

# Consumers and energy efficiency

(Workpackage 5)

## Country Report for Romania

An inventory of policies, business and civil society initiatives  
focusing on heating & hot water and the use of electricity

December, 2015



This project is supported by the European Commission  
Horizon2020 Research and Innovation Programme

[www.euforie-h2020.eu](http://www.euforie-h2020.eu)

**Methodological notes:**

This report has been compiled as a result of desktop search into:

- i) data on energy consumption in the household sector in Romania, and
- ii) policies, business and civil society initiatives mainly at the national level to promote energy efficiency in the household sector in Romania.

The report focuses on the use of energy in the household sector for the purposes of heating and the use of hot water, as well as on the use of electricity. Transport-related use of energy is excluded.

The data analysis on energy consumption is based on the ODYSSEE database on energy efficiency indicators and data (<http://www.odyssee-mure.eu>), using the most recent data available.

The scope of information presented in the report in the case of policies at the national level is mainly on governmental measures in effect. In the case of business and civil society initiatives the main objective of the report is to illustrate diversity and not to provide a complete overview or an exhaustive list of all existing initiatives. An attempt was made to introduce the better-known campaigns and programmes as well as to indicate the variety of the actions.

Data, including public information were difficult to receive. Some documents for example, announced as available in general, only were uploaded to the official website on request of the authors and disappeared again after a short period.

The collection of information was concluded by end of November 2015.

Please cite as:

Benkő, I., Járy, K., Molnár, J. Péter, E., Lorek, S. and Trotta, G. (2015). Consumers and Energy Efficiency – Country Report Romania. An inventory of policies, business and civil society initiatives, focusing on heating, hot water and the use of electricity. *EUFORIE – European Futures for Energy Efficiency*

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## Abbreviations

AFM	Environmental Fund Administration (Administrația Fondului pentru Mediu)
ALEA	Alba Local Energy Agency
ANRE	National Regulatory Authority for Energy
ANRSC	National Regulatory Authority of the Community Services and Public Utilities
ARPEE	Romanian Association for Promoting Energy Efficiency
ARCE	Romanian Agency for Energy Conservation
EBRD	European Bank for Reconstruction and Development
EED	Energy Efficiency Directive
EPBD	Energy Performance of Buildings Directive
EPEC	European PPP Expertise Centre
EPCC	Energy Performance Contracting Campaign
IEE	Intelligent Energy Europe (Funding Program)
MAI	Ministry of Administration and Internal Affairs
MDRT	Ministry of Regional Development and Tourism
MECMA	Ministry of Economy, Commerce and Business Environment
MMEDIU	Ministry of Environment and Forests
NGO	Non-Governmental Organisation
NEEAP	National Energy Efficiency Action Plan
RDA	Regional Development Agency
SEFF	Sustainable Energy Financing Facility

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# 1. Introduction

## 1.1. General socio-economic data

During centralized economy, development of the Romanian economy was based on energy intensive industries development of heavy industry and accordingly industry was the largest consumer of energy nationwide. The restructuring of the economy has led to a major decline in final energy consumption in the industrial sector from about 41% in 2000 to 29% in 2013. These effects were intensified by the economic crisis, so that in 2009-2010 the main sector of final energy consumption became the residential one even despite its own decline.

**Table 1 Overview on socio-economic and energy data**

SOCIO-ECONOMIC				
Item	Unit	1995	2005	2011
GDP at exchange rate	M€2005	64.290,94	79.586,87	88.496,11
GDP at 2005 PPP	M€2005p	139.899,72	173.184,30	192.571,18
Population	k	22.680,95	21.623,85	20.121,70
Number of households	k	7.316,44	7.380,90	7.087,00
Private consumption of household at exchange rate	M€2005	43.265,94	62.409,43	65.925,89
Private consumption of household at 2005 PPP	M€2005p	94.148,46	135.805,48	143.457,44
Value added of agriculture at exchange rate	M€2005	12717,55	6735,37	4961,22
Value added of agriculture at 2005 PPP	M€2005p	27673,91	14656,44	10795,81
Value added of industry at exchange rate	M€2005	25370,75	24711,59	32662,4
Value added of industry at 2005 PPP	M€2005p	55207,79	53773,44	71074,74
Value added of tertiary at exchange rate	M€2005	16297,62	31145,88	42632,49
Value added of tertiary at 2005 PPP	M€2005p	35464,29	67774,71	92770,04

Source: Odyssee database

Romania economy grew by 37.65% in the period 1995-2011; GDP and private consumption at 2005 PPP increased with annual average rate of 2.21% and 3.08%, respectively.

During 2000-2013, the final energy consumption in Romania decreased from 22 167 Mtoe to 21885 Mtoe which is a decrease of 0.1% per year. Regarding sectors the agriculture and transport sector has increased since 2000 the industrial sector has declined due to the recession in 2009 and the residential sectors also fell.

## 1.2. Residential sector

In 2011, Romania's final residential energy consumption amounted to 8.26 Mtoe – a 6.35% decrease compared to 1995 – reaching its peak in 1996, with 10.62 Mtoe.

The household sector accounted for 34.2% of Romania's total energy end-use in 2011, and the residential final energy consumption per capita was 0.41 Toe per inhabitant.

Wood represented the main source of energy for the period 1995-2011, representing 44.3% of the final energy residential consumption in 2011, followed by gas (27.7%). Coal, Oil and heat had a high drop in the period 1995 – 2011. Coal -83.3%, oil -40%, heat -56.4%; their total share of the final energy residential consumption, fell from 33.2% to 15.8%.

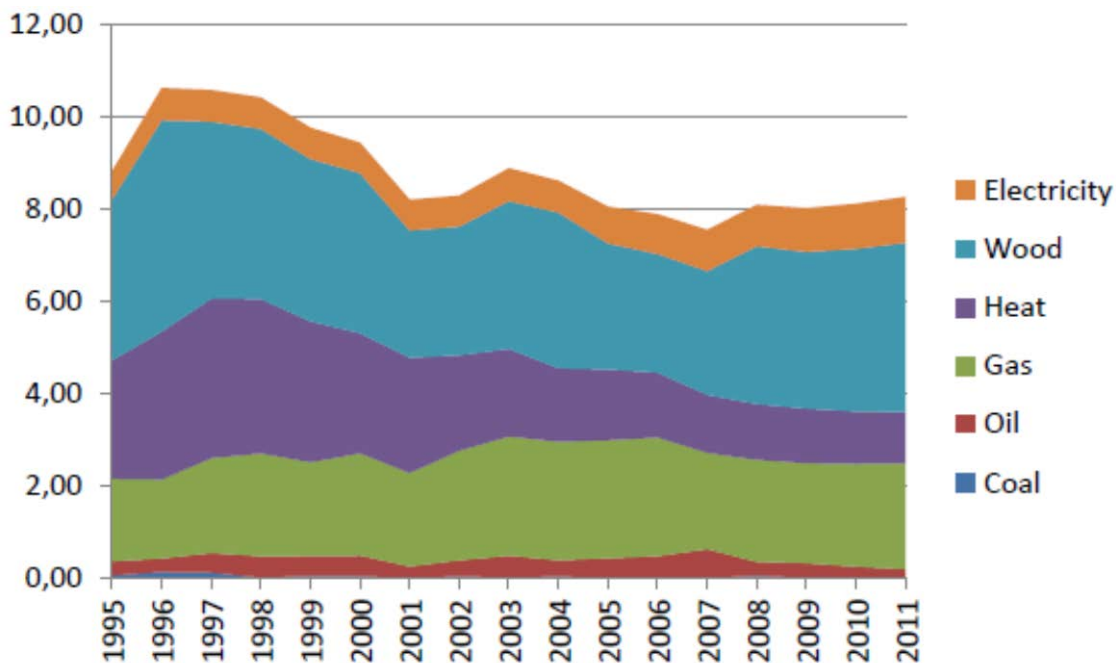
Promotion of high efficiency cogeneration represents a key measure in reducing primary energy consumption. Cogeneration was largely promoted in Romania during the period of centralized economy with the technology and equipment available in those times. Systems of large district heating were accomplished in many of the cities in the country in order to feed the blocks of flats with heat. At present most of them are highly worn. The general performance of cogeneration plants in Romania is reduced but the value in 2009 showed the beginning of recovery the situation.

**Table 2 Data related to residential energy consumption**

<b>ENERGY</b>					
<b>Item</b>	<b>Unit</b>	<b>1995</b>	<b>2005</b>	<b>2011</b>	
Final consumption of residential (with climate correction)	Mtoe	8,77	8,02	8,27	
Final consumption of residential	Mtoe	8,82	8,05	8,26	
➤ Coal	Mtoe	0,06	0,01	0,01	
➤ Oil	Mtoe	0,30	0,41	0,18	
➤ Gas	Mtoe	1,79	2,56	2,29	
➤ Heat	Mtoe	2,57	1,54	1,12	
➤ Wood	Mtoe	3,49	2,73	3,66	
➤ Electricity	Mtoe	0,61	0,79	1,00	
Space heating	Mtoe	4,78	3,87	3,98	
Water heating	Mtoe	1,40	1,08	0,96	
Cooking	Mtoe	2,11	2,39	2,35	
Air cooling	Mtoe	n.a.	n.a.	0,03	
Electrical appliances and lighting	Mtoe	0,57	0,74	0,94	
Electricity consumption of captive electricity	TWh	6,61	8,58	10,96	
Total stock of dwellings	k	7.782,00	8.201,00	8.459,00	
Stock of dwellings permanently occupied	k	6.879,00	7.249,00	7.486,00	
Total construction of dwellings	k	35,82	32,87	45,42	
Floor area of dwellings (average)	m2	33,78	37,86	39,76	
Stock of refrigerators	k	4.454,54	7.491,61	8.981,00	
➤ Unit consumption	kWh/year	n.a.	n.a.	n.a.	
➤ Rate of equipment ownership	%	60,88	86,00	89,10	
Stock of freezers	k	n.a.	1.590,40	2.012,00	
➤ Unit consumption	kWh/year	n.a.	n.a.	n.a.	
➤ Rate of equipment ownership	%	n.a.	n.a.	n.a.	
Stock of washing machines	k	3.349,98	4.524,49	5.408,00	
➤ Unit consumption	kWh/year	n.a.	284,15	242,00	
➤ Rate of equipment ownership	%	45,79	61,30	74,30	
Stock of dishwashers	k	n.a.	n.a.	n.a.	
➤ Unit consumption	kWh/year	n.a.	n.a.	n.a.	
➤ Rate of equipment ownership	%	n.a.	n.a.	0,45	
Stock of TV	k	5.096,41	7.255,42	9.844,00	
➤ Unit consumption	kWh/year	n.a.	268,25	278,00	
➤ Rate of equipment ownership	%	69,66	96,00	96,50	

Source: Odyssee database

Figure 1 Romania’s final residential energy consumption by source 1995 – 2011 (Mtoe)

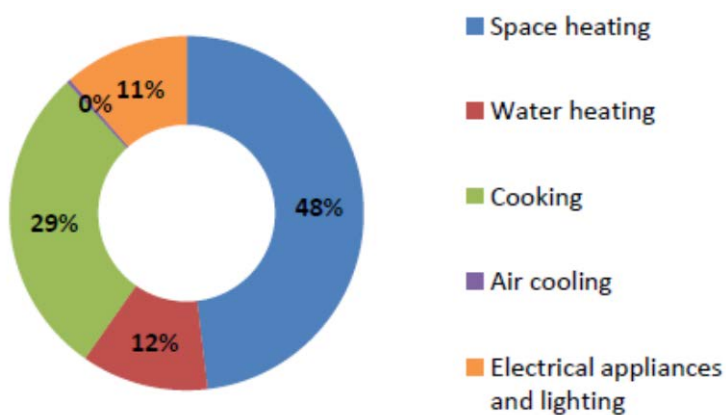


Source: Trotta based on Odyssee database

Approximately 48% of energy in the residential sector was used for space heating, roughly 29% for cooking, about 12% for water heating, 11% for electricity for appliances and lighting, and almost no use of air cooling.

Figure 2 illustrates the composition of the energy end-use in the residential sector in 2011.

Figure 2 Romania’s final residential energy consumption by end-use 2011 (%)



Source: Trotta based on Odyssee database

Total use of energy for space heating amounted to 3.98 Mtoe in 2011. Of this, wood was 2.38 Mtoe (59.7%), heat 0.85 Mtoe, gas 0.69 Mtoe, electricity 0.05 Mtoe, coal 0.01 Mtoe. Energy consumed for cooking in 2011 to 56.5% of came from gas, 39.1% from wood and 4.6% from oil.

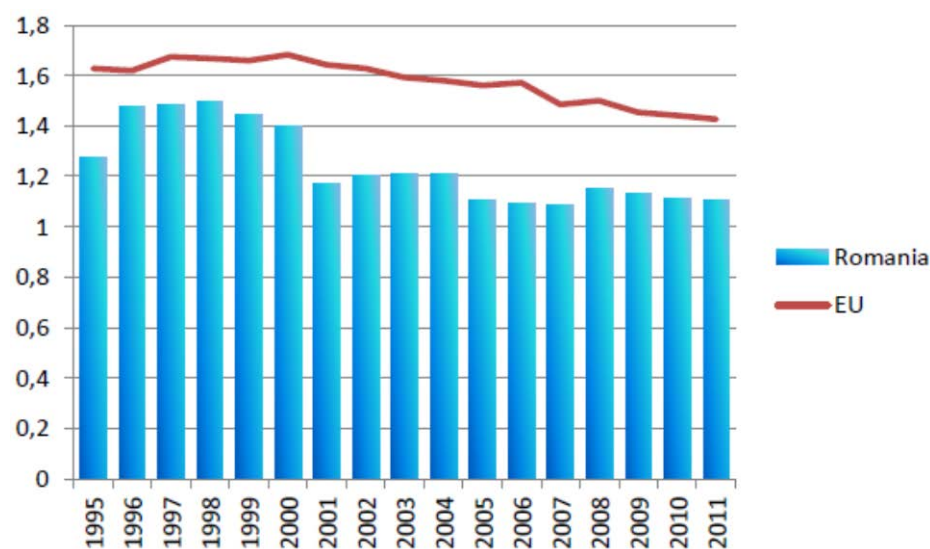
Wood was the main source of energy used for water heating in 2011; it represented 38.5% of the total energy share of water heating in 2011, followed by gas (29.1%), heat (25%), oil (7.2%), electricity (1%).

Electrical appliances were responsible for 86.1% of the total electricity consumption in 2011; the remaining 13.8% were used for lighting.

In 2011, the average floor area of dwellings was about 39,7m<sup>2</sup> which is less than half of the average of the European Member States (87,62 m<sup>2</sup>). Energy consumption of households per permanently occupied dwellings (calculated at normal climate), was 1.11 toe/dwelling (the average of the European Member States was 1.42 toe/dwelling).

Figure 3 shows the household energy consumption per dwelling in Romania compared to the average of the European Member States over the period 1995-2011.

**Figure 3 Romania's final energy consumption per dwelling 1995-2011 (toe/dwelling)**



Source: Trotta based on Odyssee database

The picture looks different, however, if the energy consumption per m<sup>2</sup> is compared. According to the Romania Energy Efficiency Association (ARPEE, see also 3.1.1) the average heat consumption is 250-300 kWh/(m<sup>2</sup> /year) and thus 2 times higher than the EU average of 100 – 150 kWh/(m<sup>2</sup> /year). The average energy bill split is: heating 57%, hot sanitary water 25%, electricity 11% and 7% for others.

About 75% of the buildings are old, being built 40-55 years ago. As pictures 1 and 2 show, Romania is characterised by a broad mixture of old and new houses, renovated and dilapidated ones.

**Picture 1 Romanian city view (1)**



**Picture 2 Romanian city view (2)**



Source: Emőke Péter



Renovation of houses is a slow process due to lack of sufficient funds, and - as far as implemented to date - inefficient financing schemes. This has led ARPEE to the following demands<sup>1</sup>:

- The need for investment into thermal rehabilitation of buildings is almost EUR 5 billion throughout 15 years (50% by 2020, 25% by 2025, 25% by 2030).
- The need of a new legislation to meet the 2030 energy efficiency targets based on the revision of the EED and EPBD.
- The need to develop a 'Smart Financing for Smart Buildings' initiative to make existing buildings more energy efficient, facilitating access to existing funding instruments.

Final energy intensity (final energy consumption per unit GDP total) with climatic correction decreased by 4.8%/year in 2000.

Calculate energy intensity in toe/1000 € this indicator for Romania was 2.36 higher than in the average EU 28 in 2005: (0.335 toe/1000 €) compared to (0.143 toe/1000 €). Considering however purchase power parity energy intensity in is lower than the EU 28 average Romania (0.112 toe/1000 € PPC) (0.123 toe/1000 € PPC).

During 2000-2013, only in the domestic sector, services and agriculture energy intensity increased by 4.3%, 2.9% and 1.4%/year. Energy intensity for industry fell considerably by 7.4% and energy intensity in the transport sector remained almost the same, with a decrease of only 0.4%.

The ODYSSEE-MURE project uses the ODEX indicator (Enerdata 2010) to measure progress in energy efficiency in key sectors (industry, transport, household) and for the whole economy (all final consumers). Using ODEX indicators in Romania allowed the quantitative illustration of energy efficiency policies (ANRE 2015c):

In the period 2000-2011 the largest energy savings were made in the domestic sector, which represented 32.2% of total savings in 2011, narrowly followed by the industrial sector with 32%. During 2000-2011, both sectors have contributed to a significant improvement in energy efficiency in Romania.

Household sector recorded the best performance in terms of energy efficiency. By choosing 2000 as the base year (100%) the ODEX indicator for this sector was only 67.8% in 2011. This means that energy efficiency has gained 32.2%.

The manufacturing sector also showed a positive development. Compared to the base year 2000 the ODEX indicator dropped to 68% in 2011. This means that energy efficiency has gained 32%.

The transport sector was in a less favourable position in terms of energy efficiency. In comparison with the base year 2000, the ODEX indicator was 101% in 2011. Compared to the peak year 2005 the index was again falling by 7% with a further downward trend in the following years.

As a result of these sectorial developments, there has been an overall decline of the ODEX indicator. By choosing 2000 as the base year (100%), the global ODEX indicator was 75.7% in 2011. A value equal to 75.7% or in other words energy efficiency has gained 24.3%.

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<sup>1</sup> arpee.org.ro

Table 3 Climate aspects of residential energy consumption

ENVIRONMENT					
Item	Unit	1995	2005	2011	
CO <sub>2</sub> emissions of households (excluded electricity)	MtCO <sub>2</sub>	5,21	7,22	7,10	
Total CO <sub>2</sub> emissions of households (included electricity)	MtCO <sub>2</sub>	16,08	15,37	16,44	
CO <sub>2</sub> emissions per dwelling	tCO <sub>2</sub> /dw	0,76	1	0,95	
CO <sub>2</sub> emissions per dwelling (with climatic corrections)	tCO <sub>2</sub> /dw	0,75	0,99	0,95	
CO <sub>2</sub> emissions per dwelling with climatic corrections (included electricity)	tCO <sub>2</sub> /dw	2,33	2,12	2,2	
CO <sub>2</sub> emissions of space heating per dwelling	tCO <sub>2</sub> /dw	0,23	0,31	0,26	
CO <sub>2</sub> emissions of space heating (with climatic corrections)	tCO <sub>2</sub> /dw	0,23	0,3	0,22	
CO <sub>2</sub> emissions of space heating with climatic corrections (included electricity)	tCO <sub>2</sub> /dw	0,48	0,46	0,35	
Degree-days	degree	3.166,94	3.154,80	3.061,92	

Source: Odyssee database

With regard to emissions the residential sector's share of total emissions (16.44 Mt) increased by 2.24% from 1995 to 2011 but is still far below the average of the European Union (26.9 Mt), which decreased by 14.93% in the same period. Romania is ranked in the twenty-fourth position for the emissions of the residential sector per capita among the European Member States in 2011 (with Estonia in the first position being least efficient).

CO<sub>2</sub> intensity decreased only because of the decline in the industrial sector (6.8%/year) and the transport sector (0.5%/year). In contrast, emissions in services and agriculture grew by 2.6% respectively 1.5%/year.

## 2. Politics effecting energy consumption in households

In the context of national energy policy, sustainable development in Romania means ensuring energy needs are fulfilled, without increasing energy use (excluding renewables). Especially the aspect of fulfilled energy needs is of high importance in Romania as energy poverty is an important issue. It is expected that increasing energy prices will increase the number of vulnerable consumers and extent energy poverty among the population. This puts energy efficiency into a specific contest because increasing energy efficiency is seen as the main way to reduced energy bills of households. Initiatives for better information of the population about the energy market and an increase of the bargaining power of households compared to energy suppliers shall contribute to reducing energy poverty. Romania adopted a series of laws in line with EU directives, aimed at creating a functional energy market and to reduce the number of vulnerable consumers. This shall be achieved by increasing energy efficiency, upgrading technology and restructuring the economy (ANRE 2015c).

### 2.1. General policy framework

Like all member state of the European Union, Romania has to translate the EU directives into national legislation and observe the energy policy measures established by the European Commission.

According to the EU Energy Efficiency Directive provisions, Romania submitted the European Commission the first NEEAP in 2007, the second in 2011 and the third in 2015.

The energy efficiency actions and the innovative measures in the residential sector are:

- Individual billing of the consumers supplied by public district heating systems
- Renewable energy use -The GREEN HOUSE Program
- Promotion of high efficiency cogeneration

#### *Institutions<sup>2</sup>*

The main governmental institution responsible for these actions is the **Ministry of Economy, Commerce and Business Environment (MECMA)**. In the energy field it

- draws up the development strategies on the average and long term;
- develops the national strategy in the field of energy efficiency and is responsible for its implementation and control;
- coordinates and carries out the national plans in the energy efficiency field and submits these plans to the European Commission, etc.

Further ministries play a role as well<sup>3</sup>.

The **Ministry of Environment and Forests (MMEDIU)** is responsible for the national policy in the field of environmental protection, sustainable development and climate changes. Its main priorities are: observance of the environmental protection requirements and of other sectorial policies.

The **Ministry of Regional Development and Tourism (MDRT)** is responsible for the energy efficient utilization in buildings from the technical point of view.

The **Ministry of Administration and Internal Affairs (MAI)** draws up and improves the legislative and institutional framework of the local public administration authorities. Through the National

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<sup>2</sup> General source: ANRE 2015b

<sup>3</sup> Information were gathered before the change of Government 17.11.2015 leading to changed responsibilities of some ministries.

Regulatory Authority of the Community Services and Public Utilities (ANRSC) under its subordination it regulates the public utility services including energy production, transport and supply of the district heating systems.

### ***The National Regulatory Authority for Energy (ANRE)***

ANRE was established in 1989 and is the main public body regulating the energy market. For more detailed information about tasks and projects of ANRE see Box 1.

### ***Strategies<sup>4</sup>***

There are several strategies approved by the government that explicitly approach energy efficiency. The main documents relevant in the context of this report are the following:

The ***National Energy Efficiency Strategy*** was approved in 2004 (GD 163/2004) with the objective to reduce primary energy intensity by 40% in the period 2003-2015.

The ***National Strategy on the heat supply of localities by means of district heating systems*** establishes the main domains of intervention namely: thermal insulation in apartment blocks and rehabilitation of the heat transport and distribution networks. The document is based on the analysis of the existing situation and was approved as well in 2004 (GD 882/2004).

The ***Energy Strategy of Romania in the period 2007- 2020*** was approved in 2007 (GD 1069/2007) and renewed in 2014<sup>5</sup> with the general objective to cover the present and future energy demand at the least price, under the conditions of a modern market economy and civilized standard of living, ensuring quality and security of supply and observing the principles of sustainable development.

The ***latest National Energy Efficiency Action Plan NEEAP III for 2014-2020*** was approved by Government Decision no. 122/2015<sup>6</sup> (Government of Romania 2015).

## **2.2. Energy efficiency targets**

According to EU obligations Romania has set a national indicative target of 19% for reducing energy consumption by the year 2020. The National Action Plan for Energy Efficiency - III for 2014-2020 was approved by Government Decision no. 122/2015. It continues to provide measures similar to those included in previous plans (Government of Romania 2015).

In absolute figures Romania's indicative national energy efficiency target is to achieve primary energy savings of about 10 Mtoe by 2020. This target is based on a forecast developed with the PROMES model (2007) which calculated a primary energy consumption of 52,99 Mtoe in Romania in 2020. The envisioned 19% reduction then approximately corresponds to a target of 42,99 Mtoe primary energy consumption respectively 30,32 Mtoe of final energy consumption (ARNE 2014).

Primary energy in 2012, however, was 34,8 Mtoe and thus already 20% lower than the 2020 target. Even more the final energy consumption in 2012 with 22,7 Mtoe was 25% lower than the 2020 target. This might partly indicate that the measures included in the first two NEEAPs have contributed to reductions in primary and final energy consumption. However, these reductions were also influenced by the economic crisis that affected Romania in 2009-2010, and by the fact that the economic recovery has been accompanied by only modest increases in energy consumption. Nevertheless the target has not changed and so achieving the target is very likely. According to the actual forecasts primary energy consumption is expected to be 44,15 Mtoe and final energy

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<sup>4</sup> General source ANRE 2015c

<sup>5</sup> Strategia energetică a UE pentru perioada 2014-2020

<sup>6</sup> <http://www.anre.ro/ro/eficienta-energetica/legislatie/legislatie-primara1387180368>

consumption 31,96 Mtoe. So the remaining requirements for energy savings through energy efficiency measures are reduced to 1,15 Mtoe for primary energy and 1,64 Mtoe for final energy consumption.

According to NEEAP III Romania has chosen to use the methodology established in Art. 7 paragraph (2) (a) for calculating the energy savings estimated to be obtained during the seven year obligation term (January 1st, 2014 –December 31st, 2020).

Regarding the estimated saving potential for the final energy consumption the building sector ranks first. It has the highest share of final energy consumption with 36 % and the reduction potential with 41,5% is highest as well. Accordingly the energy efficiency program in the housing sector, coordinated by the Ministry of Regional Development and Public Administration, lists the following measures:

- Thermal rehabilitation of housing - total savings in 2014-2020: 0.544 Mtoe
- Thermal rehabilitation of single family homes - total savings during 2014 -2020: 0.356 Mtoe.

During the period 2009-2014 1518 apartment blocks (from the total of approx. 85,000 blocks) were renovated through the National Program for Energy Efficiency of Buildings. This represents 55.293 flats. The target in the programme was to obtain an annual specific heating consumption lower than 100 kWh / m<sup>2</sup>.

The Romanian Association for the Promotion of Energy Efficiency (ARPEE see also 3.1.1) describes energy efficiency as *'the cheapest, the most available and the least polluting resource'*. They calculate that Romania has the potential of improving the energy efficiency, from 2010 to 2020, by 16-24%. To obtain these results, a growth of the GDP (Gross Domestic Product) by 4-6% can be sustained by 2020, with no additional energy consumption<sup>7</sup>.

## 2.3. Explicit politics

### 2.3.1. Administrative

Based on Odyssee data Romania has taken the following policies to support energy efficiency (Table 4)

Table 4 Ongoing measures in the residential sector in Romania

Title	Status	Type	Starting Year	Semi - quant. Impact	NEEAP Measure	EU - related Measure
EU-related: Energy Performance of Buildings EPBD Recast (Directive 2010/31/EU) - Programs for thermal rehabilitation of the multi-level residential buildings built-up 1950-1990	Ongoing	Financial	2002	Medium	Yes	YES
EU-related: Energy Performance of Buildings (Directive 2002/91/EC) - Energy Performance of existing Buildings-obligatory energy efficiency certificates	Ongoing	Financial, Information/ Education, Legislative/ Normative	2007	High	No	YES
Renewable energy use -The GREEN HOUSE Program	Ongoing	Financial	2011	Medium	No	No
EU-related: Revised Directive for Labeling of Energy-related Products (Directive 2010/30/EU) - Using promotion of performing household appliances	Ongoing	Legislative/ Informative	2001	Medium	Yes	YES

<sup>7</sup> <http://arpee.org.ro/en/proiecte/este-romania-o-tara-eficienta-energetic-2/>

EU-related: Performance of Heat Generators for Space Heating/Hot Water (Directive 92/42/EEC) - Energy labeling of new hot water boilers fired with liquid or gaseous fuels	Ongoing	Legislative/ Informative, Legislative/ Normative	2003	High	No	YES
EU-related: Energy Performance of Buildings (Directive 2002/91/EC) - performance of New Buildings-building code	Ongoing	Legislative/ Informative, Legislative/ Normative	2007	Medium	No	YES
EU-related: Revised Directive for Labeling of Energy-related Products (Directive 2010/30/EU) - Energy efficiency improvement of heating-cooling systems on individual housing	Ongoing	Legislative/ Informative	2008	Medium	Yes	YES
Regulation of heat supply and use	Ongoing	Legislative/ Normative	1994	Medium	No	No

Source: Odyssee database

**Primary legislation:** The **Law on energy efficiency** (no. 121/2014/August 2014) is transposing EU Directive 27/2012 on Energy Efficiency into national law. The main purpose of the law is to establish a coherent legislative framework for the development and implementation of national energy efficiency policy in order to achieve the national target for energy efficiency. The National Regulatory Authority for Energy (ANRE) is responsible for transposing the provisions of this law into secondary legislation. Accordingly ANRE established the **Department for Energy Efficiency**<sup>8</sup> within ANRE (order no. 95/2014).

The **secondary legislations** on energy efficiency issued by ANRE<sup>9</sup> among others regulate the procedure regarding the change of electricity supplier by the end-customer (Order No 105/2014) the modalities of information of end-customers by gas suppliers regarding the commercial conditions (Order No. 106/2014) or the certification of energy managers and energy service companies and energy auditors' authorization regulation for the industry.

The latter regulates that energy auditors authorized in another Member State of the European Union or European Economic Area are equivalent authorized to work as energy auditors in Romania, when they can prove knowledge of the Romanian legislation.

Applicants must submit the following documents to ANRE:

- a certified copy of the authorization issued in a Member State of the European Union or the European Economic Area translated and notarized;
- references to work carried out in the last 3 years as energy auditor;
- specific equipment list held by the applicant at work required for energy audits.

Energy auditors from countries outside the European Union in addition must enclose to the documentation a certificate of equivalence / recognition of academic qualifications therefor, issued by the National Council for Recognition and Equivalence of Diplomas in Romania.

<sup>8</sup> Official Gazette no. 737/2014

<sup>9</sup> ANRE Decision no. 2123/2014 - Energy Audit Guide; ANRE-DEE Decision No.13 / 2015 regarding the approval of syllabi for courses specialized in energy management and the development of energy audits; ANRE Decision no. 1765/2013 approving the declaration layouts for total annual energy consumption and energy analysis of consumer survey.

### 2.3.2. Economic

#### ***The Green House Program***

The main program relevant for private households to support energy efficiency is the ‚Casa Verde‘ or ‚Green House‘ Program. It was launched in 2010 as an initiative of the Ministry of the Environment and Forests to promote the use of alternative heating energy systems replacing or supplementing traditional heating system with installations of solar, wood waste and geothermal energy sources. Grants are provided by the Environmental Fund (AFM). The grants for households varied according to the chosen heating system, up to 6,000 LEI e.g. for solar panels, gas based thermal energy pellets, briquettes, wood chips, and any plant debris and waste from agriculture and forestry respectively up to 8,000 LEI for heat pumps. The overall budget in 2010 was about 100 million LEI (approximately 27 million €). Beneficiary should receive up to 80% of the eligible expenses of the project. The applicant had to fulfil some conditions in order to be eligible to get financing:

- have residence in Romania;
- be the owner or co-owner of the building in which the project is implemented;
- have no debts to public authorities; and
- have not violated laws on environmental protection.

The program was highly promoted via mass-media and internet, and some meaningful symbols easy to remind have been used to help the program to gain a positive image in the public. The budget was distributed to development regions depending on the number of inhabitants per region. The grants were not meant to cover the full cost but should help homeowners intending to reduce their fuel bill as well as smoke from heating. The average costs of an energy system based on renewable sources for individual housing about 4,000 €. In 2010, the Green House program had over 18,000 requests for funding and in 2011 24,000 applications were submitted.

Already in its first year the program had to face a range of problems. On one hand it could started in June 2011 only because budget approval of AFM occurred late. In addition the program got interrupted already in 2012 due to lack of money. For the beneficiaries a further burden appeared because according to funding guidelines, homeowners can settle their expenses only after the work is finished. Due to these hindrances in early 2014 there were still 13,000 applications pending from 2011<sup>10</sup> but a high share were accepted finally in August 2014<sup>11</sup>. Also political debates and changes in the Ministry of Environment played a role for the delays<sup>12,13</sup>.

As a result of the long administrative procedures isolation work is frequently postponed and delayed, leading in addition to inconvenience for the inhabitants through littering of the surrounding (see Picture 3).

<sup>10</sup> <http://www.solarthermalworld.org/content/romania-former-and-present-environmental-minister-brings-back-green-house-programme>

<sup>11</sup> [http://www.afm.ro/main/programe/program\\_casa\\_verde/2014/situatie\\_casa\\_verde\\_01\\_08\\_2014.pdf](http://www.afm.ro/main/programe/program_casa_verde/2014/situatie_casa_verde_01_08_2014.pdf)

<sup>12</sup> <http://www.info-solar.ro/2013/04/no-to-green-house-program-in-2013-in.html>

<sup>13</sup> <http://add-energy.ro/en/programul-casa-verde/>

**Picture 3 Littering problems trough delayed refurbishment**



Source: Emőke Péter

#### ***Billing of the consumers supplied by public district heating systems***

The Government Decision regarding the heat and sanitary hot water metering for the consumers supplied by the public district heating systems (no. 933/2004) established the obligations for individual billing of consumers based on measuring the thermal energy consumption by meters. Since then it is mandatory to measure the heat and sanitary hot water consumptions at the building or staircase connection as well as sharing thermal energy cost on the basis of heat cost allocators.

To enable this, the installation of energy thermal meters at the building or staircase connection for all the consumers was finished on 30th of June, 2006.

As a next step to better estimate individual energy consumption Intelligent Metering System (IMS) shall be implemented between 2015 and 2020. According to EU regulation final consumers must be informed by then of the mandatory and optional functionalities of these smart meters, how the energy consumption is monitored, and of the billing frequency. Proper information shall ensure that benefits derive from the use of smart meters.

### **2.3.3. Informational**

#### ***Information and training programmes***

The Romanian NEEAP III points towards the important role ANRE has for informing consumers and stimulating training. Consumer information programmes and training programmes are highlighted of particularly important to ensure efficient implementation of policies and measures using appropriate financial and technical resources.

Within the 2013 campaign to inform the population and businesses on the importance of improving energy efficiency, ANRE organised 8 seminars in 6 cities (Iași, Timișoara, Brașov, Cluj, Galați Bucharest) attended by approximately 370 trainees (Government of Romania 2014). ANRE presented the EU Directive 27/2017, the general objectives of the energy efficiency policy in Romania, energy efficiency issues in public and residential buildings, issues related to funding facilities, issues concerning the thermal rehabilitation of buildings, etc.

To promote energy performance contracting to municipalities, ANRE held working meetings with the EBRD advisory team and the European PPP Expertise Centre (EPEC) representatives. ANRE also held an online seminar (webinar) on energy performance contracting.



Between 2006 and 2009 the National Programme provided co-financing through allocations from the State budget to investment projects for energy efficiency improvement and the use of renewable energy. Direct beneficiaries were local authorities; pilot projects were developed in a broad variety of areas with relevance for consumers regarding the:

- automation of operation of systems and installations and heat metering for final consumers connected to district heating systems;

The case studies related to projects co-financed from the State budget are disseminated on the ANRE website and in meetings with industrial consumers.

In 2008, the Ministry of Regional Development and Housing (currently the Ministry of Regional Development and Public Administration) published the brochure 'Thermal rehabilitation of apartment blocks. 100% thermal comfort with only 20% valuation works' under the National Programme developed with local public administration authorities, explaining:

- Why thermal rehabilitation is necessary;
- What does thermal rehabilitation involve;
- How much thermal rehabilitation cost;
- The role of local public authority;
- The steps to be taken by owners' associations;
- How does the national programme (actions) work;
- Interventions;
- Energy performance certificate of a home;
- Ideas to save energy.

This programme is still running by end of 2015 and its brochure is available on the website of the Ministry of Regional Development and Public Administration ([www.mdrap.ro](http://www.mdrap.ro)). However, no further information are available.

Finally at the ANRE headquarters in Bucharest an Information Point was established. The initiative aims to help energy consumers to obtain a better understanding of the energy efficiency legislation and measures to increase energy efficiency.

### **Information for households and citizens**

In contrast to the official statement that ‘...that ANRE has an important role in informing consumers...’ (NEEAP III p. 38) the picture looks different from an environmental/consumer NGO perspective.

As the information summarized in 2.3.3 already suggest, consumers for ANRE are mainly industrial consumers, or at least SMEs. Average consumers are hardly addressed. Seminars and workshops on energy efficiency often take place in expensive hotels and/or with conference fees beyond the possibilities of engaged citizens or NGOs. In addition most activities around energy efficiency are induced by EU initiatives; not only regarding regulations and requirements but also in terms of practical projects (see ‘International Projects’). The material developed in this context is often in English and not translated into Romanian, so even local decision makers and typical multipliers don’t understand them.

As a result informational policies did not manage so far to raise the awareness level of consumers toward a conscious citizen’s level. Experience of the Romanian NGO *EcoTrend Association* indicate that the average Romanian is hardly aware of the environmental aspects of energy use, but just consider ‘that it is a right to consume as much he/she wants’. This, however, *EcoTrend* expects to be based in the experience from communist times when e.g. electricity consumption was restricted to 3 hours/day. So raising the issue of reduced energy consumption is seen as a restriction to individual freedom. And also beyond direct energy consumption the information level of Romanian consumers appears limited. Romanians are comparable poor people at EU level so they are often choosing cheap products (electric household appliances, building materials, etc) not considering at all their life-cycle and environmental impacts.

### **International projects**

Romanian institutions also participate in international projects to ensures optimal dissemination of results, by presenting own case studies and learning from experiences of other EU countries.

**Buy smart+ programme**<sup>14</sup> (2012-2014) funded by the European program ‘Intelligent Energy Europe’, provided free consultation and information material on green procurement based on common learning. While some member states further consolidated and mainstreamed green procurement they also transferred know-how to other member states, like Romania, where green procurement is still at an early stage.

The major steps were:

- A green procurement helpdesk was established providing assistance, know-how and tools in national language
- Dedicated training is offered in collaboration with national networks for the private and public sector
- Twinning approach was chosen for effective transfer of know-how to newer member states
- Assistance to green procurement pilot projects; addressing of innovative technologies in experienced countries
- Monitoring of the green procurement experiences; policy recommendations for the NEEAPs updates in June 2014

The main element was to establish a green procurement help desk in Romania including translation and development of information material. The Buy Smart+ training tools provide detailed information on household appliances, lighting, office IT, green electricity, building and components, as well as vehicles. Among an elaborated list of good practice from Romania were the modernisation

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<sup>14</sup> <http://www.buy-smart.info/romanian>

of public lighting in the City of Rovinari<sup>15</sup> and the solar heating system at Rovinari Hospital<sup>16</sup> as well as the Transylvania College – Cambridge International School in Cluj<sup>17</sup>. Finally the importance and proper use of Energy label criteria in purchasing documents was introduced. A follow up of the buy smart+ is the project **Green ProcA** (Green Public Procurement in Action; 2014-2016).

The **Romanian Agency of Energy Conservation** participated in two IEE projects related to consumer information.

**Residential Monitoring to Decrease Energy Use and Carbon Emissions in Europe – REMODECE**<sup>18</sup>, (2006-2008) monitored energy consumption and carbon emissions in the residential sector. Assessments were made of energy savings that could be achieved with the existing means through efficient use of appliances or by removing/reducing standby consumption. The project also was meant to raising energy consumers' awareness of the needs and possibilities to reduce energy consumption, highlighting the benefits of energy audits.

**Monitoring Electricity Consumption in the Tertiary Sector – EL-TERTIARY**<sup>19</sup> (2006-2008) was to assess energy consumption in public buildings, aiming to collect detailed and reliable information on energy consumption and identify energy efficiency improvement options.

The project **Improve Energy Efficiency in Low-Income Households and Communities in Romania**<sup>20</sup> (2011-2016) funded by the United Nations Development Programme/Global Environment Fund to improve energy efficiency in low-income households and communities in Romania, provides specialisation of architects, building engineers, qualified auditors through training courses and postgraduate courses in energy efficiency of buildings. Training courses are held also in Regional Development Agencies (RDAs) for around 250 participants. The information activities are carried out by creating seven information points that will highlight the sustainable insulating materials available locally.

ANRE has become involved in promoting the development of an energy services market in Romania by participating in the European Energy Service Initiative - EESI project<sup>21</sup> (2009-2012) co-financed by the Intelligent Energy Europe programme. The events organised under this project were attended by over 120 representatives of local and central authorities, companies engaged in the energy rehabilitation of public buildings through Energy Performance Contracting (EPC). Issues related to the legislative framework and European experiences (advanced forms of EPC, case studies) were presented.

Documents were drawn up under the project, enabling local authorities to initiate investment projects based on the performance contracting-type financial mechanism. Those documents were posted in the Romanian section of the [www.european-energy-service-initiative.net](http://www.european-energy-service-initiative.net) website and included: definitions, auditing procedure, contract sample, baseline, tender documents, financing systems, case studies, pilot projects implemented in Romania.

<sup>15</sup> Buy smart+ fact sheet

[http://www.buy-smart.info/media/file/2526.Romanai%20\\_D4.3\\_BuySmart+GoodPractice\\_Romania\\_2.pdf](http://www.buy-smart.info/media/file/2526.Romanai%20_D4.3_BuySmart+GoodPractice_Romania_2.pdf)

<sup>16</sup> [http://www.buy-smart.info/media/file/2527.Romania\\_D4.3\\_BuySmart+GoodPractice\\_3.pdf](http://www.buy-smart.info/media/file/2527.Romania_D4.3_BuySmart+GoodPractice_3.pdf)

<sup>17</sup> [http://www.buy-smart.info/media/file/2525.Romania\\_D4.3\\_BuySmart+GoodPractice\\_Romania\\_1.pdf](http://www.buy-smart.info/media/file/2525.Romania_D4.3_BuySmart+GoodPractice_Romania_1.pdf)

<sup>18</sup> <https://ec.europa.eu/energy/intelligent/projects/en/projects/remodece>

<sup>19</sup> <https://ec.europa.eu/energy/intelligent/projects/en/projects/el-tertiary>

<sup>20</sup> [http://www.undp.ro/projects.php?project\\_id=63](http://www.undp.ro/projects.php?project_id=63)

<sup>21</sup> <http://www.european-energy-service-initiative.net/ro/proiect.html>

## 2.4. Side effects of politics

Energy politics in Romania is focussed on efforts to keep energy prices low, for the benefit of household consumers but also for industry. This is characterized by a statement of the ANRE director, made at the annual conference of the Association of Electricity Suppliers in Romania (AFEER-ANRE) 10.11.2015

*'This year [2015] showed some positive elements regarding the level of electricity supply and the distribution of electricity: electricity consumption increased by a few percent and, we had a favourable development of inflation rate. These two things combined will certainly bring some positive aspect in determining the price of electricity for final consumers. We consider that this price will decrease by a few [3-5] percent [in 2016]'.<sup>22</sup>*

This indicates that energy policy in the Romanian context is dominated by approaches to reduce energy costs not necessarily to reduce energy consumption.

Beyond this overarching problem three main **types of barriers** can be identified as being of additional relevance for underexplored energy efficiency the residential sector:

### **BARRIER TYPE: Legislative/Strategic**

- a number of ministries with overlapping responsibilities in the building sector, with a lack of correlation between them and their respective departmental regulations and laws
- no common national strategy on the deployment of sustainable energy technologies and solutions

### **BARRIER TYPE: Economic**

- Financial crisis, insufficient funds to support building renovation works
- Lack of private investment in the rehabilitation of residential and non-residential buildings
- High costs of energy service companies (ESCOs)
- Low demand for low energy building technologies, leading to higher prices
- National tendency to 'maximise profit with minimum effort' instead of using the optimal cost method, resulting in sub-optimal execution of works
- The high rate of unemployment and the period spent until re-employment
- Energy prices (gas, electricity, etc.) vs. real prices (i.e. energy subsidies)

### **BARRIER TYPE: Skills, employment and education system**

- Lack of skilled workers or low levels of training in the use of new technologies designed for EE and RES

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<sup>22</sup> <http://www.bizenergy.ro/havriletanre-pretul-la-energia-electrica-ar-putea-scadea-cu-3-5-de-la-1-ianuarie-2016/#.VrHua9XhC1s>; own translation

### 3. Private sector initiatives complementing public policies

#### Introduction

The private sector in Romania supports energy efficiency at the household level mainly via two ways:

- organizing awareness raising and information and knowledge exchange programs through professional organizations partly or fully established by the private sector, as well as
- Initiating and implementing corporate social responsibility programmes

A high amount of information is available on the Internet (see 3.5.2.) about energy efficiency, energy business, ESCOs, etc. The way it is presented, however does not meet the knowledge level of average citizen. In order to become useful these information would have to be 'translated'. Also conferences organized by the specialized media, ESCOs or ANRE take place in luxury conference hotels based on a high participation fee which is not affordable for interested consumers or even engaged NGO representatives.

Regarding corporate social responsibility most of the ESCOs, big electricity distribution and supply companies have such programs<sup>23</sup> but they are more lobbying tools and often intend to influence decision making instead of informing consumers.

#### 3.1. Organizations fully or partly established by the private sector, and their initiatives

##### 3.1.1. Policy oriented organisations

The US based **Aspen Institute** for educational and policy studies through its Aspen Romania Energy Policy Program aims to provide an influential debate and reflection platform for regional business sector and political decision-makers in the energy sector in the Black Sea – Caspian region. It organizes each year an Energy Forum in Bucharest. Some of their conclusions from the 2015 event<sup>24</sup>:

*The guidelines issued by the European Commission on the future of the European Energy Union have generated a reflection process amongst the business, industry sector and public administration in Romania in regards to the National Energy Strategy. This process mainly targets the directions that Romania should pursue in terms of market diversification, strategic alliances and energy governance. All these impact the positioning of institutional actors, businesses and potential investors on the domestic market. At the same time, the national Energy Strategy should aim to draw up a set of major directions to be pursued while considering current budget constraints and the possibility of implementing viable business-oriented solutions for the domestic energy market. Both institutional and corporate governance need to be key components of Romania's National Energy Strategy. The national Energy Strategy would also help investors orient better on the internal market in terms of legislative and regulatory framework and business opportunities.*

*By 2020 all EU member states have to implement smart metering for 80% of all energy consumers, should cost – benefit analyses have positive conclusions. In Romania, Electrica will initially implement a smart metering system for a distribution area covering 3,5 mio consumers. This system is estimated to encourage energy efficiency and responsible consumption. Similar instruments could be set up for smart light systems. At the same time, there are still almost 100 municipalities in Romania lacking access to electric power, which constitutes an opportunity for*

<sup>23</sup> See e.g. <http://www.bizenergy.ro/csr/>

<sup>24</sup> <http://www.aspeninstitute.ro/evenimente/bucharest-forum-energy-2015>

*the market to expand. At a regional level, investing and expanding smart grids requires major costs for energy companies. This involves finding or designing new financing instruments.*

This may serve as an example that business opportunities are the main focus while the provision of energy security is mainly mentioned in a geopolitical context not in terms of overcoming energy poverty.

**Romanian Association for Promoting Energy Efficiency**<sup>25</sup> ARPEE is the nominated national administrator for Romania for the European Code of Conduct for Energy Performance Contracting (EPC) fulfilling all duties according to the procedures. Their fields of activity are

- Stating energy efficiency and energy saving as key priorities of Romania's energy and environment strategy;
- Promoting energy efficiency and energy saving on the whole energy chain;
- Reducing energy dependence of Romania;
- Making energy efficiency the key factor against climate changes and global warming;
- Making energy efficiency a major contribution to the growth of economic competitiveness, the creation of new jobs, and increase of energy bills affordability.

ARPEE's White Book<sup>26</sup> on energy efficiency in Romania introduces a broad range of possible instruments for improvements from energy efficiency services via voluntary agreements and fostering investments to an improvement of the institutional framework. The National Energy Efficiency Forum in Romania, 2014 organized by ARPEE, despite running under the title 'Energy efficiency sustaining final consumers' it mainly focused on industrial and municipality consumers. And so did several conferences on the theme in the year 2015<sup>27</sup>.

**Romanian ESCOs Companies Association, ESCOROM**<sup>28</sup> is a non-profit, organization that aims at contributing to the achievement of national policy and strategy objectives in energy efficiency as well as active and constructive support for implementation and enforcement of existing legislation in Romania to the European Union in the field of energy efficiency and foremost, the provisions relating to Energy Service Companies (ESCOs)(see also 3.3 Energy Service Companies (ESCOs)).

ESCOROM aims specifically to participate in improving the legislative, regulatory and market instruments to create and develop the energy services market in Romania in order to contribute to the improvement of trade and services provided to members and potential clients.

The association intends to create a new paradigm for energy services and become the 'unified', authoritative voice of ESCO industry' in matters of energy services and energy efficiency, reflecting the positions of its members.

### **3.1.2. Organizations promoting low energy architecture and green building, and their initiatives**

**Romania Green Building Council**<sup>29</sup> is a non-profit, non-political association of businesses and other organizations active throughout the country. They are the leading organization promoting environmental responsibility and energy efficiency in design, construction, operation, and deconstruction of Romania's buildings. To promote market transformation and facilitate the

<sup>25</sup> <http://arpee.org.ro/en/asociatia/>

<sup>26</sup> <http://arpee.org.ro/wp-content/uploads/2014/04/Cartea-Alba-english.pdf>

<sup>27</sup> <http://arpee.org.ro/categorie/evenimente/>

<sup>28</sup> <http://www.escorom.ro/>

<sup>29</sup> <http://www.rogbc.org/en/>

implementation of the next generation of high-performing green constructions the Romania Green Building Council:

- Facilitates training to create the necessary pool of national green building experts;
- Supports the development of appropriate regulatory conditions that promote sustainable constructions while ensuring attractive returns on investment;
- Develops and implements a national green building standards and certification system;
- Supports the development of best in class in-country green construction and in an effort to position Romania as a sustainable construction leader in the region;
- Builds an inclusive organization by facilitating the collaboration between all relevant players in order to eliminate systemic barriers and promote a sustainable built environment;
- Promotes domestic, regional and international collaboration to share knowledge and encourage innovation;
- Researches, compiles and disseminates best practices for the region and encourages their adoption and implementation.

The **Association of Building's Energy Auditors from Romania**<sup>30</sup> was established by experts on energy audits to actively participate in defining, promoting and supporting energy efficiency programs and environmental protection, in conjunction with the principles of sustainable development.

**Passive House Association of Romania**<sup>31</sup> was founded by architects, engineers, students, or engaged consumers dedicated to the goal of 'protecting the environment by finding the balance between comfort and expenses'. The purpose of this association is to promote the Passive House Standard in Romania, to spread the principles and ideas of energy saving buildings, renewable energy sources, and above all to familiarize people with a responsible way of thinking when it comes to environment. They focus first of all on Romania, where up to now very few passive houses have been built, and a general confusion about passive houses is omnipresent even among specialists. The associations' website provides technical articles and translations from other sources.

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<sup>30</sup> <http://aaecr.ro/>

<sup>31</sup> <http://www.asociatiacasapasiva.ro/eng/>

**Interview with Ede Abos (EA), members of the Passive House Association conducted by Eco-Trend Association (ET)**

ET: At your workplace / professionally in what form and how often did you meet the topic of energy efficiency?

EA: *Energy efficiency in the construction should be an important area but in most cases it is almost totally ignored. The norms in force are not respected even in the design phase. Most experts working in the field do not know the regulations on energy efficiency in buildings, which is reflected both in the case of executed buildings and in the case of those being under design or construction.*

ET: The organization you represent has taken action in this area? How?

EA: *As a student architect I found very few details on energy efficiency in buildings so after graduation I searched for alternative sources of knowledge related to this field.*

*In the spring of 2011 we completed a training course for passive house designers in Budapest in which I obtained knowledge.*

*In order to promote energy efficiency in buildings in the fall of 2011 I founded the Passive House Association in Romania in which we can promote energy efficiency more widely both within and in the laity specialists.*

*In the course of work I try to highlight the importance of energy efficiency even for those customers who do not have this predilection.*

ET: Do you know what are Romania's commitments toward energy efficiency? If so, what are the most important elements of it?

EA: *At present the most important commitments are linked to EU Directives 31/2010 and 27/2012*

ET: Considers that Romania can meet these commitments proposed by the deadline? If not, why?

EA: *The strategy and implementation methodology of the efficiency of buildings has not yet been published, the directives are not known by specialists and state authorities in their implementation. There are three years until the first period of application, which meant it will surprise the specialists.*

ET: Who would you consider to coordinate this commitment?

EA: *The Government by Ministry of Energy, Small and Medium Enterprises and Business, Ministry of Environment, Water and Forests and the Ministry of Regional Development and Public Administration and the civil sector.*

ET: Can you list some measures taken in this field believe is known in the population?

EA: *Energy performance certificates for buildings is increasingly popular especially among those who were related to design, construction and / or sale / purchase of property, they however are quite inaccurate and do not give a value in addition building, the calculation methodology is quite permissive. It is a diagnosis and does not solve the current problems in the field.*

ET: What obstacles are deemed to have a lifestyle energy efficient?

EA: *The lack of information, lack of incentive measures in this respect, the lack of trained specialists, lack of preparation of implementing bodies (employees from mayors etc.)*

ET: Do you have any ideas, suggestions or personal opinion in this area?

EA: *Are there programs to encourage energy efficiency: tax breaks for buildings with increased energy efficiency. Opportunities for continuing training specialists and bodies involved.*

*Emphasizing the importance of energy efficiency in the EU funded projects or state (expanding energy efficiency scores)"*



### 3.1.3. Energy Agencies

The **Romanian Energy Agencies Federation** - FAREN<sup>32</sup>, is a national organisation based in Alba Iulia. It builds a platform for joint action of its members in the field of energy and the environment and to contribute to national and regional policies for sustainable development.

The objectives of the association are:

1. Ensure representation of its members in relation to national and European institutions in promoting their own views in the fields of energy efficiency, energy management, renewable energy, environmental protection and climate change and other areas of common interest;
2. Contribute to the development of the national policy of interest.
3. Be an important actor in the debates on legislative initiatives and market development for energy services;
4. Supporting its members in developing their projects;
5. Facilitate cooperation, exchange of experience and the development of partnerships in the following areas: energy management, energy efficiency, renewable energy, environmental protection and climate change in support of sustainable development;
6. Supporting member agencies for institutional development;
7. Members inform each other on common areas of interest.

Its members are local and regional energy agencies.

The **Territorial Association for Energy and Energy Efficiency** (ATE3)<sup>33</sup> is a professional non-governmental and independent association involved in the implementation of the energy sector strategy, raising awareness among stakeholder of the benefits of energy efficiency, analyzing the involvement of tertiary factors (e.g. socio-political) and the maintenance of the energy balance cycle (producer – carrier – distribution – consumer) with the help of the regulating authority. It is open to companies active in energy sector, public authorities and public institutions representing the energy sector. Associate members can also be individuals, institutions like universities or any other non-governmental organizations that share the same values.

ATE3 aims together with its members to promote energy efficiency, to protect the rights of energy producers, transporters, distributors and consumers, to initiate a dialogue between all stakeholders in order to support and protect the interests of energy efficiency industry in relations with public authorities, legal entities and individuals, both national and international.

Members of ATE3 benefit from:

- A dialog frame in connection with governmental structures involved in regulating energy and energy efficiency;
- Promoting interests in an honest, open and competent network;
- Timely information on key topics in the energy sector, from both national as well as international sources;
- Access to database, knowledge and experience gathered from members and international organizations with which they can develop national and international projects and partnerships.
- ATE3 members are directly involved in the association's activity within which they may develop legislation projects, ensuring the healthy development of the energy sector and the

<sup>32</sup> <http://ames.ro/federatia-agentiilor-romane-de-energie-faren/>

<sup>33</sup> <http://ate3.ro/>

proper environment of the activities related to both producers and consumers, as well as carriers and distributors.

ATE3 members are kept informed about legislative changes in the energy sector, international or local initiatives on regulation or industry self-regulation, recommendations and trends at a European level or any other news that can improve or affect the activity in energy.

Some of the Romanian Energy Agencies mentioned above are partners in *ManagEnergy*<sup>34</sup> a technical support initiative of the Intelligent Energy - Europe (IEE) programme of the European Commission which aims to assist actors from the public sector and their advisers working on energy efficiency and renewable energy at the local and regional level.

#### **3.1.4. Romanian Committee of Domestic Equipment Manufacturers (CECED)**

CECED operates in Romania as a member of the European Committee of Domestic Equipment Manufacturers (CECED) is a Brussels-based trade association that provides a single, consensual voice for the home appliance industry in Europe. Apart from other issues, CECED works in the field of energy efficiency. In relation to household energy efficiency, they have some well-known activities.

#### **3.1.5. Financial institutions**

With the support of the European Union the European Bank for Reconstruction and Development (EBRD) provides loans for energy efficiency projects in their Sustainable Energy Financing Facility (SEFF). The Romanian SEFF programme RoSEFF35 partners with financial institutions such as banks, to establish strategies for financing sustainable energy investments. In Romania these are the Romanian Commercial Bank, Raiffeisen Bank, Transilvania Bank, and the Development Bank. Finance for sustainable energy projects is provided for two key areas: energy efficiency and small-scale renewable energy.

The national financial institutions on-lend the funds which they have received from the EBRD to their clients, which include small and medium-sized businesses, corporate and residential borrowers, and renewable energy project developers. Residential loans cover a few thousand to a few hundred thousand euros, most often to support improvements on the building envelope. Various groups have benefited from SEFF loans including individual owners, groups of home owners and multi-apartment associations with individuals representing a very small share only.

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<sup>34</sup> <http://www.managenergy.net/actors?utf8=%E2%9C%93&query=Romania&commit=Search>

<sup>35</sup> <https://www.seff.ro/EN.html>

Figure 4 Projects in Romania financed by RoSEFF



### 3.2. Initiatives and support for households by private utility companies

In this section we provide examples of actions and initiatives by utility companies have in order to support household energy efficiency. Please note that not all utility companies were covered in this analysis, but an attempt was made to introduce the better-known campaigns and programs.

#### 3.2.1. Electricity

**Electrica S.A. Group Romania**<sup>36</sup> is the national electric company and one of the most important players in the fields of distribution, sourcing and other energy-related services in Romania. Electrica has national coverage in the entire country and specific local branches in the three areas North Transylvania, South Transylvania, and North Muntenia. It provides network maintenance and the energetic services segment.

The Company offers services for a large spectrum of clients – domestic and industrial consumers, as well as business enterprises. Through its distribution branches Electrica is serving approximately 3.5 million clients. Also the further development of SMART grids is one of their tasks.

The **CEZ Group**<sup>37</sup> has been present on the Romanian market ever since 2005, when it took over the power distribution company Electrica Oltenia SA. It supplies the following seven Romanian counties with electricity: Argeş, Dolj, Gorj, Mehedinţi, Olt, Teleorman and Vâlcea. The Group also invested, in Dobrogea area, in Fântânele, Cogeaalac and Grădina, 1.1 billion EUR in the construction of the largest on-shore wind farm from Europe, with 600 MW total installed power.

As their contribution to social responsibility CES invests in health, education, environment, culture and infrastructure projects. Their consumer support, however, is limited to the interruption of power supply. Information on energy efficiency are not provided.

<sup>36</sup> <http://www.electrifurnizare.ro/eficienta-energetica/>

<sup>37</sup> <http://www.cez.ro/en/home.html>

Present in Romania since 2005, **Enel**<sup>38</sup> is currently the largest private investor in the energy sector, with operations in the field of electricity distribution and supply, but also in the field of electricity production from renewable sources. The company has over 3,400 employees and provides services to a number of 2.7 million customers in three important areas of the country: South Muntenia (including Bucharest), Banat and Dobrogea, thus totalling almost one third of the local distribution market. Enel continues the development of a significant investment program for service quality improvement, network modernization and local implementation of Enel Group's environmental standards. Beside companies CSR reports the website does not offer information or recommendation regarding energy efficiency.

### 3.2.2. Natural gas

According to ANRE there are 126 providers of natural gas in Romania<sup>39</sup>. On an annual basis consumers have to be informed about providers on the gas market (Order ANRE nr. 86/2009). The latest list dates from December 2015. ANRE also provides information for household consumers how to change their gas provider. The largest company is **E.ON Energie** România. It has been created through the merger of the natural gas and electricity companies E.ON Gaz România and E.ON Moldova Furnizare and its foundation marks the emergence of the integrated services in the field of energy supply in România. It serves more than 2,8 million customers in the Northern part of the country.

E.ON Energie România provides small tips in order to reduce gas consumptions<sup>40</sup>. The website recommends simple and practical measures like insulation of window joints or adjustment of temperature the use of hot water and high efficiency equipments. Beyond these tips but no other incentives are given.

### 3.3. Energy Service Companies (ESCOs)

According to the Romanian NEEAP-III the national energy saving policy has focused in particular on stimulating the different categories of consumers to invest in energy efficiency improvement projects, which is an important element in stimulating the demand for services. Still, energy service companies and providers could play a greater role in Romania. Tasks foreseen for them are to help creating a functioning market for energy efficiency and remove current obstacles, attracting third-party investment capital to complement public funds and improving the level of technical expertise. The Romanian energy services market, appears currently underdeveloped and is seen in need for active and constant stimulation from local and central State authorities. Efficient support for energy services companies involves overcoming the relatively sceptical attitude of Romanian consumers towards energy efficiency and enable easier access to such services. Support is expected from EU policies and European debates on ESCO to further help defining a more effective framework for these companies. Local authorities are seen as a key element in increasing the role of energy services companies on the Romanian market. ESCOs are normally associated with the concept of energy performance contract under which they are paid based on the achieved energy savings. So far, their operation is not regulated. It is necessary to improve the legislative framework for ESCO schemes and promote energy performance contracting to municipalities by 2016. The following steps are advised to be taken in order to implement this measure:

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<sup>38</sup> <https://www.enel.ro/ro/en/companie.html>

<sup>39</sup> <http://www.anre.ro/ro/gaze-naturale/informatii-de-interes-public/furnizori-gaze-naturale>

<sup>40</sup> <http://www.eon-energie-romania.ro/cps/rde/xchg/SID-170CEE71-7043EA88/eon-energie-romania/hs.xsl/4030.htm?rdeLocaleAttr=en>

- Formulate, in cooperation with EBRD experts, recommendations on improving the legislative framework for the implementation of energy efficiency contracting;
- Carry out, in cooperation with EPEC (European Private Public Partnership Expertise Centre), the promotion actions included in the Energy Performance Contracting Campaign (EPCC).

(Government of Romania 2015)

Among the better known ESCOs are Energy-Serve and Servelect.

In 1996 **Energy-Serv**<sup>41</sup> was set-up and it was the first private Romanian ESCO-type company. Their clients are industry and municipalities. The strategy of the company according to own description is to identify the lowest cost measures and investments with lowest risks and highest possible returns.

Energy-Serv's business objectives are to achieve emission reductions through better energy efficiency. They believe that 'NEGAWATTS' (saved electricity) are cheaper than 'MEGAWATTS' (consumed electricity) and in this way, they offer energy consumers a different way of increasing their profits: 'decoupling profits from their sales volumes'.

Also **Servelect**<sup>42</sup> meanwhile provides over 10 years of experience in energy efficiency projects. The company was rewarded 'Best European Energy Service Provider' by the European Union in 2011 and carried out more than 600 energy efficiency projects, implemented all over the country. As the companies mission indicate 'create a competitive industrial and business environment' their focus is as well on industrial consumers. Nevertheless, the second part of the mission is to 'have a positive impact on your worker's welfare, supporting their families'.

### 3.4. Research related to household energy efficiency by the private sector

The **Romanian Academy**<sup>43</sup> in late 2015 published a study on 'Energy efficiency, a national priority to mitigate energy poverty, improve quality of life and safety of energy consumers'<sup>44</sup>. The authors expect accelerating impoverishment of the Romanian population under the impact of rapid increase in energy prices and the widening gap between the living standards in Romania and EU. The study concludes:

*Transition to the unique European energy market will result in the following period, not in a decline in prices, as the EU hopes, but an increase almost double of energy prices. In those circumstances, a scenario of energy prices in Romania in 2017/18 shows that they likely will approach the European average[.....]. This price shock will be on costs of the economy and family budgets. The impact on the poor segment of the population will be very hard.*

*The shock of rapidly rising energy prices (2012-2018) is in the context of a low living standard, heavily affected by the impact of the 25 years of transition. So in order to identify the impact of higher energy prices, it is required to consider the state of social context in Romania.*

<sup>41</sup> <http://www.energy-serv.ro>

<sup>42</sup> <http://servelect.ro/en/>

<sup>43</sup> <http://www.acad.ro/def2002eng.htm>

<sup>44</sup> [http://www.bursa.ro/the-anre-and-the-romanian-academy-warn-energy-prices-may-double-in-2017-2018-282405&s=print&sr=articol&id\\_articol=282405.html](http://www.bursa.ro/the-anre-and-the-romanian-academy-warn-energy-prices-may-double-in-2017-2018-282405&s=print&sr=articol&id_articol=282405.html)

*The serious social problem Romania is facing at the moment is the widening gap between the incomes of the population in Romania - in 2013 approximately 40% of average earnings in EU28 - and energy prices aligned to European level.*

The National Research and Development Institute for Energy **Icemenerg**<sup>45</sup> is an independent national institute since 2014. Before it was subordinated to different ministries (Ministry of Industry and Resources, Ministry of Economy, Ministry of National Education - Activity Research). It provides two type of activities - research and development - as well as engineering services both with some focus on energy efficiency. The service branch among others carries out

- Heat loss evaluation in buildings through thermographs
- Energy efficiency standardization and labelling systems for household appliances
- Solutions concerning the increase of energy efficiency in municipalities through energy audit
- Measurements, acquisitions and processing for the evaluation of energy efficiency
- City energy planning and management
- Activities regarding training, awareness and dissemination of energy efficiency information

**ENERO**<sup>46</sup> is an independent non-profit technical consultancy and research centre in the field of energy, established in 1999. ENERO promotes the research, innovation and technological transfer in the field of the production and efficient use of energy, renewable sources and clean energy production technologies. Their activities include:

- Development and promotion of the renewable energy sources and the clean and efficient use of energy
- Market studies and research projects
- Consultancy and assistance for the implementation of new energy technologies
- Dissemination of information through different publications, organising conferences, workshops, seminars, courses, expositions, info days, networking activities, etc.

Most of the activities are taking place within European research and Ph.D. programmes but also within other international actions or projects financed from the Romanian public research budget.

The approached directions are: renewable energy sources (wind, photovoltaic, bio-energy) as well as energy efficiency measures in industry, residential sector, services, transports, etc.

A project relevant in the context of this report is *Mild Home*<sup>47</sup> (2012-2014). It engaged in the development of specific terms and conditions concerning how the Eco Green Villages, based on the *Mild Homes* concept can find their place in territorial planning documents and building regulations in the South-Eastern European area. Researchers contributed to defining the design and triggering the construction of a new typology of civil building called 'Mild Home', which combines high energy performances and affordable operative costs for low-middle income people (young couples/families). The project was nominated for the EU Regio-Star-Awards 2015.

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<sup>45</sup> <http://www.icemenerg.ro/english/englishindex.htm>

<sup>46</sup> <http://www.enero.ro/>

<sup>47</sup> <http://www.mildhome.eu/results>

## 4. NGO initiatives targeting households

Consumer information programmes and training programmes initiated by Non-Governmental Organisations (NGOs) are particularly important to ensure efficient implementation of policies and measures using appropriate financial and technical resources. NGOs are neither plentiful nor explicitly influential in Romania.

**Alba Local Energy Agency** (ALEA)<sup>48</sup> is a NGO with the aim to contribute to the sustainable development of Alba County by improving the current situation in energy efficiency, energy management and the promotion of energy from renewable sources. It was founded in 2008 under the Intelligent Energy Europe (IEE) program by a consortium of 3 local authorities: General Council of La Manche Department (France), the Alba County Council (Romania) and the municipality Ios (Greece). The main objectives of Alba Local Energy Agency are:

- to develop an energy policy at Alba County level,
- to promote energy efficiency and RES projects;
- to supporting public authorities and local business in sustainable energy issues;
- to educate, raise awareness and dissemination of information on efficient energy use and the use of RES among citizens;
- to exchange best practices and to transfer skills by participating in European and national networks.

In 30 June 2015 ALEA launched the first energy observatory system for Romania.

Among the initiatives of ALEA **ANERGO**<sup>49</sup> is a free service available to the general public as an online tool for managing household consumption of energy and other utilities and the related costs.

Here a customer of electricity, gas, or drinking water can request access to his own files of collected energy data. Based on this everyone can follow the timelines of personal/household consumption on a monthly basis, including the costs.

In addition to these consumption data also such of comparatively important sources of energy use can be administered like the annual consumption of firewood or annual turnover of own vehicles (maximum 3 vehicles/user) and annual fuel consumption related to these vehicles. ANERGO provides tips and ideas for more efficient energy consumption and fuel consumption based on information entered by the consumers on managing costs and related expenses.

**OER - Romanian Energy Cities**<sup>50</sup> - is a NGO network of towns (32 municipalities and two metropolitan areas at the end of 2015). It focuses on improving energy efficiency in public services (heating, public lighting, water supply and gas gathering, storage and transport of household waste etc.) and promoting renewable energy sources and environmental protection. OER network is a useful tool in disseminating technical and commercial information, about the equipment, technologies and local energy policies

**EGO - European Green Office**<sup>51</sup> - the three-year long international project, coordinated by the Hungarian KÖVET Association for Sustainable Development, was implemented in Romania by Eco-Trend Association in 2010. The project is focusing on green offices standards, office footprint calculators and builds on the European wide Green Office Network. The project tools (EGO Handbook, office footprint calculator, good practices, trainings, etc.) help offices with new, useful ideas to become more energy efficient.

<sup>48</sup> <http://alea.ro/>

<sup>49</sup> <http://anergo.alea.ro/consumul-tau/ce-este-consumul-tau>

<sup>50</sup> <http://oer.ro/>

<sup>51</sup> <http://www.eugreenoffice.eu/ro>

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