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INTERNATIONAL CONFERENCE MEASURING DEVELOPMENT IN TURBULENT TIMES

November 28-29, 2017
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What role for the energy sector in a country's economic development? Evidence for Romania

Florina PÎNZARU
Cristian PĂUN



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Abstract:

The relation between energy and economic development is a well-debated topic, previous discussions revealing aspects such as the economic importance of energy quality and reciprocity effects between energy and development.

Until recently, the energy sector was mainly of security concern, but its economic size has steadily increased with the processes of liberalization and deregulation of the sector and, therefore, with the intensification of specific competition. From public good subject to the taxes' payment, the energy sector tends to become a commodity in competitive markets, while the structure of energy resources is constantly changing.

The present paper presents evidence on the topic of the energy's impact on economic development as discussed in academic literature and tries to realize an overview of the topic in Romania's case.



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Literature review



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- Until recently, energy was considered to be an attribute of security (Ullman, 1983; Romm, 1993; Kalicki & Goldwyn, 2005). In a globalized world and where energy sources are very varied, their production still has security but, more and more, efficiency .
- Energy itself rarely creates a direct economic development (Carley et al., 2011) , but it can be a leverage of it: not the energy itself leads to development, but its use.
- The structure of energy resources is constantly changing (Carley et al. 2011; Jacoby et al., 2011) .
- State choices to a dominant form of energy or another should not only be about accessibility or environmental protection but also about the economic factor - without innovation, without sustained policies, energy itself can not really be a source of development for a nation (Pao & Li, 2014; Maji, 2015; Toman & Jemelkova, 2003).



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Romania's case



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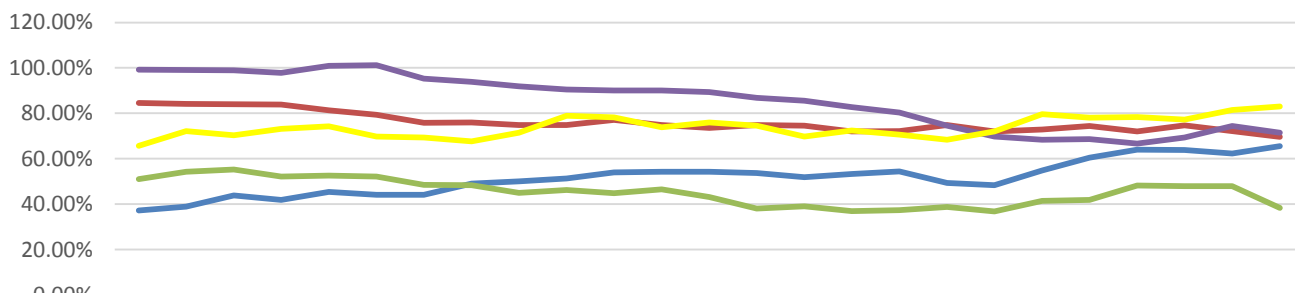
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Energy independence – Romania vs. other Central and Eastern European countries of EU (1990-2014)

Romania is the only ECE country with more than 80% energy independence and growing.
Only 6 EU countries have a level of energy independence above the 80% : Cyprus, Malta, Luxembourg, Ireland, Belgium, Romania.



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bulgaria	37.2	38.9	43.8	41.9	45.4	44.1	44.1	49.0	50.0	51.3	54.0	54.2	54.3	53.7	51.9	53.3	54.4	49.3	48.3	54.9	60.4	64.0	63.9	62.3	65.5
Cehia	84.6	84.1	84.0	83.9	81.3	79.4	75.8	75.9	74.9	74.9	77.1	74.9	73.6	74.9	74.5	72.0	72.2	74.9	72.0	72.8	74.4	72.0	74.7	72.1	69.6
Ungaria	51.0	54.2	55.2	52.1	52.6	52.1	48.5	48.4	44.9	46.2	44.8	46.5	43.2	38.0	39.1	36.9	37.3	38.8	36.8	41.4	41.8	48.2	47.9	47.9	38.3
Polonia	99.2	99.1	99.0	97.8	100.	101.	95.3	93.8	91.9	90.5	90.1	90.1	89.4	86.8	85.5	82.8	80.4	74.5	69.8	68.4	68.7	66.6	69.4	74.4	71.4
România	65.7	72.2	70.3	73.1	74.3	69.7	69.3	67.6	71.5	78.9	78.2	73.9	75.9	74.6	69.8	72.4	70.6	68.3	72.0	79.7	78.1	78.4	77.3	81.5	83.0

Source: Eurostat, 2017



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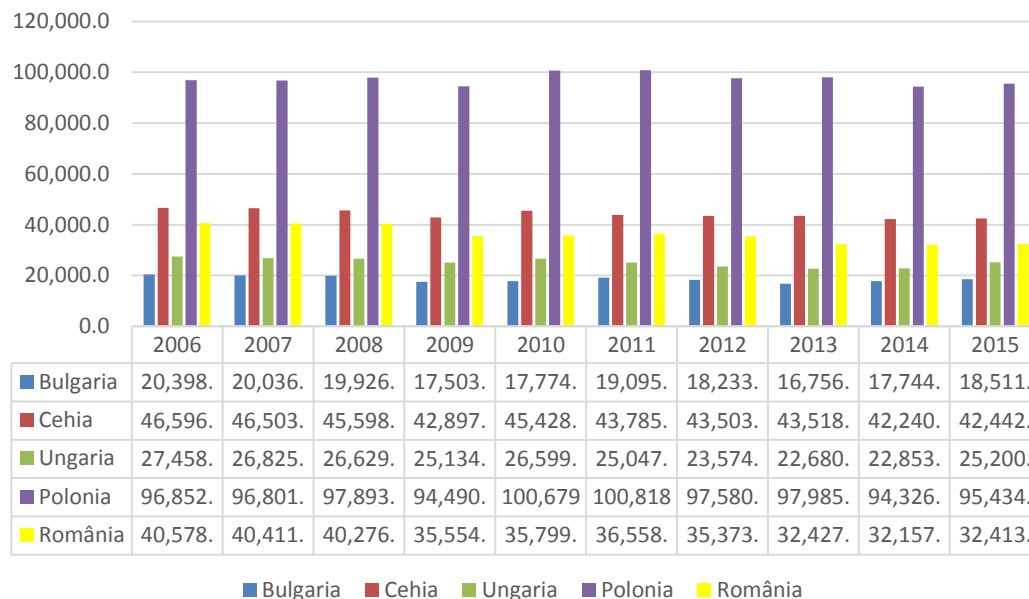
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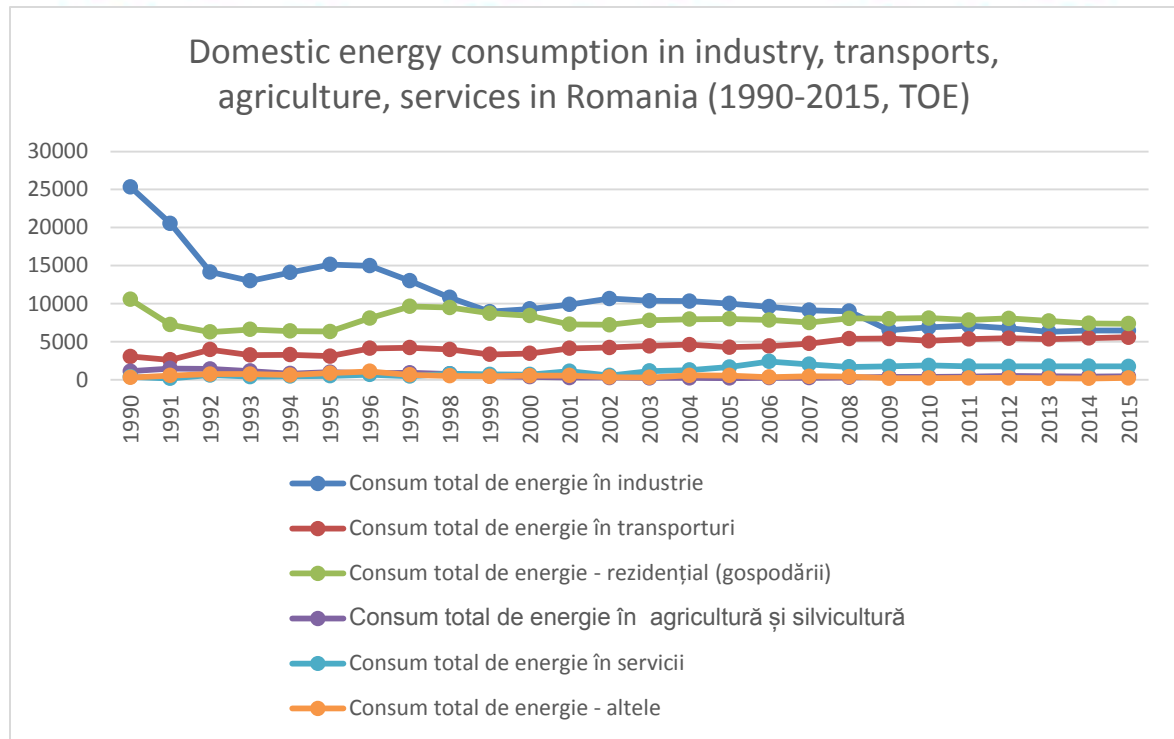
Domestic energy consumption evolution (2006-2015, TOE)

The domestic energy consumption decreased in Romania since 2009 and it was not recovered, even if the industry did – investments in energy efficiency. The decrease is due to the decrease of the households' consumption, too. Other similar countries did not experience the same trend.



Source: Eurostat, 2017

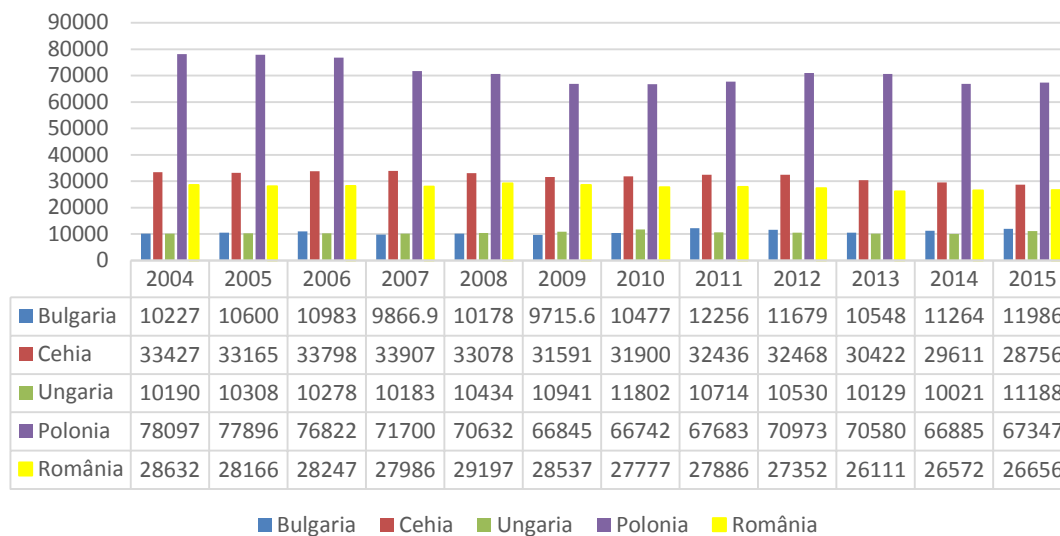
In 2009 (economic crisis hit), the industry consumption of energy decreased for the first time since 1990 below the one of households, with a decrease of more than 38% compared to 2008



Source: Eurostat, 2017

Excepting Poland (decrease), all ECE countries had the same level of primary energy production in the 2004-2015 period - constant production structures.

Domestic primary production of energy (2004-2015, TOE)



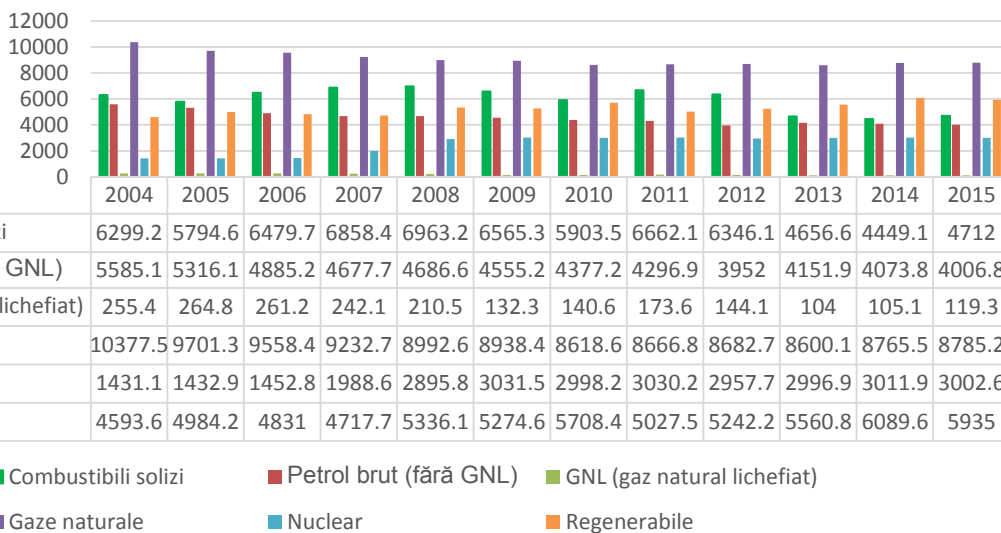
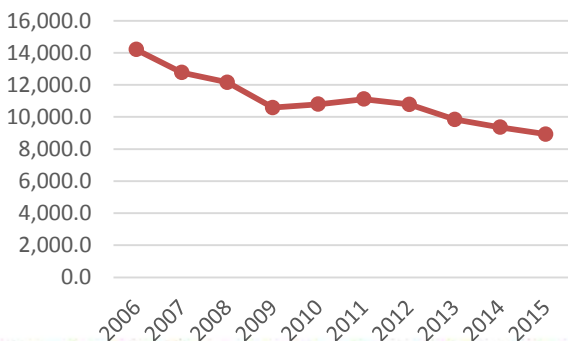
Source: Eurostat, 2017

Sursa: Eurostat, 2017

The structure of primary energy production has changed over the period 2004-2015, by the gradual passage from solid fuels, to nuclear power and the decrease in the share of natural gas.

Romania's primary production of energy by sources (TOE, 2004-2015)

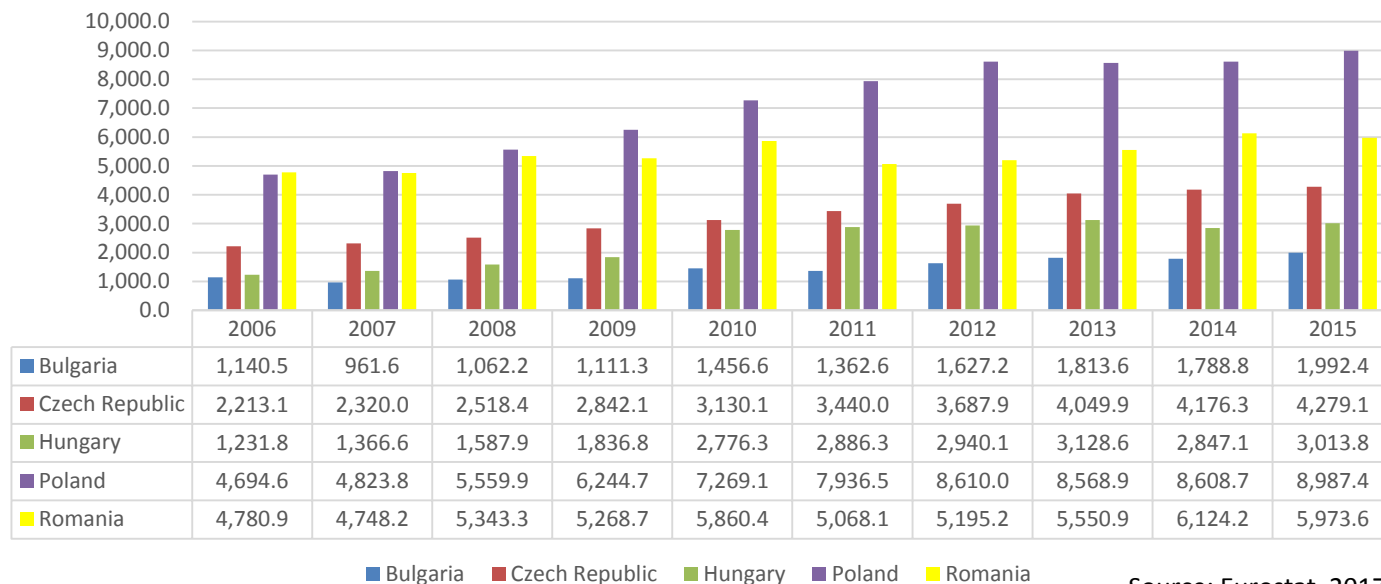
Natural gas consumption - Romania (2006-2015, TOE)



Source: Eurostat, 2017

Renewables consumption (2006-2015, TOE)

Poland is the champion of the increase in the use of renewable energy, followed by Hungary and the Czech Republic. The increase in Romania, although obvious, is lower (25% in 2015 vs 2006, compared with 91% for Poland or 145% for Hungary).



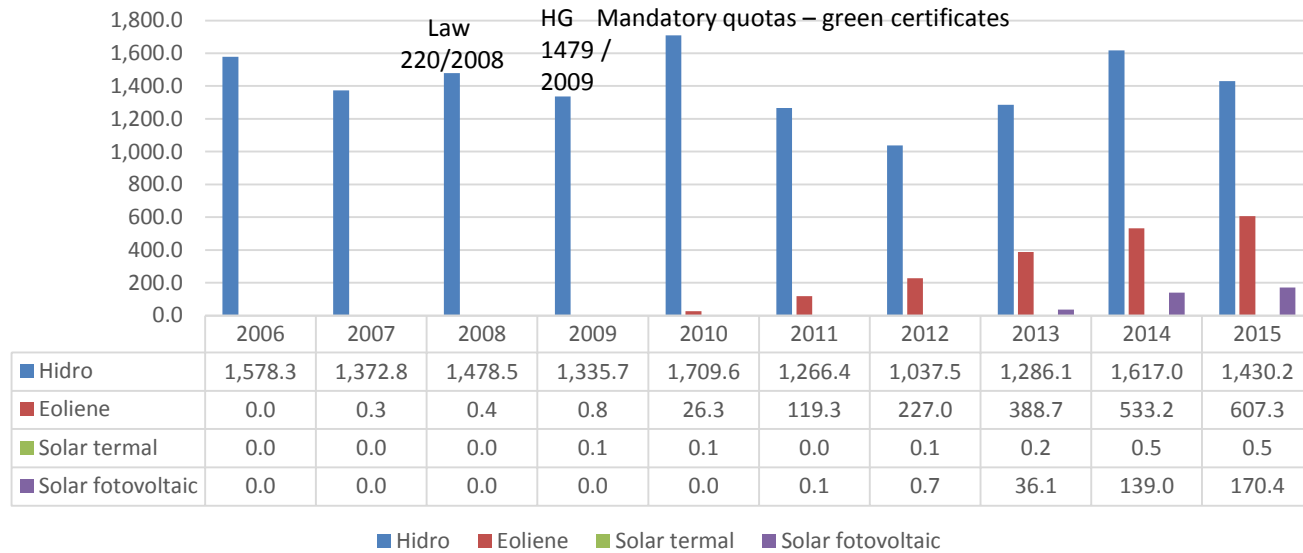
Source: Eurostat, 2017

Renewables consumption in Romania (2006-2015, TOE)

Renewable energy consumption has increased in Romania with the implementation of incentive legislation through the use of green certificates - investments in wind farms.

Thus, wind energy consumption increased by 7.5 times in 2015 compared to 2008.

Hydro energy consumption is constant, depending on climatic factors.

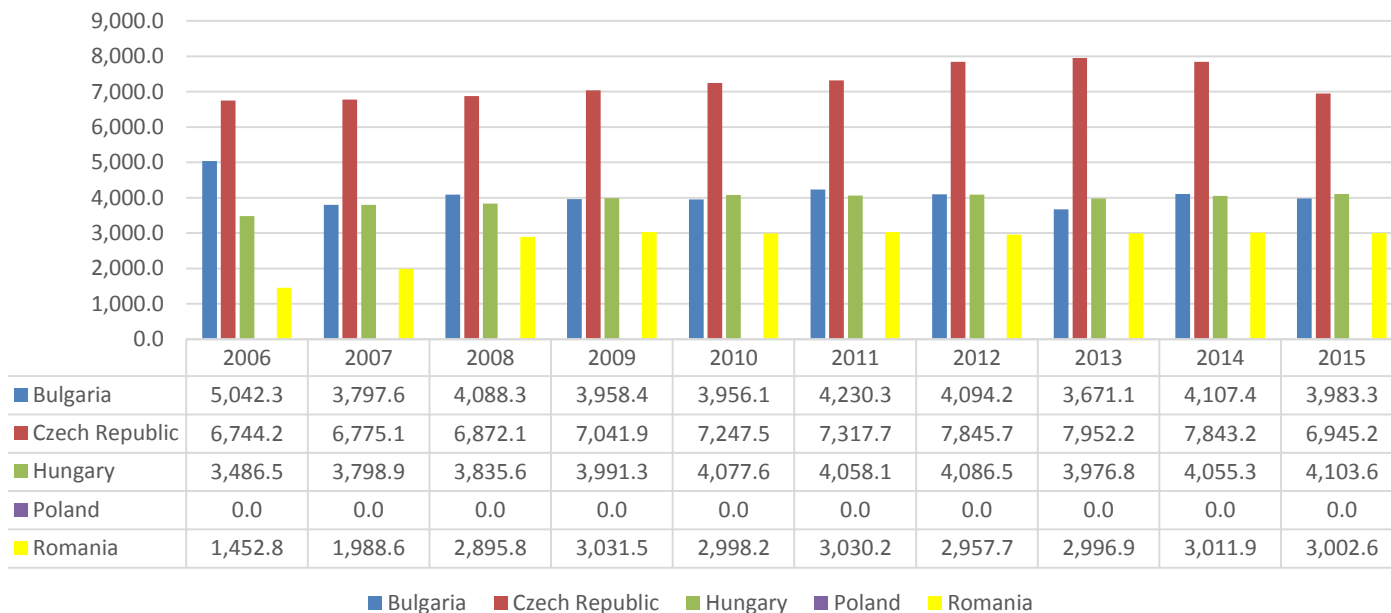


Source: Eurostat, 2017

Nuclear power consumption increased by more than 100% in Romania in 2015 compared to 2006, the highest growth in the region. The increase in Romania is due to the connection of Unit II from Cernavoda to the national energy system in 2007.

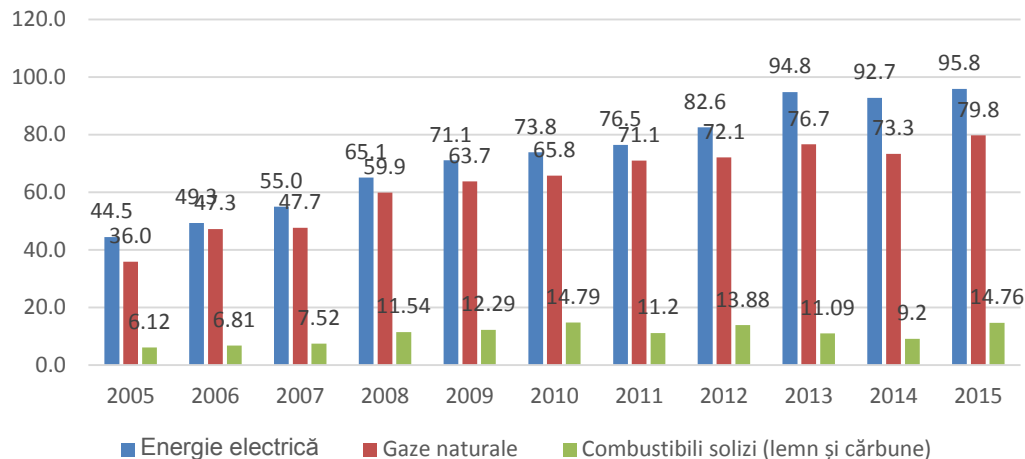
However, Romania's nuclear energy consumption is, in absolute terms (for 2015), below the one of all other ECE countries.

Nuclear energy consumption(2006-2015), TOE

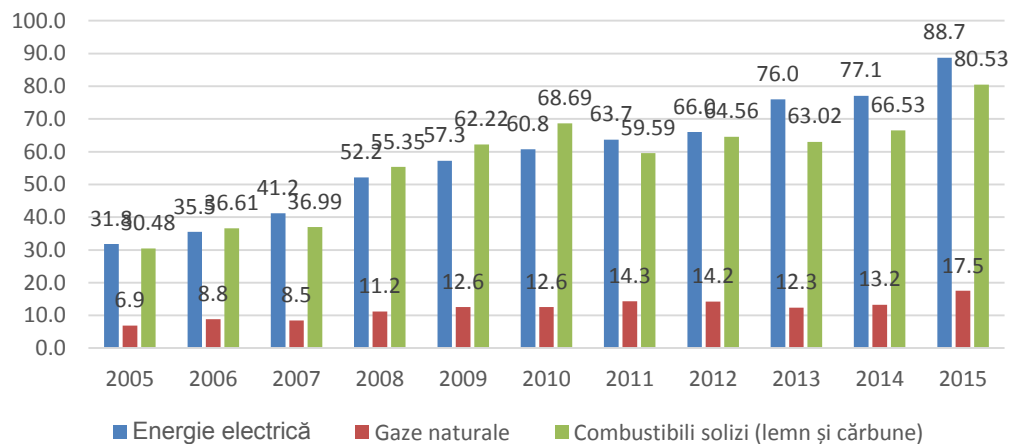


Source: Eurostat, 2017

Urban population's energy expenses in Romania (monthly average, lei)

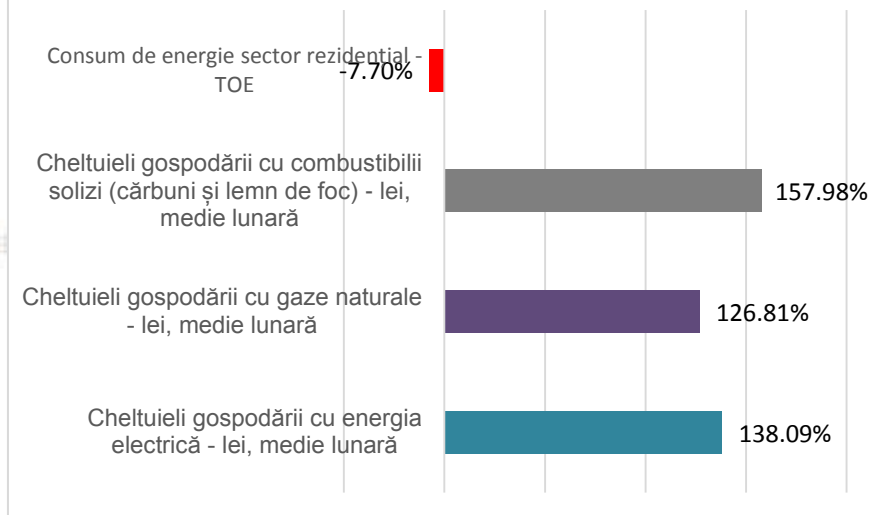


Rural population's energy expenses in Romania (monthly average, lei)



Household energy expenses keep increasing. The price of wood used for heating increased 2.6 times between 2005 and 2015. Expenses with natural gas has increased on average by 126%. Those with electricity, by 138%.

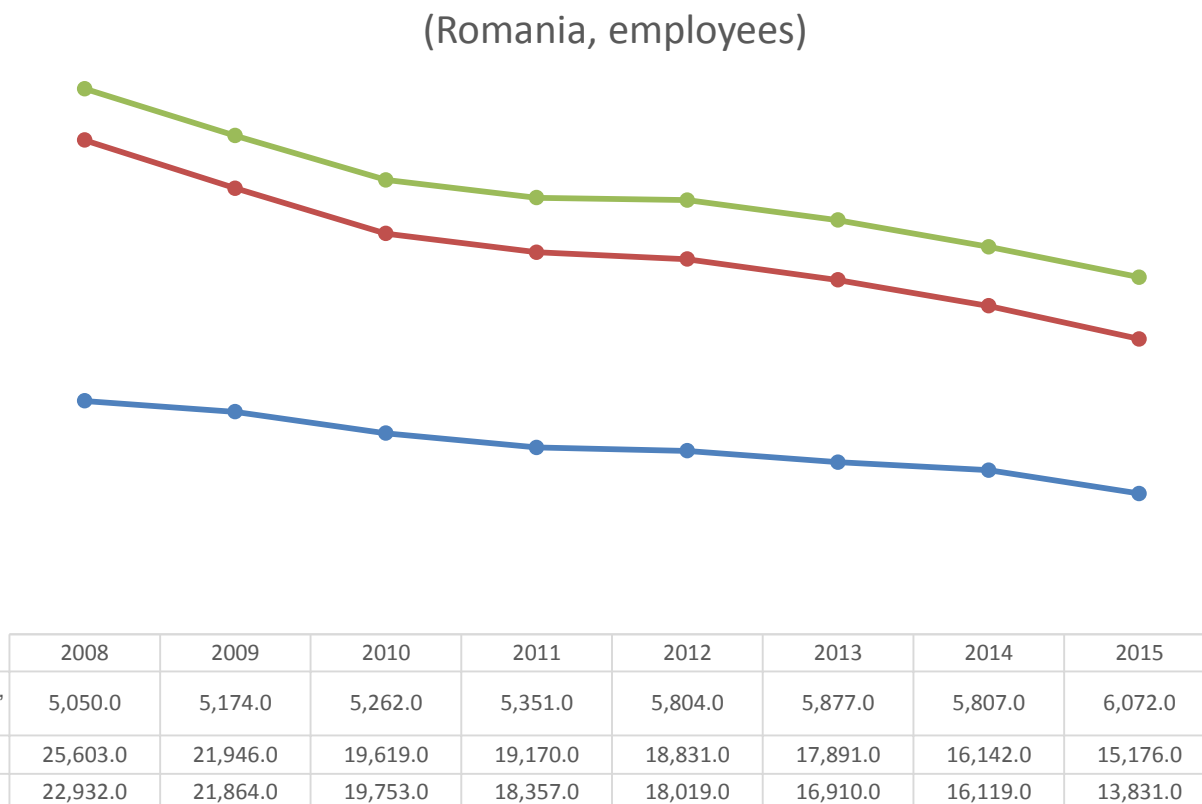
Households energy expenses and energy consumption in 2015 vs. 2005



The energy sector, a sector with several companies in the top of the most important Romanian companies, does not produce employment: between 2008 and 2015, 18,506 jobs were lost in this field, i.e. 35% of the existing ones in 2008 - without this being correlated with the 2009 economic crisis or with the redundancies resulting from privatizations (which occurred on average in 2005-2008).

Employment in energy
(Romania, employees)

60,000.0
50,000.0
40,000.0
30,000.0
20,000.0
10,000.0
0.0



Source: INS, 2017



Instead of conclusions



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