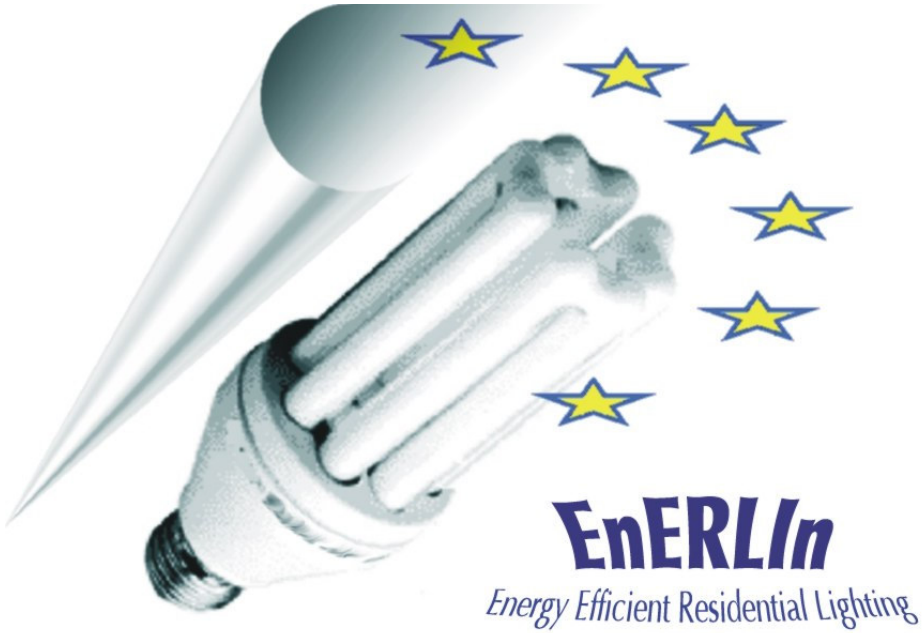

EnERLIn
Energy Efficient Residential Lighting
Initiative
Supported by
Intelligent Energy Europe

EU energy policy

Has two main directions:

- To ensure the stable supply of necessary energy sources to member states and to decrease the dependence on their import;
- Environmental protection.

EU has two main opportunities:

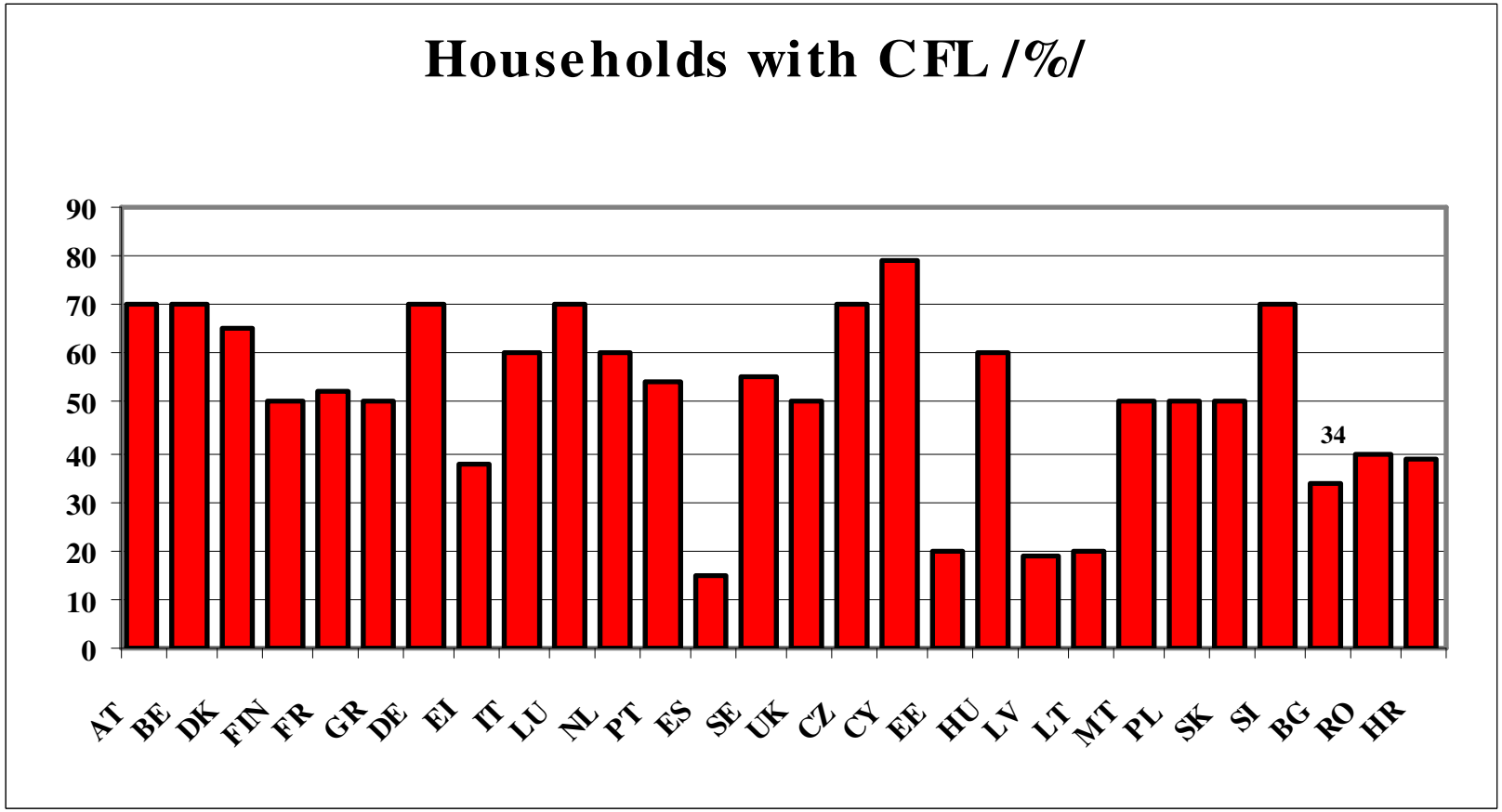
- To increase the energy efficiency;
- To encourage and increase the use of renewable energy sources.

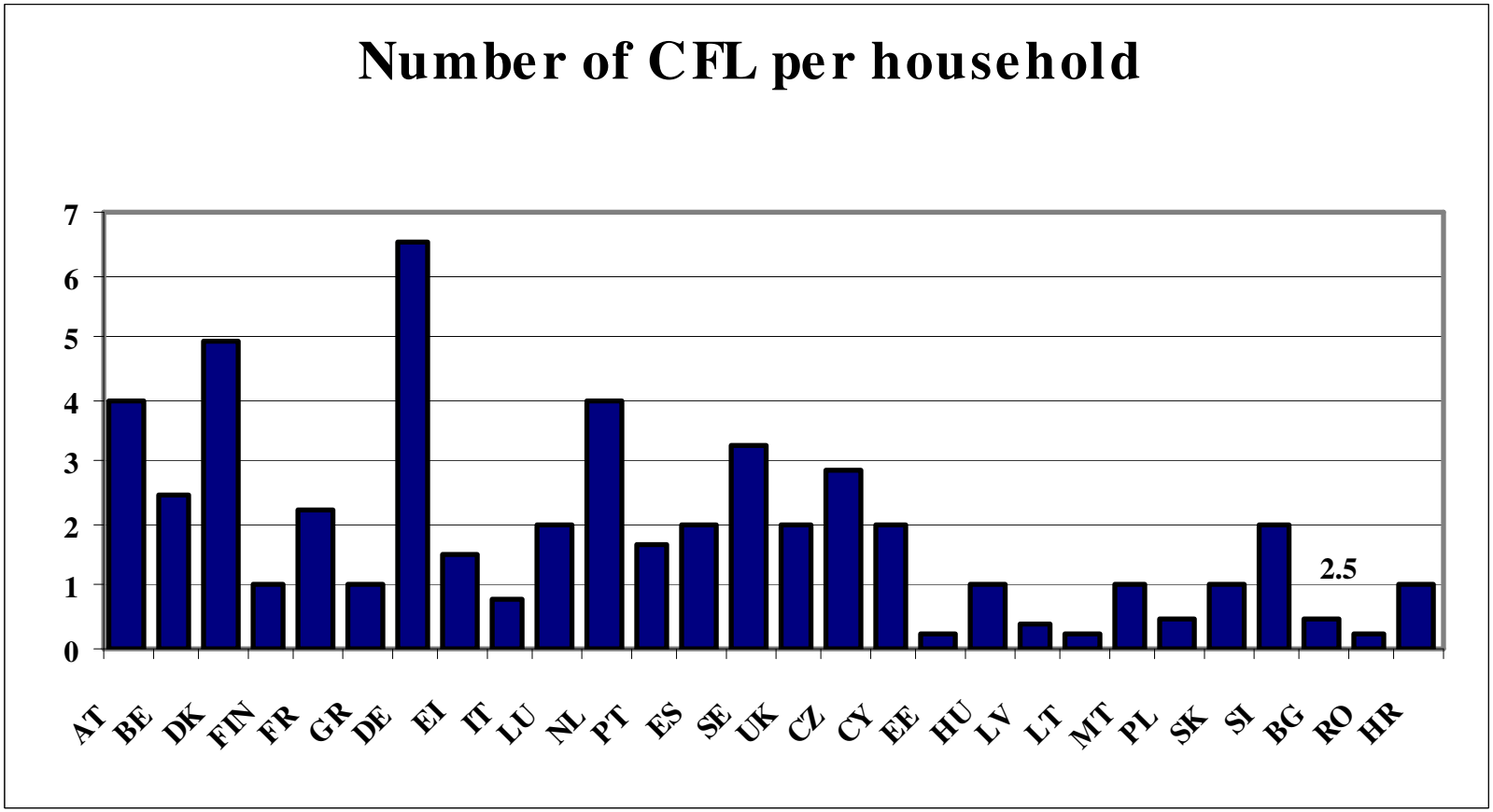
Electricity consumption for lighting in the residential sector in the EU member states

In the Joint Research Center of EU (JRC) they have calculated that:

- for EC-15 in 2004 79 TWh electricity was consumed;
- for EC-15 in 2010 the projections are for 94 TWh consumption or yearly increase with 2%;
- for EC-27 in 2004, 96 TWh were consumed

- Electricity consumption for lighting varies greatly as a proportion of the overall consumption:
  - For France - 6,4 %
  - For Romania - 35,2 %
  - For Bulgaria – 10,0 %
- The average consumption for lighting per household also varies :
  - For Sweden - 872 kWh
  - For Bulgaria - 310 kWh


Households with CFL /%/
90
80
70
60
50
40
30
20
10
0
34
AT BE DK FIN FR GR DE EI IT LU NL PT ES SE UK CZ CY EE HU LV LT MT PL SK SI BG RO HR


Number of CFL per household
7
6
5
4
3
2
1
0
2.5
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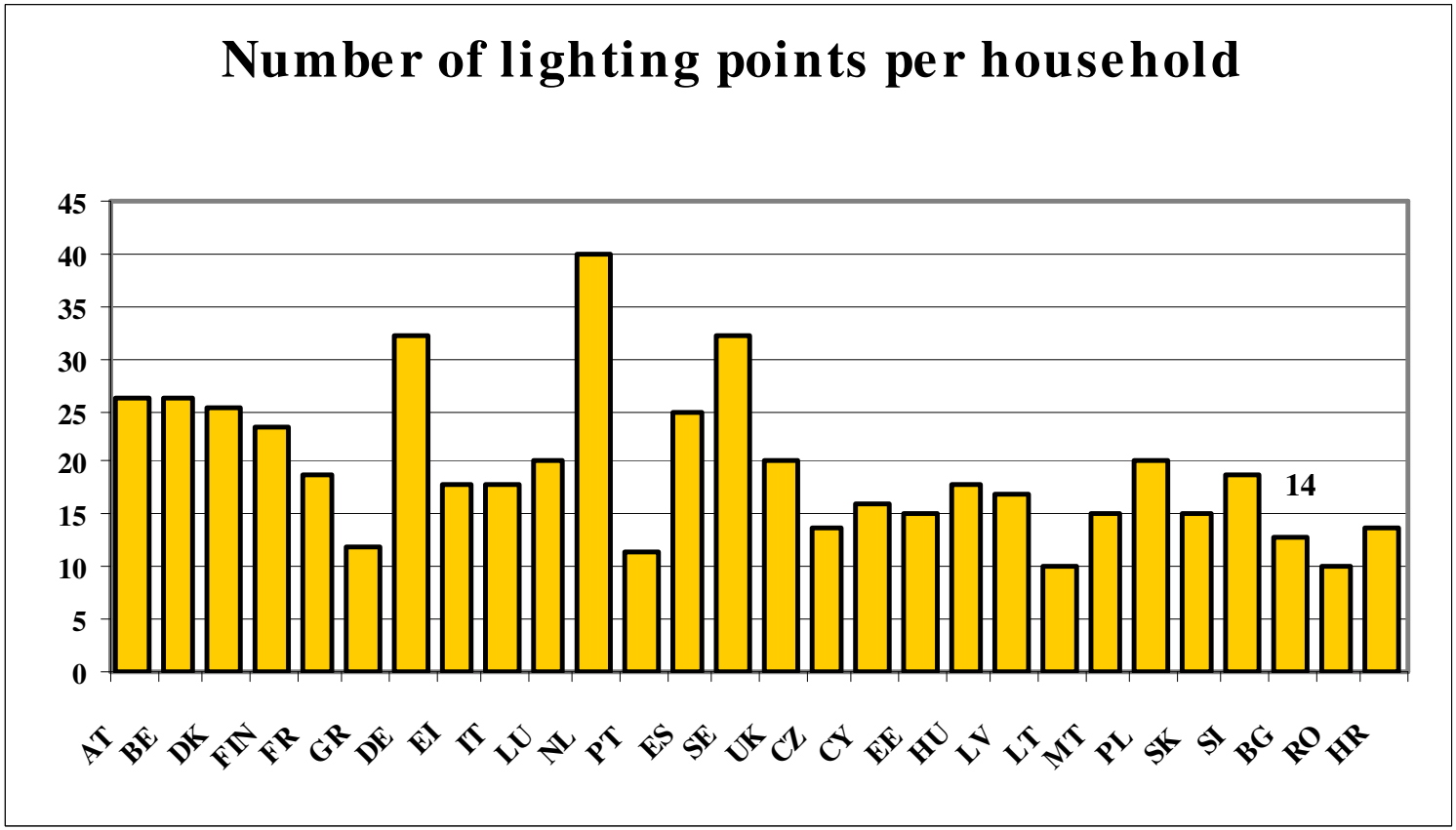

Number of lighting points per household
45
40
35
30
25
20
15
10
5
0
14
AT BE DK FIN FR GR DE EI IT LU NL PT ES SE UK CZ CY EE HU LV LT MT PL SK SI BG RO HR

The Consortium

Poland
Krajowa Agencja Poszanowania Energii

Czech Rep.
The Energy Efficiency Centre

Latvia
Ekodoma

Denmark
ELFOR - Dansk Eldistribution

Estonia
OÜ Energiasäästubüroo

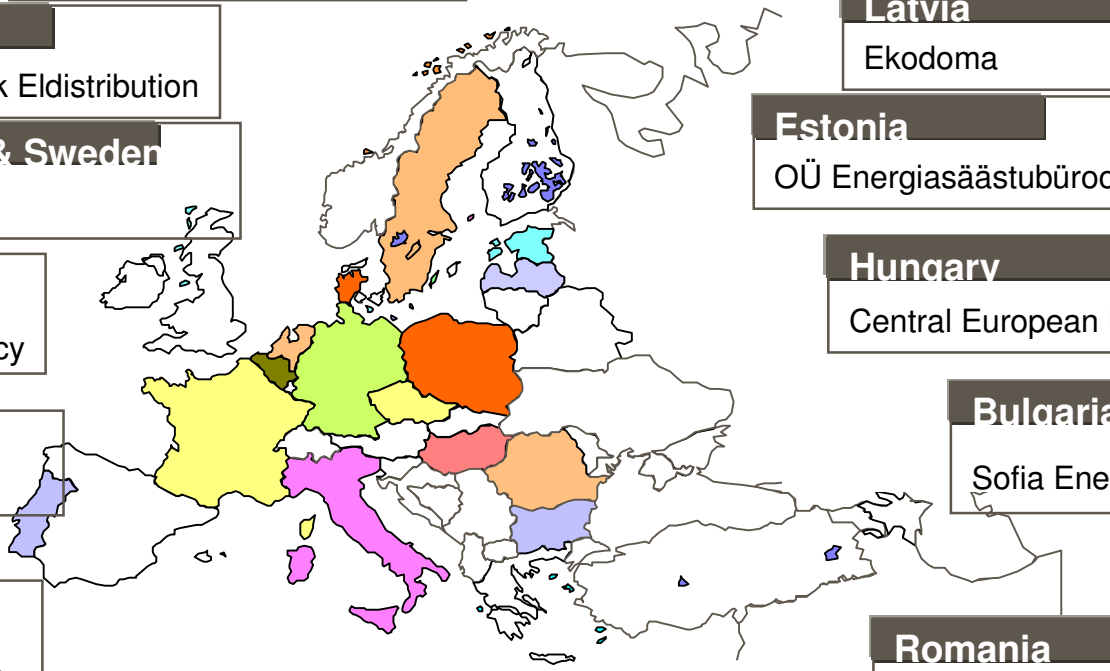
Netherlands & Sweden
Respect

Hungary
Central European University

Germany
Berlin Energy Agency

Bulgaria
Sofia Energy Centre

Belgium
e-ster



Portugal
Agência para a Energia

Romania
Univ. Tech. Din Cluj-Napoca

France
Univ. of Toulouse 3

Italy
National Agency for New Technologies, Energy and the Environment

European Efficient Residential Lighting Initiative
EnERLIn project EIE/05/176/SI2.419666.

Aims of the project:
Цели на проекта:

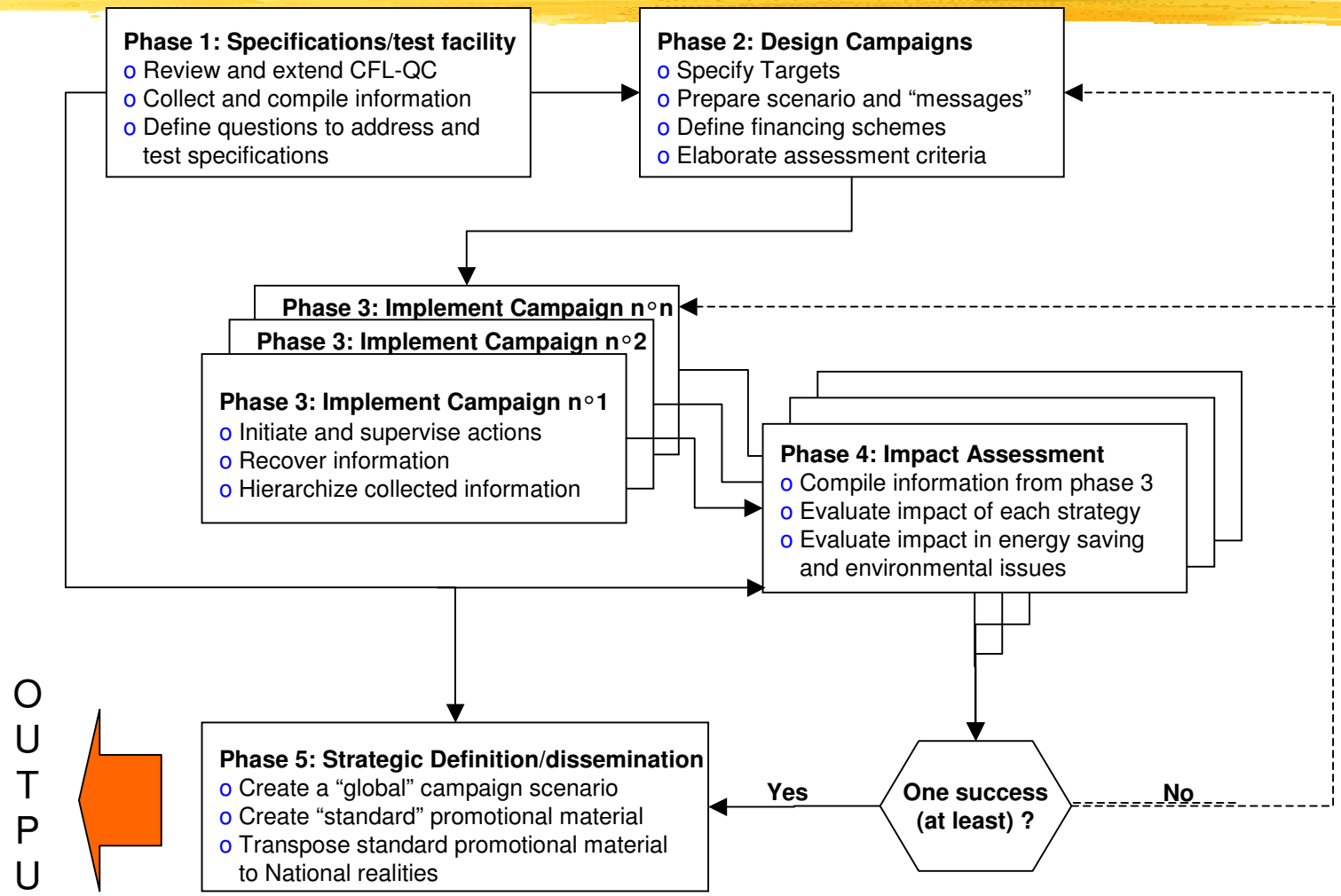
- EUROPEAN COMPACT FLUORESCENT LAMPS QUALITY CHARTER

-ЕВРОПЕЙСКА ХАРТА ЗА КАЧЕСТВО НА КОМПАКТНИ ЛУМИНЕСЦЕНТНИ ЛАМПИ

- NATIONAL CAMPAIGNS FOR INCREASE OF CFL SALES WITH 10 %

-НАЦИОНАЛНИ КАМПАНИИ ЗА УВЕЛИЧАВАНЕ ПРОДАЖБИТЕ НА КЛЛ С 10%

Structure of the work packages



European CFL Quality Charter

- **Main objectives:**

  A new version of the Charter – standard 2008 which will:

  - Define rules, guaranteeing quality CFLs to the consumer
  - Define indicators, guaranteeing reliability and quality
  - Define the standards and procedures for testing

- **Method:**
  - Review of the application of the Charter in the different countries
  - Summary of the results
  - Defining the the main new points which should be reflected in the new version

Main conclusions

- End user is very regarding on CFL-Quality. Low quality devices "pollute" the market and seriously impede the increase of market penetration of that energy efficient technology. A systematic CFL-quality control is imposed in EU level following a well-defined unique testing protocol and associated with readable and compulsory labeling.
- There is a significant lack of knowledge and data on the penetration and the trends in use of various lighting technologies in households. This is especially true in Eastern European countries, therefore it is difficult to clearly articulate what we would like to achieve with a campaign and whom exactly we could target in order to increase efficient light sources penetration.

The first questionnaire is addressed to the end user in order to find answers to the following questions:

- What is the share of lighting in the overall electricity consumption?
  - The users had difficulties answering the question
  - Calculations were made based on the average consumption and average number of electrical devices
  - The answer is on average 10 %
- What is the number of lighting points in a household?
  - The answer is 14
- How many CFLs on average are there in one household (which uses CFL)?
  - The average number of CFL is 2.5 lamps per household.
- Do the users have information on CFLs?
  - 60 % answered “yes”, the rest 40 % - answered “no”

What is the opinion of the end user regarding the CFL qualities?

80 % of them are not satisfied because:

- The low quality of CFLs on the Bulgarian market (mainly Chinese):
  - Cold light;
  - Delayed lighting;
  - Not reaching the given lifetime of the lamps
- High price compared to conventional lamps (5 to 25 times) ;
- The saved energy from CFLs is difficult to be recognized in the overall electricity bill.

The second questionnaire is targeted to importers, retailers, architects and designers

- What is the distribution of the lamp market?
  - The major share is of the incandescent lamps;
  - Second largest share is of the halogen lamps;
  - The CFLs are on third place
- To what extent the existing luminaries for incandescent lamps prevent their change with CFLs?
  - 43 % think that this is not of great significance;
  - 21 % replied that it is of great significance;
  - 36 % cannot decide.
- Does the client have enough information on CFLs?
  - The major opinion is that the information on CFLs is insufficient;
  - The existing information is relevant for the quality CFLs and not for the used low-quality cheap CFLs which leads to disappointments.

Comparison of characteristics of CFL and incandescent lamps

Characteristics - technical	GLS	CFL
Light (lm)	900	900
Power (W)	75	15
Efficiency (lm/W)	12	60
Life (h)	1000	10000
Economic		
Price of a lamp (BGN)	0.5	12
Annual energy consumption (kWh) for 4 h/day	109.5	21.9
Expenses for average price of electricity 0.14 BGN/kWh (BGN)	15.33	3.07
Saved money from electrical energy (BGN) annually		12.26
Total savings (lamps + electrical energy) in BGN for 10 000 h of lighting (BGN)		77.00

The investment is returned in less than one year and the lamp has 5 more years life, i.e. it's a long-term investment

Savings for Bulgaria

If one CFL is applied in each household

With 3 000 000 households in Bulgaria the substitution of 75 W incandescent lamp with 15 W CFL with average 4 hours/day lighting:

The savings will be:

- Daily 720 MWh;
- Annually 262 GWh
- Annually less CO_2 released into atmosphere 158 000 t
- 180 MW reduced peak power.

For constructing 180 MW peak power in heat power plant on gas, with 1000 Euro/kW, the investment needed is 180 million Euro or 352 million BGN. From this sum if 30 million are taken, 1 free CFL can be distributed to each household. The state will save 300 million BGN.

Scenario 1: 1 additional CFL per household

EUROPEAN COMMISSION
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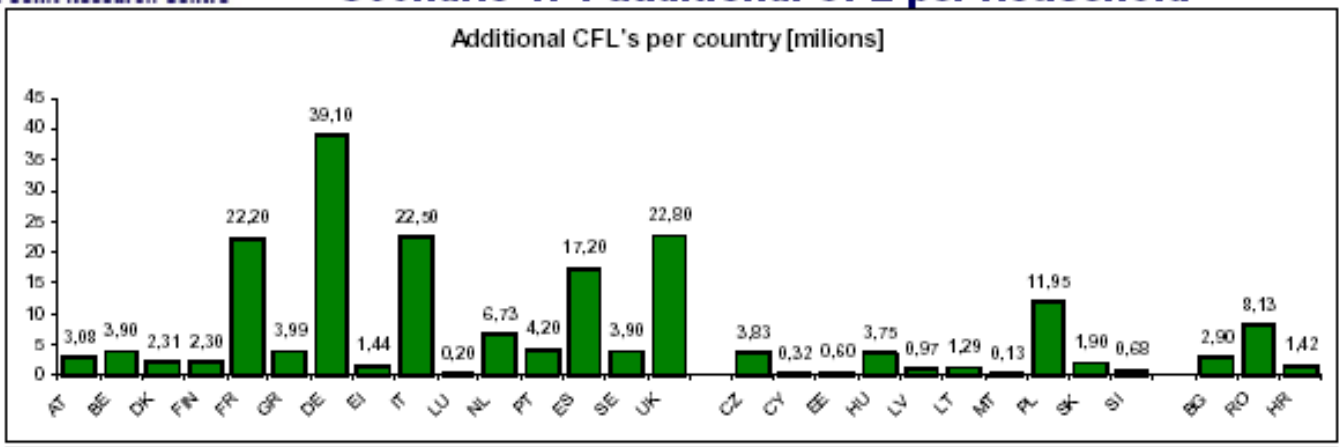
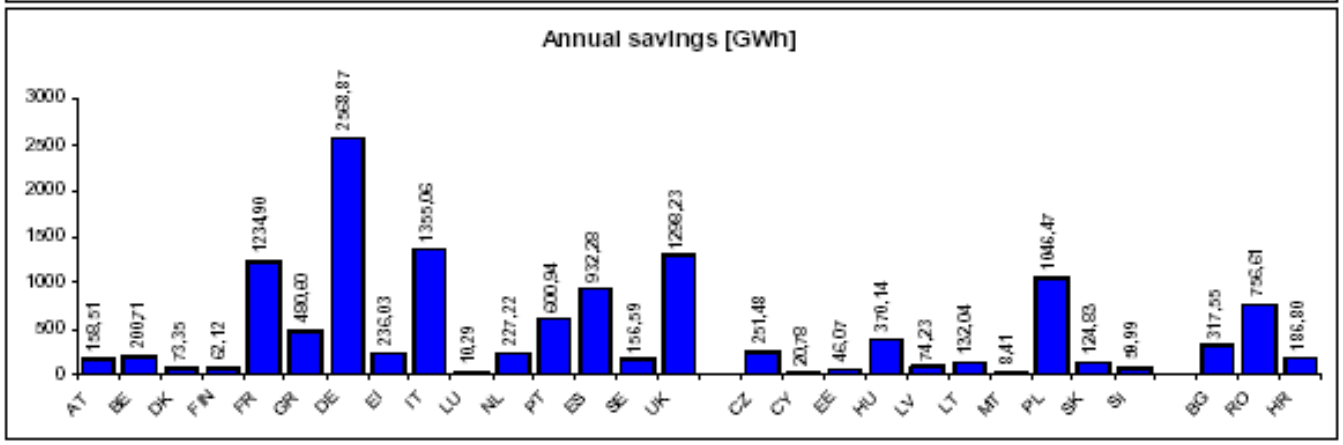
Scenario 1: 1 additional CFL per household





Conclusion

The national energy policy in Bulgaria is targeted towards maximal application of energy efficiency measures. High significance is given to the housing sector, including heat isolation of buildings and efficient heating.

The efficient residential lighting, however, at present is not included in different activities and programs.

The energy efficiency is a relatively new worldview and philosophy. It is a means for improving the quality of energy services at reasonable price for the population. As an example one can give the statement of the Australian government to take out of use inefficient incandescent lamps. Our country should also carry out policy for efficient, comfortable and economic lighting for the population.

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