



ROMANIAN AGENCY FOR ENERGY CONSERVATION



Renewable Energy Sources A continuous challenge for Romania

Author: Lucian IONESCU



OBJECTIVES and TARGETS FOR ROMANIA ON LONG TERM 20-25 YEARS

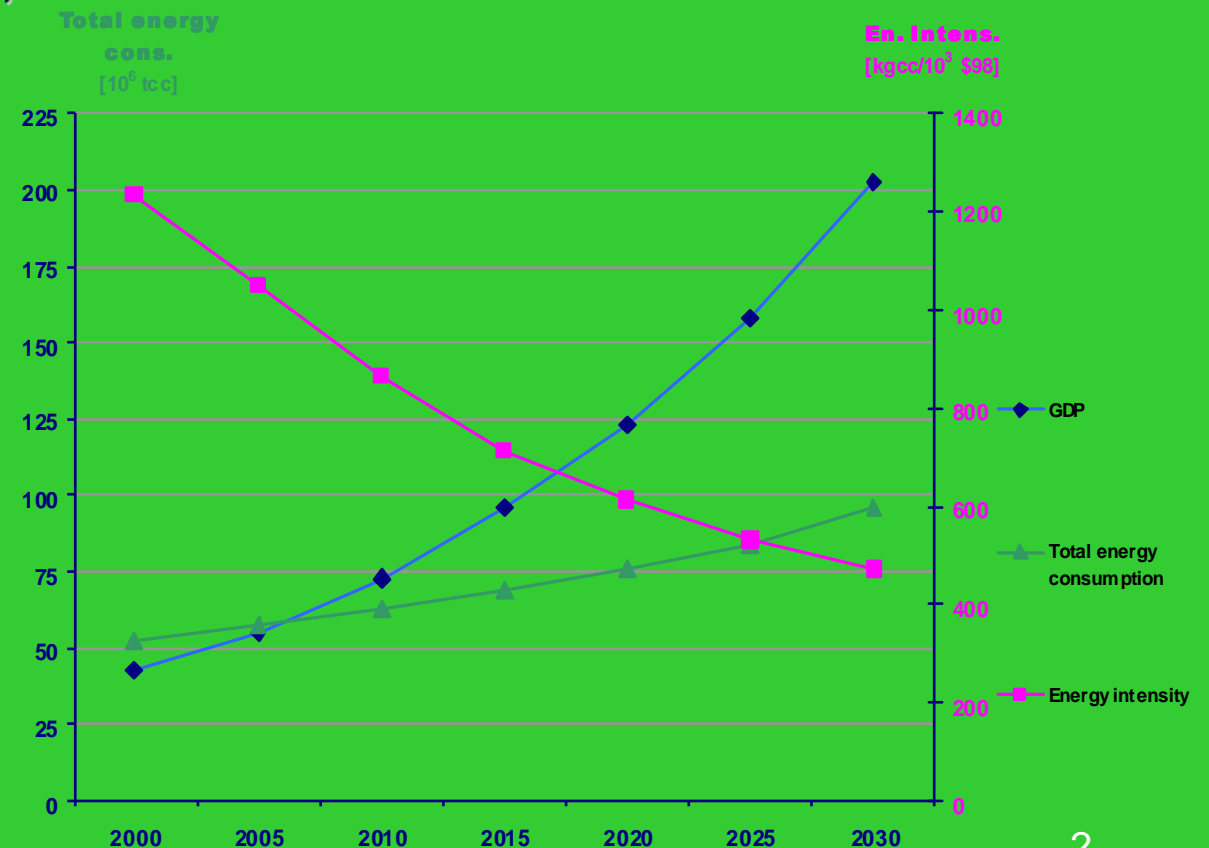
THE MINIMAL SCENARIO - Correlated with the Roadmap provisions till 2015

➤ **increase of GDP** - obtain 50% of the average level (GDP/inh.) of EU (23,000 €/inh.) with an economic growth (GDP) of 5,5% / year;

➤ **competitiveness** - decrease of energy intensity with 55 – 60% compared to year 2000 with a 3 % annual rate;

➤ **security of energy supply;**

➤ **environment protection.**





ENERGY POLICY

- Energy policy is focused on compliance with EU accession criteria, aiming to the development of a national energy market integrated in the European internal energy market
- Energy policy aims to introduce more commercial mechanisms and more competitive environment, with competitive prices and a diversity of suppliers and customers
- Establish transparent and stable market mechanisms surveyed by independent regulatory authorities and market operators

The Government's strategy to achieve the energy policy objectives is focused on three major action lines:

- Financial unblocking of energy sector
- Initiation of the privatization process in the distribution sub-sector to be followed by the privatization of electricity generation
- Ensuring a functional and sustainable development on medium term by stimulating new investments in the energy sector



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EU ENERGY POLICY TARGETS

- **Directive 2006/32/EC (ESD)**

Energy efficiency increase in energy end-use sectors, by:

- *providing the indicative targets as well as mechanisms, incentives and institutional, financial and legal framework necessary for the promotion of efficient energy end-use;*
 - *creating the conditions for the development and promotion of the market for energy services*
- *Energy savings of 9% for the end of the period 2008-2016, respectively 1% per year, of the annual average of the final energy consumption in the last 5 years (period 2001-2005) (the companies under emission trading scheme are excluded)*



National Energy Efficiency Action Plans

Deadlines : 30 th June 2007; 30 th June 2011; 30 th June 2014



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- *Integrated Energy and Climate Change Package, January 2007*
 - *Reducing **GHG by 20% by 2020** comparatively with 1990;*
 - *Energy savings of **20%** of the EU total primary energy supply by **2020**;*
 - ***Share of the renewable energy of 20%** in overall energy mix by **2020**, and a minimum target of **10%** for biofuels.*

Legislative proposals:

- *Modifying the ETS Directive (2003/87/EC)*
- *Directive proposal on the use of the renewable energy sources*
- *Proposal for establishing the GHG targets for the non-ETS sectors*



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- *Integrated Energy and Climate Change Package (continue)*

Proposal (2008) 85/3 of 23 January 2008

Targets by 2020 for each EU Member State regarding:

- *GHG emission cut ;*
- *Share of the renewable energies in the final energy consumption*

Proposal for Romania:

- +19% Target on GHG emission for non-ETS sectors*
- 21% Target on GHG emission for ETS sectors*
- 24% Share of RES in final energy consumption*

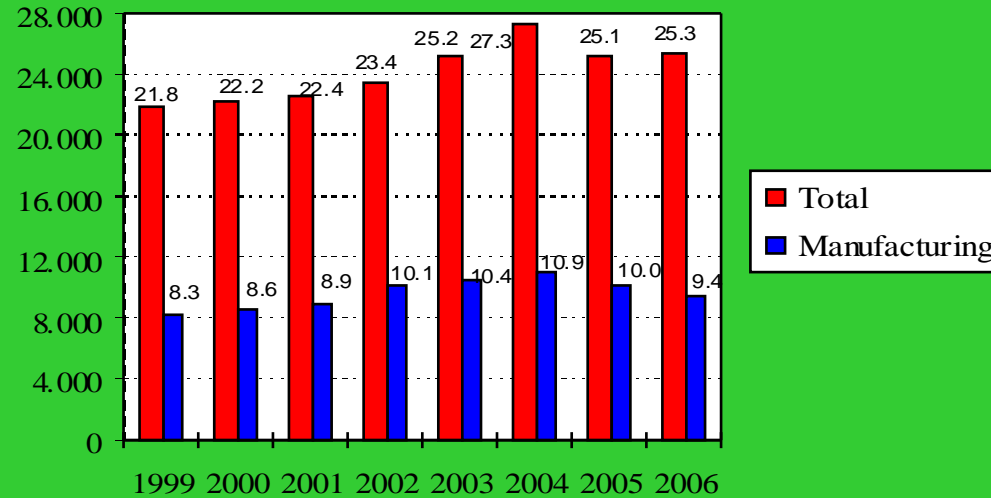


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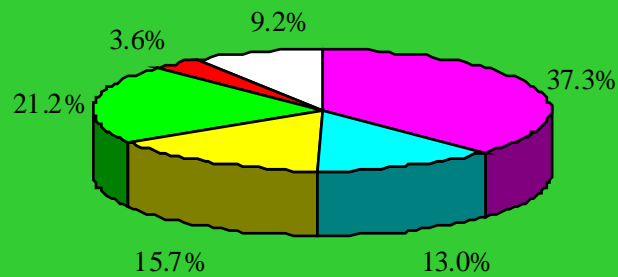


Evolution of the final energy consumption

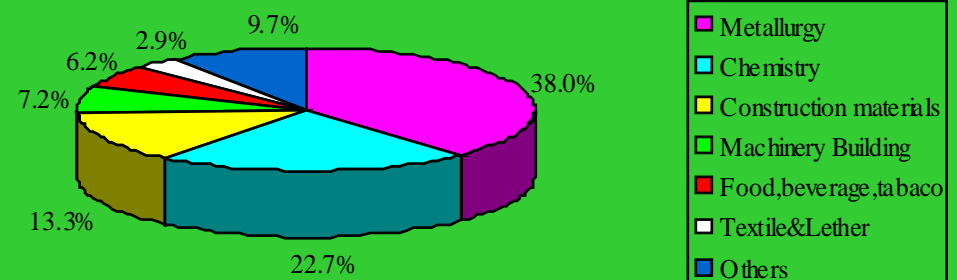
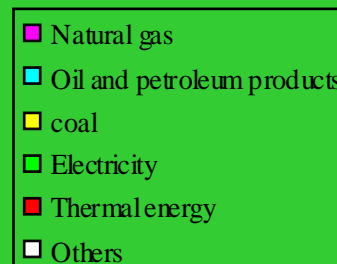
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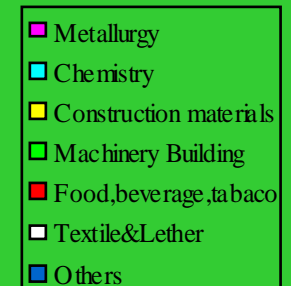
Structure of final energy industrial consumption in 2006



by energy



by branch





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- **Strategy for Renewable Energy Sources use (GD 1535/2003) and the promotion of electricity generation from RES (GD 958/2005, updated):**

Targets:

- RES share in the total primary energy supply: **11% by 2010**;
- RES share in the gross electricity consumption: **33% by 2010**;
35% by 2015;
38% by 2020.

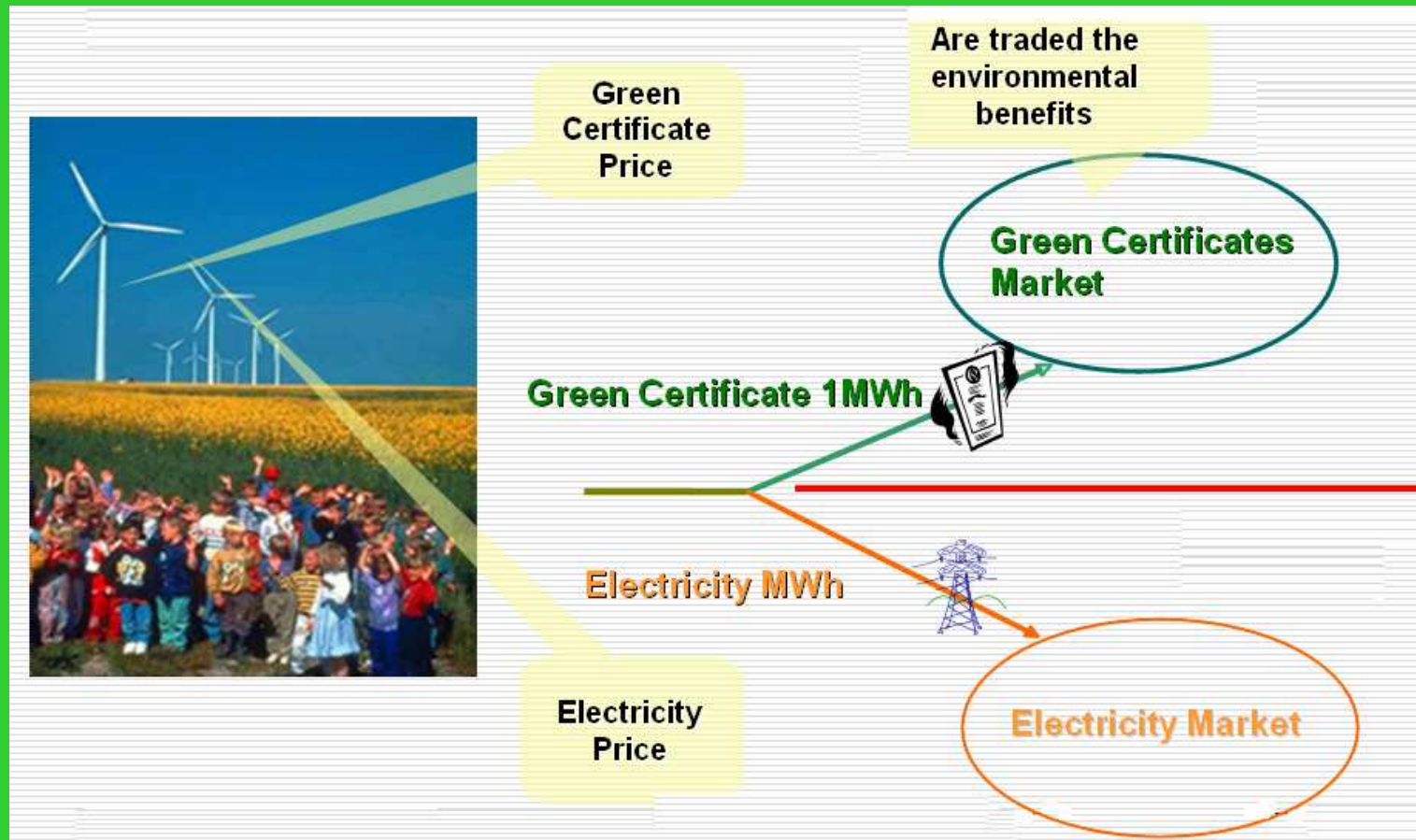
- **Promoting biofuels and other RES in transport (GD 1844/2005, GD 456/2007)**

Targets:

- **minimum share: 2% in total in 2007**;
- **minimum share: 5,75% in total in 2010.**



Promotion system of electricity from renewable energy sources in Romania





Renewable energies

- considerable energetic potential
- improvements in the security of supply
- offers unlimited resources of use on local and national plan
- reduce air pollution and greenhouse gas emissions
- improvement in the economic and social prospects of rural and isolated regions





Within the “**STRATEGY FOR THE UTILISATION OF RENEWABLE ENERGY SOURCES**” is highlighted the energy potential of RES in Romania

RES	Potential (thou toe/year)
SOLAR ENERGY	
- thermal energy	1,433
- photovoltaic system	103
WIND ENERGY	1,978
MICRO HYDRO ENERGY	516
BIOMASS	7,597
GEOTHERMAL ENERGY	167
TOTAL	11,795

Final energy consumption in 2005 = 25,102 thou toe

[Romanian Statistical Yearbook 2006]

▶▶ potential of RES = 47% of consumption



The present situation:

- The RES energy quota from the total of energy consumption is:
11 % (including big hydro)
- The RES electricity quota from the total electricity consumption is:
29 % (including big hydro)



Objective of strategy for the renewable energy sources

- 2010** – Renewable energy sources a share of **11%** on the total primary energy sources;
- 2010** – A share of **33%** from total of generated electricity produced from renewable energy sources;
target concerning the share of electricity produced from renewable in the gross internal electricity consumption is: **2,22%** for 2006, **3,74%** for 2007, **5,26%** for 2008, **6,78%** for 2009 and **8,35%** for 2010-2012.
- 2015** – Renewable energy sources a share of **15%** on the total primary energy sources.





Renewable Energy Sources eligible to receive GC

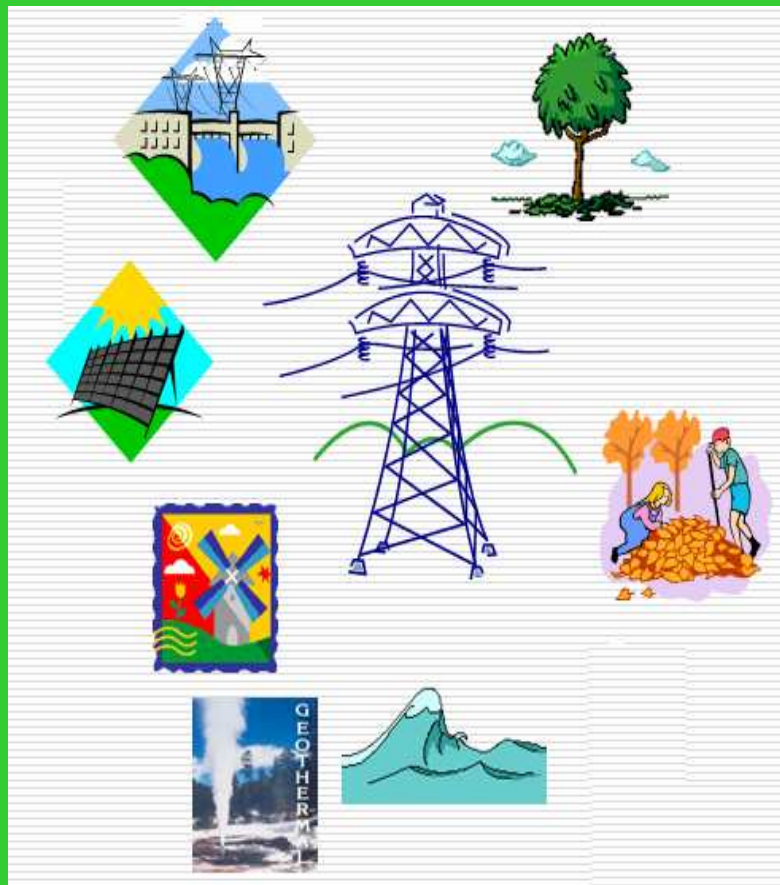
Solar energy

Wind energy

Hydro power plant $\leq 10\text{MW}$

Biomass

Geothermal energy





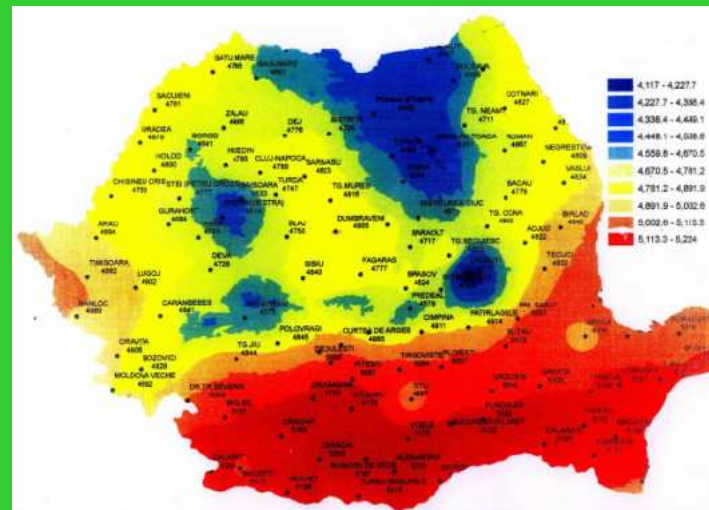
SOLAR ENERGY

- Valahia University (10 kW)

-Polytechnic University of Bucharest
(30 kW)



ROMANIAN SOLAR RADIATION MAP



In accordance with the solar energy potential 5 areas have been identified in Romania, (0, IV), differentiated by energy values



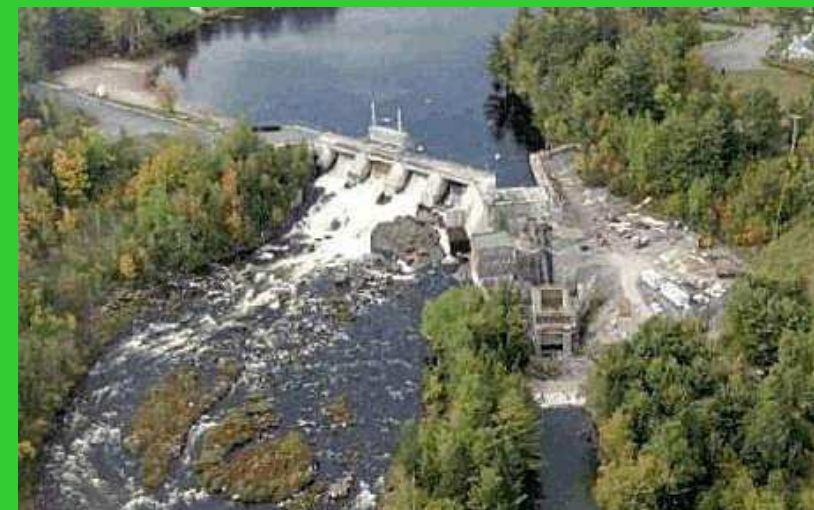
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	PRODUCER	RES	P_i [MW]
1	Energy Holding S.R.L.	hydro	5,950
2	UZINSIDER GENERAL CONTRACTOR S.A.	hydro	4,600
3	S.C. HIDRAL INVEST S.A.	hydro	0,760
4	S.C. UZINA MECANICĂ SADU S.A., Filiala C.N. ROMARM S.A.	hydro	1,200
5	S.C. COMPLEXUL ENERGETIC TURCENI S.A.	hydro	9,900
6	S.C. ESPE ENERGIA S.R.L.	hydro	5,080
7	S.C. COLTERM S.A.	hydro	1,200
8	S.C. TERMOFOREST S.R.L.	hydro	0,526
9	S.C. ELECTROMAGNETICA S.A.	hydro	4,069
10	S.C. HIDROCONSTRUCȚIA S.A.	hydro	0,600
11	S.C. EVIVA HIDRO București	hydro	0,202
12	S.C. APAVIL S.A. VÂLCEA	hydro	0,710
13	Administrația Națională "APELE ROMÂNE"	hydro	1,304
14	S.C. ROMELECTRO S.A.	hydro	1,640
15	S.C. RAFINĂRIA STEAUA ROMÂNĂ	hydro	0,820
16	S.C. Exploatare Sistem Zonal PRAHOVA S.A.	hydro	0,290
17	S.C. ELSID S.A.	hydro	8,197
18	S.C. NEPTUN S.A.	hydro	0,071
19	S.C. SOBIS Solutions S.R.L.	hydro	0,236

The hydro power is the most important RES in Romania

	PRODUCER	RES	P_i [MW]
20	S.C. ISPH S.A.	hydro	12,470
21	S.C. HIDROELECTRICA S.A.	hydro	143,798 39,800
22	S.C. LUXTEN LIGHTING COMPANY S.A.	hydro	10,525





Project "Sawdust 2000"



	Capacity [MW]	Invest. [M€]
Vlăhița	6	1,98
Gheorgheni	6	2,27
Huedin	4	1,74
Vatra Domei	12	4,42
Întorsura Buzăului	7	2,72



BIODIESEL (1)

Investments:

- *Auto Elite Baia Mare* –50.000 t biodiesel/year
- *Lehliu Gara*, Biomart investments (47 mil.€ - Martifer Portugal) -refinery and oil processing plant, 100.000 t biodiesel/year, capacity:50.000 ha rape seed crop
- *Ultex Țândărei* processes 175.000 tones of grains soy, 4500 t biodiesel/year
- *Ulerom Vaslui* 18 mil. € investment 60.000 t biodiesel/year, with further possibilities to attain 120.000 t biodiesel/year.
- *Rompetrol Refinery* –investments in 60.000 t /year capacity

Under construction:

- *PRUTUL Galați* - 25 mil. € investment



BIODIESEL (2)

Foreign investments

- *Lehliu Gara*, Biomart investments (47 mil.€ - Martifer Portugal) refinery and oil processing plant, 100.000 t biodiesel/year
- *Expur Urziceni* - 20 mil. € investment - swiss firm ALIMENTA
- *ATEL, LOAMNES, Sibiu*, 133 mil. € investment - MAN Ferrostaal Germany, 400 t /day

Financial support for BIODIESEL

SAPS – The direct unique payment on area – UE funds; 50,55 euro/ha

CNDP – The complementary national on area– national funds

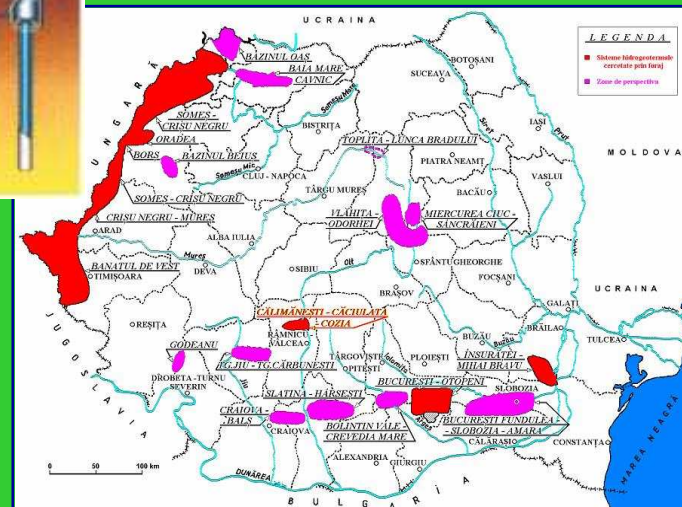
SAPARD Program

Relief from Excises (FISCAL CODE art. 201)



GEOTHERMAL POTENTIAL IN ROMANIA

At Ministry of Administration and Interior there is PILOT PROGRAM : 10 schools will be equipped with heat pump that replace stoves and decrease pollution.



Applications:

- Campia de Vest (Oradea – Bors)
- Valea Oltului (Calimanesti – Caciulata)
- Zona Bucuresti Nord (Otopeni)



Financial support for renewable projects

The National program for the reduction of energy costs for the population, by increasing energy efficiency and using renewable sources of energy

2006-2007-development of district heating networks for: Vatra Dornei and Vlăhita.

2006 - the utilisation of geothermal energy in housing from Livada and Săcueni .

- commissioning of the micro hydro power plants to power the public lighting in the city of Geoagiu.

Environmental Fund is a fund supplied by penalties for pollution and state budget.



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THANK YOU FOR YOUR ATTENTION!