 2012-2013, units were fully rehabilitated (**22 MW**)

**CEZ Vanzare** supplies electricity for 1,4 million customers, not only in our region, but all over Romania

**CEZ Distributie** continues to invest every year about **50 mil.euro** into distribution networks for its 1,4 million customers

**CEZ wind parks** at Fantanele & Cogealac-biggest on-shore from Europe, with its **600 MW** installed, with an investment of over **1,1 billion Euro**



# ENERGY EFFICIENCY TARGETS FOR 2020 AND 2030

- ✓ The EU has set itself a **20% energy savings target by 2020** (when compared to the projected use of energy in 2020) – this is roughly equivalent to turning off 400 power stations.
- ✓ On 30 November 2016, the Commission proposed an update to the Energy Efficiency Directive, including a new **30% energy efficiency target for 2030**, and measures to update the Directive to make sure the new target is met.

The EU has made considerable progress over the few last years:

- ✓ In **2014**, its primary energy consumption was only 1.6% above its 2020 primary energy consumption target. Indeed, final energy consumption was 2.2% below the 2020 target. However, in **2015** compared with 2014, primary energy consumption increased by around 1.5%, and final energy consumption by around 2%.
- ✓ The Commission is optimistic that the 20% primary energy consumption target will be reached.



# EU POLICIES TO IMPROVE ENERGY EFFICIENCY

The EU has adopted a number of measures to improve energy efficiency in Europe:

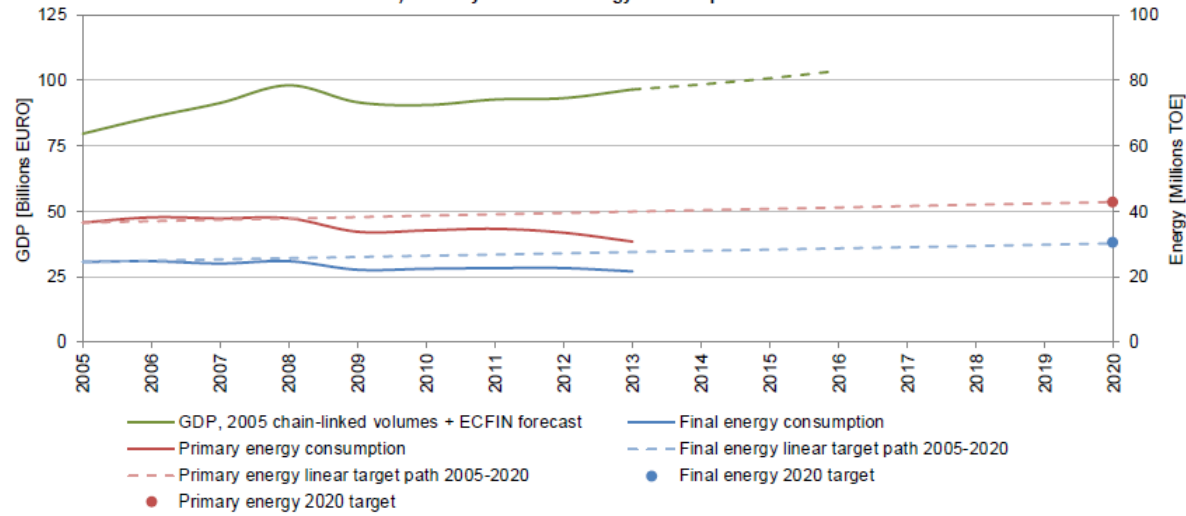
- ✓ an annual reduction of 1.5% in national energy sales
- ✓ EU countries making energy efficient renovations to at least 3% of buildings owned and occupied by central governments per year
- ✓ mandatory energy efficiency certificates accompanying the sale and rental of buildings
- ✓ minimum energy efficiency standards and labeling for a variety of products such as boilers, household appliances, lighting and televisions (Ecodesign)
- ✓ the preparation of National Energy Efficiency Action Plans every three years by EU countries
- ✓ the planned rollout of close to 200 million smart meters for electricity and 45 million for gas by 2020
- ✓ large companies conducting energy audits at least every four years
- ✓ protecting the rights of consumers to receive easy and free access to data on real-time and historical energy consumption



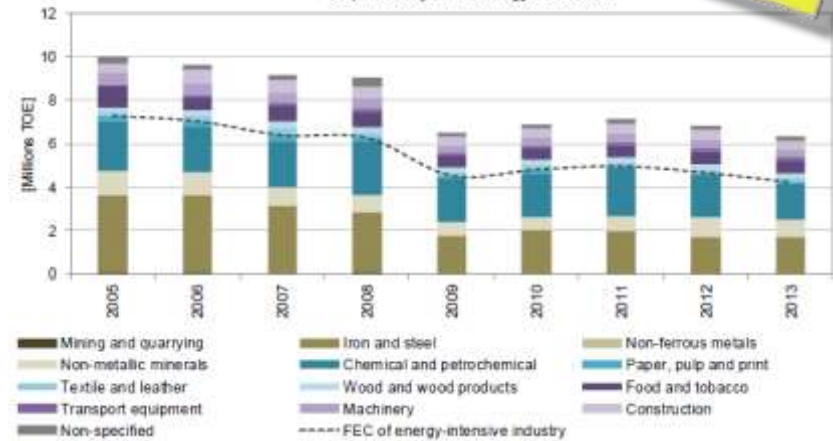
# WHERE ROMANIA STANDS (1)

Source: EC report to EU Parliament, Nov 2015

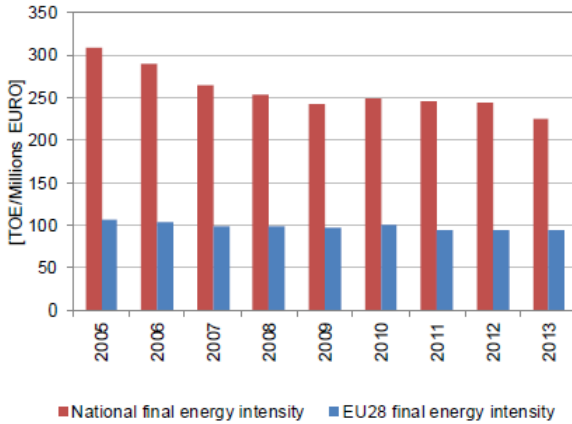
RO) Primary and final energy consumption vs GDP



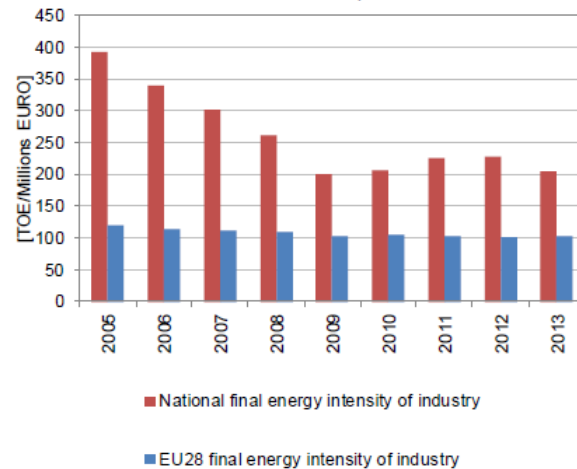
RO) Industry: final energy breakdown



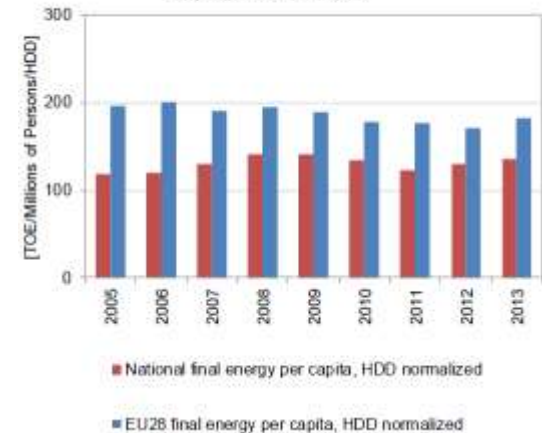
RO) Final energy intensity (FEC / GDP)



RO) Industry: final energy intensity (FEC / value added)



RO) Residential: final energy consumption per capita, HDD normalized

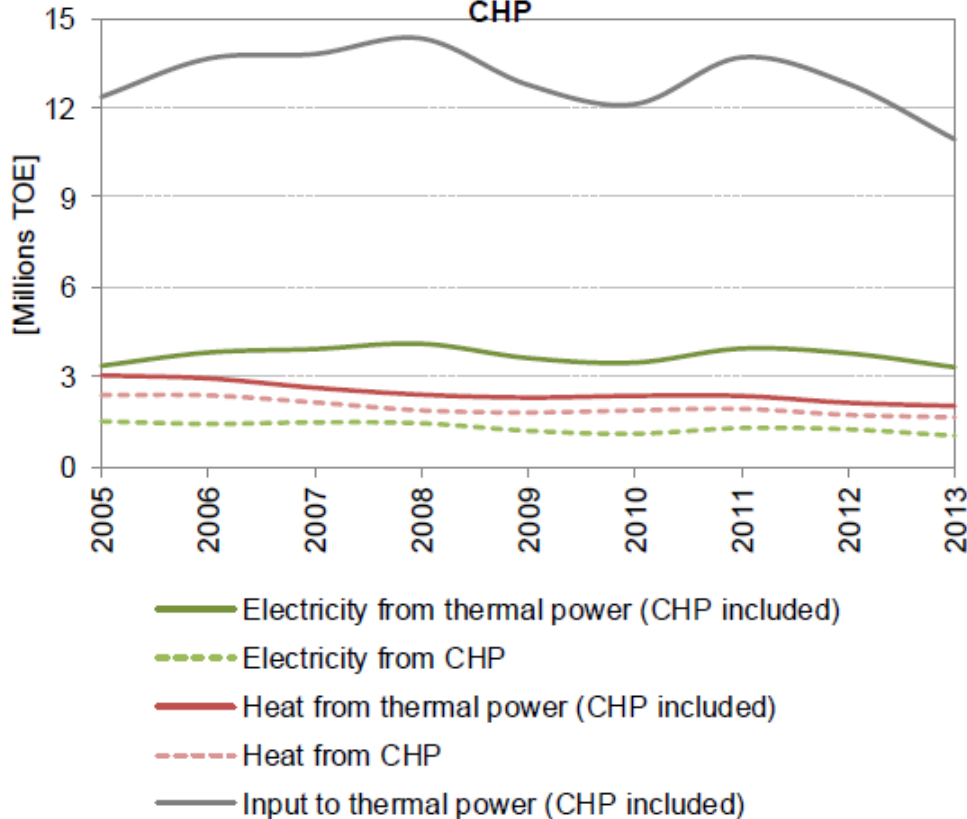




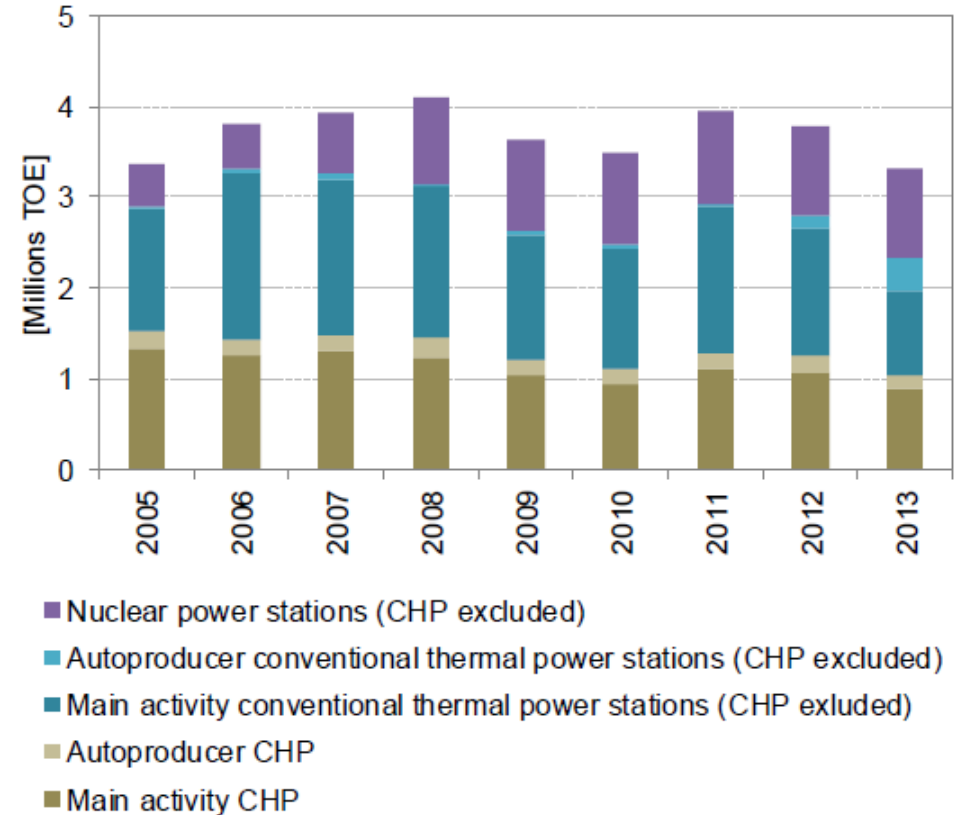
# WHERE ROMANIA STANDS (2)

Source: EC report to EU Parliament, Nov 2015

### RO) Energy generation from thermal power and CHP



### RO) Electricity generation breakdown





# WB STUDY “RISE” RANKS ROMANIA ON 3<sup>rd</sup> PLACE IN THE WORLD IN PROMOTING ENERGY EFFICIENCY VIA POLICIES AND REGULATIONS

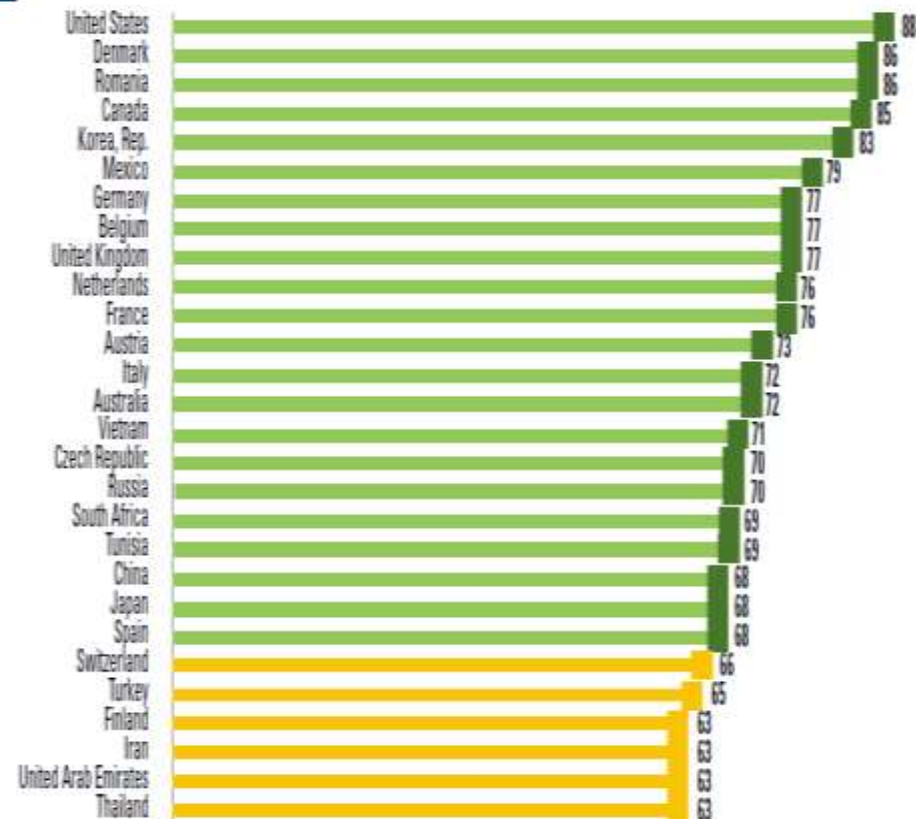
## Energy efficiency pillar

### Policies and Regulations

- National energy efficiency planning
  - Existence of legislation/action plan
  - National targets
  - Sector targets
- Energy efficiency entities
  - Functions covered by dedicated entities
- Information provided to electricity consumers
  - Reports on electricity use
  - Quality of information
  - Comparisons with other users
  - Energy saving information
- Types of electricity rate structures
  - Electricity rate structure
  - Demand charges (large customers)
  - Time of use tariffs
- Mandates & incentives: Large consumers
  - Mandates for large consumers
  - Incentives for large consumers
  - Performance recognition
- Mandates & incentives: Public entities
  - Obligations for public buildings
  - Obligations for other public facilities
  - Public procurement of energy efficient products
  - Ability to retain energy savings
- Mandates & incentives: Utilities
  - Mandates for utilities
  - Cost recovery mechanisms for utilities
- Financing mechanisms for energy efficiency
  - Type of mechanism in each sector
- Minimum energy performance standards
  - Range of product types covered
  - Verification and penalties for noncompliance
- Energy labeling system
  - Range of product types covered
  - Mandatory vs. voluntary system
- Building energy codes
  - New residential/commercial buildings
  - Renovated buildings
  - Compliance system
  - Building energy information
  - Building energy efficiency incentives
- Carbon pricing and monitoring
  - Carbon pricing mechanism
  - Monitoring, reporting and verification (MRV) system

RISE – Regulatory indicators for sustainable energy

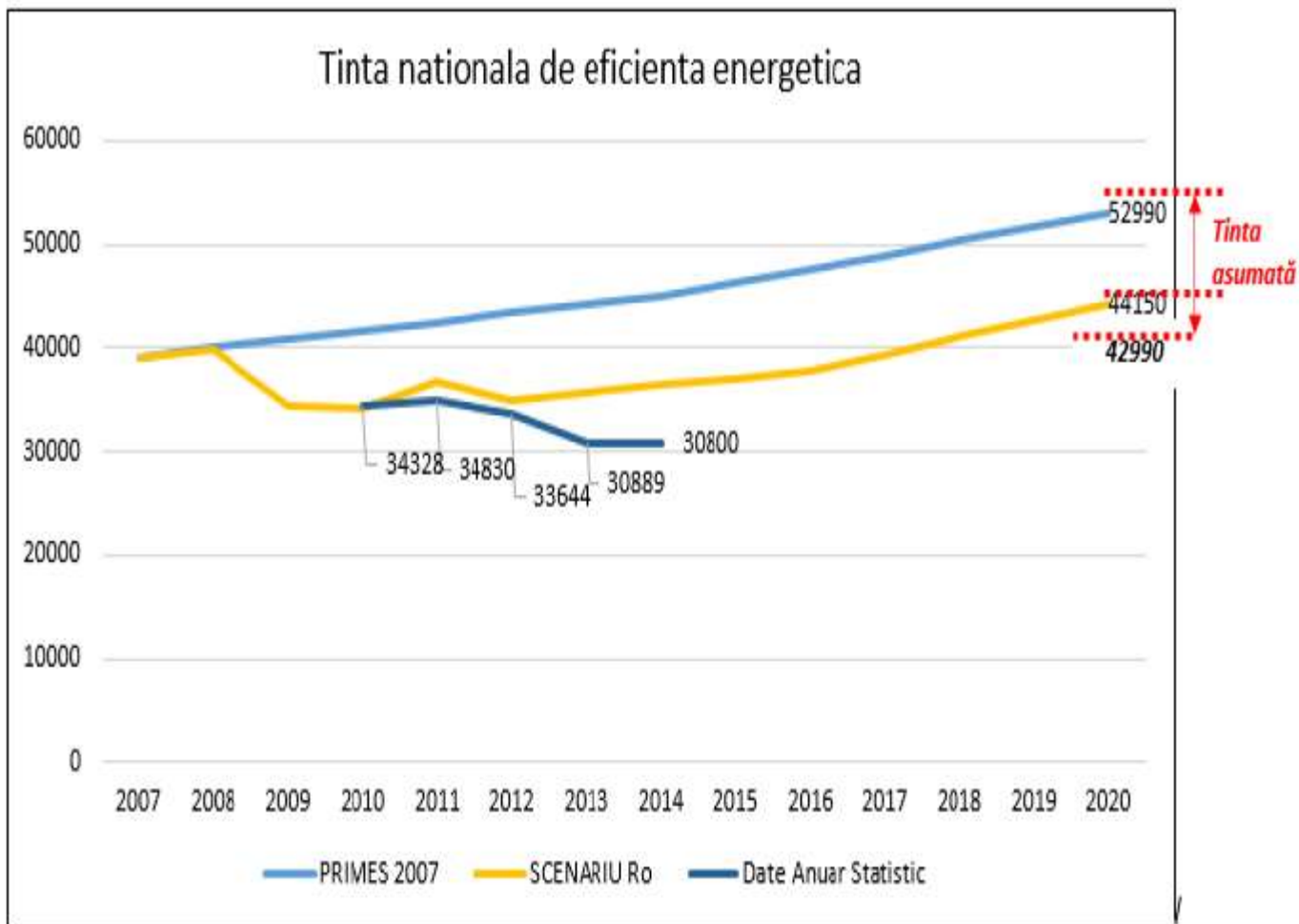
## Distribution of energy efficiency pillar scores, 111 countries





# CONSUMUL DE ENERGIE PRIMARA SE AFLA SUB CURBA PROGNOZATA

## TINTA DE 42,9 MIL.TEP IN 2020 POATE FI ATINSA



Sursa: Raportul ANRE de monitorizare PNAEE pentru anul 2015



# ABORDAREA SISTEMICA ADUCE BENEFICIILE JUCATORILOR CHEIE

<b>NIVEL NATIONAL</b>	<ul style="list-style-type: none"><li>■ Reducere emisii de carbon</li><li>■ Reducere consum energetic final, cu impact in reducere a consumului de resurse primare de energie</li><li>■ Cresterea competitivitatii economiei nationale</li><li>■ Crearea de locuri de munca</li><li>■ Dezvoltarea inovatiei tehnologice</li><li>■ Dezvoltarea pietei de servicii energetice</li></ul>
<b>OPERATORI INDUSTRIALI</b>	<ul style="list-style-type: none"><li>■ Beneficii financiare imediate rezultate dintr-o investitie realizata de o terta parte (companie ESCO sau operator de utilitati)</li><li>■ Reducere consumuri energetice si costuri aferente</li><li>■ Spor de competitivitate</li><li>■ Imagine "verde"</li></ul>
<b>COMPANII ESCO</b>	<ul style="list-style-type: none"><li>■ Dezvoltarea unei afaceri solide pe termen lung</li><li>■ Contributia la dezvoltarea unei piete nationale robuste pentru servicii energetice</li><li>■ Promovarea de tehnologii inovative pentru reducerea consumurilor energetice</li><li>■ Implementarea de practici model de eficienta energetica</li><li>■ Posibilitatea expansiunii pe piata comunitara</li></ul>
<b>COMPANII DE UTILITATI</b>	<ul style="list-style-type: none"><li>■ Oportunitatea de a deveni un factor cheie in dezvoltarea pietei serviciilor energetice</li><li>■ Dezvoltarea unei afaceri solide pe termen lung, complementara activitatilor curente</li><li>■ Maximizarea utilizarii experientei, competentelor si resurselor proprii</li><li>■ Obtinerea de sinergii la nivel de grup</li><li>■ Avantaje reputationale</li></ul>



# JUCATORI CHEIE IN PROMOVAREA EFICIENTEI ENERGETICE

## INSTITUTII

- Asumarea de angajamente nationale clare, incluzand stabilirea de obiective si politici adecvate.
- Adoptarea de masuri financiare, fiscale si administrative care sa faciliteze programele investitionale.
- Dezvoltarea de programe de informare pentru a incuraja investitiile in eficienta.

## COMPANII DE UTILITATI

- Detin o baza solida de informatii cu privire la istoricul de consum al clientilor finali din portofoliul propriu.
- Cunosc piata de profil si pot genera estimari credibile cu privire la evolutia acesteia (consum, preturi, reglementari) pe termen mediu.
- Pot elabora si oferi servicii energetice customizate pentru clienti/activitatea proprie.

## UTILIZATORI FINALI MARI

- Industria trebuie sa incorporeze in modelele de afaceri obiective de eficienta energetica si inovatie tehnologica.
- Se impune diseminarea celor mai bune practici si stabilirea unor prevederi legale care pot sprijini eficienta energetica.
- Mecanismele de piata vor asigura cresterea economiilor si a competitivitatii.

## ORGANISME DE CERTIFICARE

- Sunt responsabile cu verificarea si masurarea impactului pozitiv al investitiilor in sfera eficientei energetice.
- Acrediteaza companii de tip ESCO dar si specialisti in domeniu (auditori energetici, manageri energetici).
- In derularea activitatilor specifice nu trebuie sa intervina in relatia dintre companiile ESCO si clientul final.

## COMPANII ESCO

- Operatori de eficienta energetica capabili sa ofere competente si resurse pentru validarea beneficiilor potentiale ale unei investitii.
- Garanteaza implementarea initiativei si livreaza beneficiile rezultate.
- Beneficiile sunt partajate cu clientul final.

## SISTEMUL FINANCIAR

- Trebuie sa ofere suport financiar pentru clientul final sau companii de tip ESCO, in conditii de piata, pe modele standardizate.
- Avand in vedere pionieratul pietei de servicii energetice, participarea limitata a institutiilor bancare/fondurilor specializate conduce la necesitatea unor investitii finantate direct de ESCO sau beneficiarii finali.



# CEZ DISTRIBUTIE (ACTUALA DISTRIBUTIE ELECTRICA OLTENIA) A REALIZAT CEA MAI MARE ECONOMIE DE ENERGIE DINTRE CEI OPT MARI DISTRIBUTORI DE ENERGIE ELECTRICA

Nr. crt.	Operator economic	Nr. masuri*	Ec. energie (tep)*	Consum intern 2015 [tep/an]**
<b>DISTRIBUTORI ENERGIE ELECTRICA</b>				
1	ENEL DISTRIBUTIE BANAT S.A. Timișoara	11	62,4	48461
2	FDEE ELECTRICA DISTRIBUTIE TRANSILVANIA SUD SA Brasov	6	378	68077
3	ENEL DISTRIBUTIE MUNTENIA SA București	20	843	104697
4	FDEE ELECTRICA DISTRIBUTIE MUNTENIA NORD SA Ploiești	64	165	84484
5	FDEE ELECTRICA DISTRIBUTIE TRANSILVANIA NORD S.A. Cluj	145	414	54456
6	ENEL DISTRIBUTIE DOBROGEA S.A. Constanta	22	303	48714
7	CEZ DISTRIBUTIE S.A. Craiova	2	1640	110871
8	E.ON DISTRIBUTIE SA Târgu Mureș	4	254,4	71551
<b>TOTAL</b>			<b>4060</b>	<b>591312</b>

## TINTELE ANRE DE REDUCERE A CPT

Operatorul de Distribuție	Nivel de tensiune	Consum propriu tehnologic reglementat de ANRE [%]				
		2014	2015	2016	2017	2018
ENEL Distribuție Banat	IT	0,66	0,66	0,65	0,64	0,63
	MT	3,67	3,64	3,60	3,57	3,54
	JT	14,70	14,60	14,50	14,30	14,14
ENEL Distribuție Muntenia	IT	0,63	0,62	0,61	0,60	0,59
	MT	3,52	3,51	3,47	3,44	3,40
	JT	16,04	16,00	15,96	15,64	15,34
ENEL Distribuție Dobrogea	IT	1,72	1,72	1,72	1,71	1,71
	MT	2,48	4,47	4,45	4,35	4,24
	JT	13,25	13,24	13,23	13,22	13,21
CEZ Distribuție Oltenia	IT	1,18	1,17	1,16	1,15	1,14
	MT	4,01	4,00	3,99	3,98	3,97
	JT	22,00	20,00	19,00	18,00	17,00
E.ON Distribuție Moldova	IT	1,00	0,99	0,98	0,97	0,96
	MT	2,85	2,84	2,83	2,81	2,80
	JT	16,50	17,50	17,00	16,50	16,00
Electrica Distribuție Muntenia Nord	IT	1,03	1,02	1,01	1,00	0,99
	MT	6,20	6,05	5,90	5,75	5,50
	JT	14,53	14,60	14,57	14,54	14,51
Electrica Distribuție Transilvania Sud	IT	1,11	1,08	1,07	1,06	1,05
	MT	4,14	4,13	4,12	4,10	4,07
	JT	17,30	16,90	16,20	15,60	15,50
Electrica Distribuție Transilvania Nord	IT	1,13	1,12	1,11	1,10	1,00
	MT	4,55	4,54	4,53	4,52	4,51
	JT	12,43	12,16	11,73	11,20	10,82

Sursa: Raportul ANRE de monitorizare PNAEE pentru anul 2015



# CONTORIZARE INTELIGENTA – PROIECTE PILOT APROBATE DE ANRE SI IMPLEMENTATE

Operatorul de distribuție	Nr. de proiecte pilot	Nr. clienti incluși în proiectele pilot	Valoarea totală a proiectelor pilot SMI [lei]
Enel Distribuție Banat	3	9.961	5.275.260
Enel Distribuție Dobrogea	4	10.000	4.928.379
Enel Distribuție Muntenia	1	11.392	6.650.281
CEZ Distribuție	2	20.150	16.085.781
E.ON Distribuție România	2	23.237	8.303.582
FDEE Transilvania Sud	2	23.047	22.893.216
FDEE Transilvania Nord	2	5.335	4.069.333
FDEE Muntenia Nord	2	2.143	1.433.938
<b>TOTAL</b>	<b>18</b>	<b>105.265</b>	<b>69.639.770</b>



# CEZ ROMANIA

- acreditata ANRE din 11/2015 ca "Societate Prestatoare de Servicii Energetice" (poate presta orice activitate de consultanta si incheia contracte ESCO & Management Energetic – asa cum sunt definite de Legea Eficientei Energetice 121/2014);
- acreditata de ANRE incepand cu 12/2015 ca "Auditor Complex clasa II" (poate efectua orice tip de audit: termoelectric, electroenergetic si complex (mixt) pentru orice tip de consumator energetic.



**IN 2017, CEZ ROMANIA INSTALEAZA 13 STATII DE INCARCARE MASINI ELECTRICE IN ZONA OLTENIA, IN LOCALITATI CU PESTE 50.000 LOCUITORI**

Servicii oferite de CEZ Romania	Descriere	Beneficiari
Optimizare iluminat public	Inlocuire lampi existente cu lampi LED. Proiect la cheie, EPC, durata 10 ani	Autoritati locale
Audit energetic	Lucrare bilant energetic conf reglementari.	Agenti economici / institutii
Management energetic	Preluare obligatii conf. legii nr. 121/2014	Agenti economici mari consumatori
Cogenerare	Inlocuire centrala existenta (gaz, biogaz) cu centrala cogenerare	Agenti economici / institutii
Optimizare iluminat interior	Optimizare iluminat interior. Proiect la cheie, EPC, durata 10 ani	Agenti economici / institutii
Alte servicii	In functie de cerinte specifice	



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