

# *Promotion of Smart Grids Application in Energy Management and Environmental Protection through EPEEF's Activities*

*Environmental Protection and Energy Efficiency Fund  
Republic of Croatia*

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# Introduction - Environmental Protection and Energy Efficiency Fund

- The Fund was established in 2003 by the *Act on Environmental Protection and Energy Efficiency Fund* as an extra-budgetary Fund. Founder's rights and obligations on behalf of the Republic of Croatia are exercised by the Government
- The purpose of the establishment of the Fund was to ensure additional resources for the financing of programmes, projects and similar activities in the field of:
  - conservation, sustainable use, protection and improvement of the **environment** and
  - achievement of **energy efficiency** and the use of renewable energy sources.



# Introduction - Environmental Protection and Energy Efficiency Fund



The Fund has significant role in the realization of The Republic of Croatia's obligations as *member* of European Community adopted for achieving **EE and RES targets (20-20-20)**.

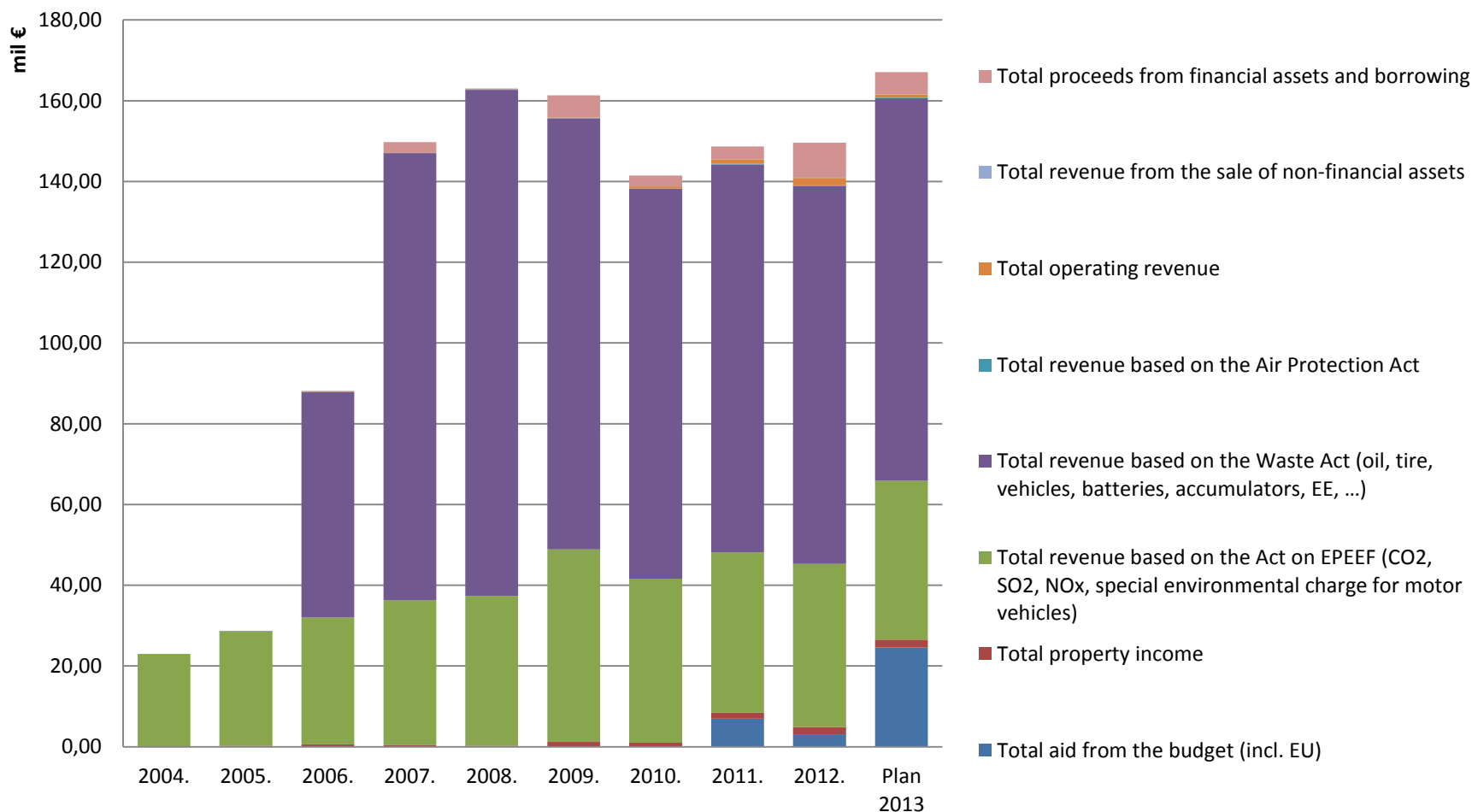
Scope of work in the area of energy efficiency (as defined by *Act on Fund* and *Act on End-Use Energy Efficiency*)

- **financial activities** – **financing EE and RES** projects and programmes, financial support for realization of the National Energy Efficiency Action Plans (NEAPs)
- **energy efficiency agency activities for Fund's resources beneficiaries** - monitoring and evaluation of effects and savings achieved by EE programs and measures for the Fund's resources beneficiaries, verification of the contribution of the Fund's investments into national EE targets achievement
- **intermediate body for the environmental protection and energy projects financed by the EU structural and cohesion funds**
- **national energy efficiency policy implementation** - in cooperation with the Ministry of Economy and Ministry of Construction and Physical Planning
- coordination of the Fund's activities implementation



# Sources of funds (2004 - 2013)

- The funds for the financing of the Fund's activities are mostly secured from earmarked revenues for environment use, environment pollution, special waste category management etc.





# Fund's beneficiaries

- Projects/programmes/measures for funding are chosen on calls for proposals
- Who may become the beneficiary?
  - local self-government units
  - companies and other legal entities
  - tradesmen and craftsmen
  - natural persons
- Requirements to be met by the beneficiaries
  - seat at the territory of the Republic of Croatia
  - investment of own resources in projects, programmes and similar activities
  - acceptance of terms for joint participation in co-financing
  - application for the use of the Fund 's resources
  - conclusion of agreement with the Fund on joint investment
  - meeting of other requirements defined by the call for proposals



# Means of allocation of funds

Allocation of funds is defined by

- The Statute of The Environmental Protection and Energy Efficiency Fund
- The Ordinance on conditions and means of allocating funds of the Environmental Protection and Energy Efficiency Fund and criteria and measures for evaluation of applications for allocation of Fund's funds
- Programme of small value subsidies

## Loan

- 0% interest rate, repayment period 7 yrs (grace period 2 yrs, payback period 5 yrs),
- up to 185.000,00 EUR and up to 40% of eligible investment costs of the project

## Interest rate subsidy

- up to 2% of the stipulated interest rate,
- up to 105.000,00 EUR

## Subsidy

- up to 26.000,00 EUR
- non- refundable funds!

## Donation

- preparation of studies and similar activities for non-profit associations and organisations,
- up to 21.000,00 EUR
- non- refundable funds!

## Financial aid

- only for local and regional self-governments (subsidy for public institutions)
- amount
  - up to 130.000,00 EUR approved by Director,
  - up to 1.300.000,00 EUR approved by the Management board
  - higher than 1.300.000,00 EUR approved by the Government
- percentage
  - up to 80% of eligible investment costs of the project at the areas of special state concern,
  - up to 60% at islands and mountain areas and
  - up to 40% in other areas
- non- refundable funds!



# Allocation of funds (2004 - 06/2013)



- The resources of the Fund are used for financing environmental protection and energy efficiency, according to annual Financial plan and Work programme.
- The Fund has approved funds in the amount of **EUR 828.8 million** (HRK 6.05 billion), for **4033 projects**, out of which:
  - EUR 824.7 million for 2 829 **environmental protection** projects
  - EUR 55.9 million for 1204 **energy efficiency** projects
- The Fund has approved **EUR 95.5 million** to companies for **562 contracted projects**, out of which EUR 71.4 million have been paid
- The Fund has approved **EUR 113.8 million** to **areas of special state concern** out of which EUR 50.6 million have been paid
- The Fund has approved **EUR 32.4 million** to **islands, as especially valuable environmental protection areas**, out of which EUR 10.9 million have been paid



# Plan for allocation of funds in EE, RES and energy management (2013 - 2015)

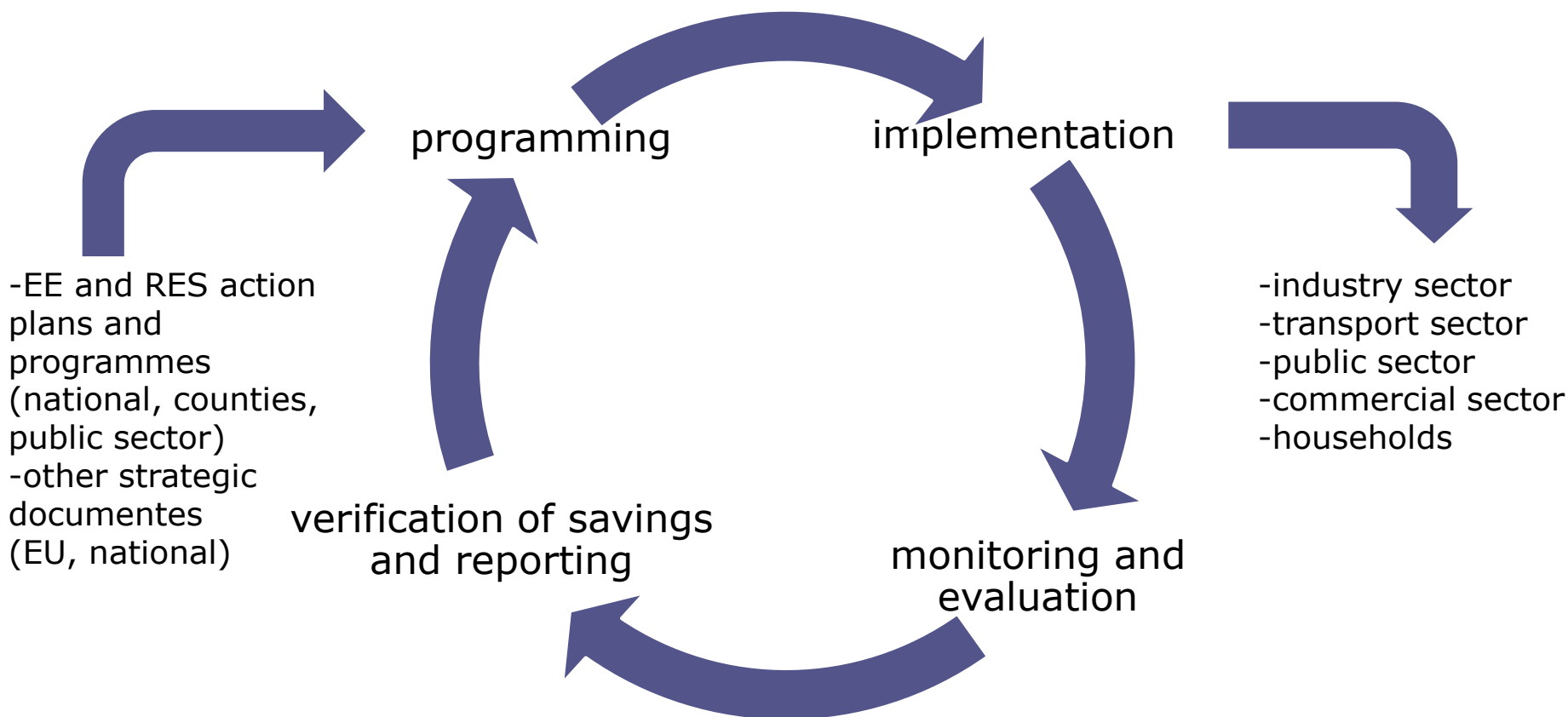


Energy efficiency programmes and projects	Planned funds (mil.EUR)
Improvement of energy efficiency	12,337
Utilisation of renewable energy sources	14,771
Sustainable building	36,266
Cleaner transport	2,866
Energy audits and demonstration activities	1,204
Educational, research and development studies	1,560
Other programs and projects	0,480
Guarantee fund	2,666
Promotion of energy efficiency on local and regional level	0,400
National energy efficiency policy implementation	0,280
International cooperation	1,426
Raising awareness on energy efficiency through informational and educational activities	0,970
<b>TOTAL</b>	<b>75,226</b>





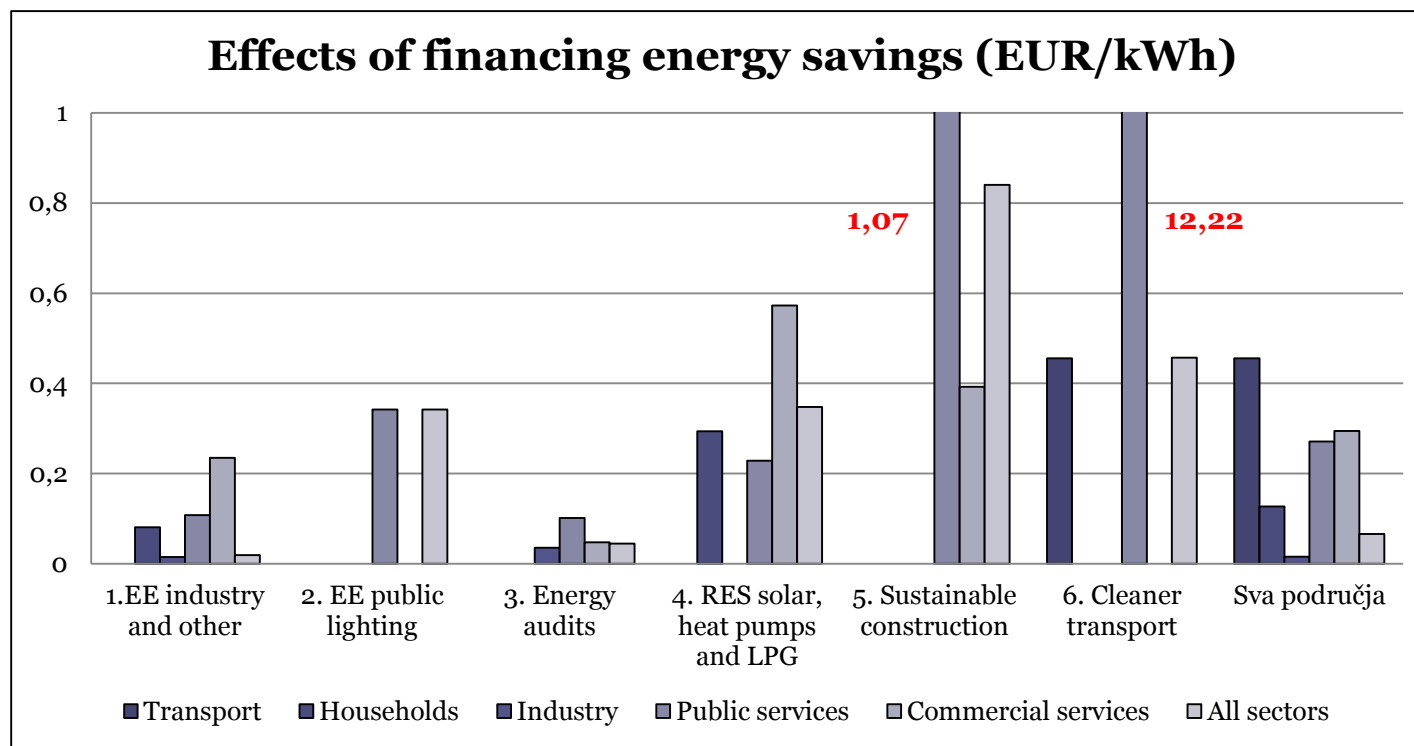
# Cycle of Fund's activities in EE, RES and energy management





# Effects of financing energy savings (EUR/kWh)

- 811 projects realized until the end of 2010



## Average values:

– transport	0,07 EUR/kWh
– households	0,46 EUR/kWh
– industry	0,13 EUR/kWh
– public services	0,02 EUR/kWh
– commercial services	0,27 EUR/kWh
– commercial services	0,29 EUR/kWh

**Minimum:** Industry EE projects 0,01 EUR/kWh

**Maximum:** Electrical vehicles 12,22 EUR/kWh

Public lighting 0,34 EUR/kWh

Sustainable construction 0,84 EUR/kWh



# Ongoing and planned activities in EE, RES and energy management



- Calls for proposals for EE and RES in all end-use sectors
- Calls for proposals for energy auditing and certification - buildings (public, commercial, households), industrial facilities
- Preparation of operational programmes for EE improvement in transport (e.g. Intelligent traffic lights, CarSharing scheme) and commercial sector
- Preparation of strategic EE programmes documentation (e.g. Energy efficiency industrial network programme)
- Ongoing international cooperation (UNDP Croatia, GEF, IBRD, The SmartGrids ERA-Net )
- Call for proposals for co-financing project costs in EU/ Intelligent Energy—Europe programme funded projects
- National promotional campaigns on EE in buildings and transport sector, promotion of RES in hotels and touristic camps
- Workshops and conference on EE, RES, energy management and environmental protection, Fund's achievements
- Monitoring, evaluation, verification and reporting on energy and financial savings in the Fund's projects beneficiaries



# Smart grids implementation

- National framework for Low-carbon development strategy till 2050 defines main measures for achieving low-carbon development:
  - Energy efficiency increase
  - Increase of energy production from RES (solar and wind power)
  - CCS technology (carbon capture and storage)
  - Energy storage systems
  - Development of decentralized systems grids
  - Use of biofuels and electrical vehicles in transport
- Smart grids are applicable in all listed and also in all end-use sectors!
- Examples of smart grids promotion in national legislation and strategic documents in EE
  - Act on end-use energy efficiency:
    - Public sector and Fund's resources beneficiaries are obliged to install smart metering systems (electricity, heating, water)
  - 2nd NEAP measures:
    - Promotion of electric vehicles, e-mobility and charging stations



# Smart grids promotion in EPEEF calls for proposals 2013



## **Public lighting** systems projects – eligibility:

- dynamic public lighting (luminance reduction in low traffic hours)
- remote control systems
- PV powered

Energy savings 30-50% (*expected*)



## **Sustainable building** projects – eligibility:

- low-energy/passive/zero-energy buildings
- RES systems
- heat consumption allocators and radiator thermostat valves – smart metering
- intelligent buildings – automation systems for control of lighting, HVAC, appliances, security locks and other systems

Energy savings 40–80 % (*expected*)



# Smart grids promotion in EPEEF calls for proposals 2013



- **Cleaner transport** projects - eligibility
  - 0%-interest loans and subsidies
  - Purchase of electric vehicles:
    - mopeds
    - private vehicles up to 8 seats
    - light cargo vehicles up to 3,5 t load
    - buses
  - Building charging stations
- Previously realized – purchase of 8 small electric vehicles for national parks Brijuni and Mljet





# Smart grids promotion in EPEEF calls for proposals 2013



- RES projects – eligibility:
  - biomass projects (industrial biomass boilers, CHP, district heating, pellets production plants, biodiesel production plants, biogas plants etc.)
  - solar power projects (thermal collectors and PVs)
  - wind power projects (project development and construction)
  - geothermal power and other RES projects



PV installation example – software generated report on savings



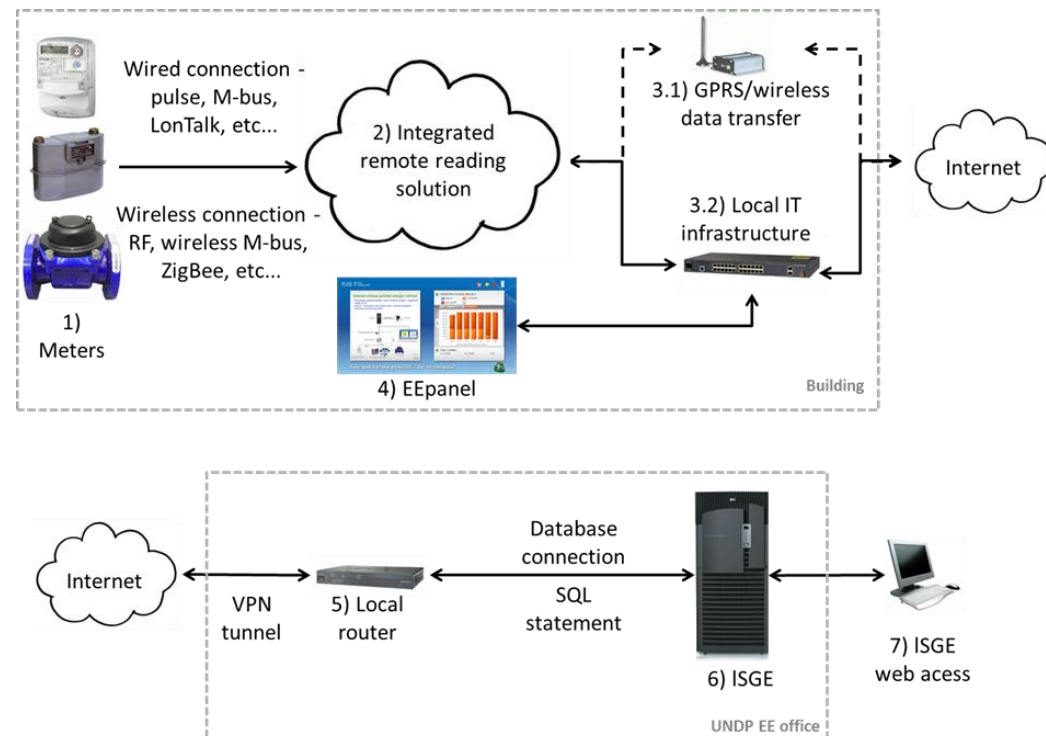
# Smart grids promotion in EPEEF international cooperation

Energy Efficiency in Public and Residential Buildings (2006 – 2013)  
Ministry of Economy/Ministry of Construction and Physical Planning, UNDP  
Croatia and EPEEF, cca 12 mil. EUR

- Project *Systematic Energy Management in the Cities and Counties in Croatia (SGE)*
- Programme of the Government of the Republic of Croatia *House in Order (HIO)*

## Smart metering system

- 41 location with 251 meters for energy and water consumption
- public buildings (ministries, hospitals, universities, etc.)
- EPEEF building (11/2010)
- ISGE web access – monitoring, analysis, reports, alarms







# Smart grids promotion in EPEEF international cooperation



**The SmartGrids ERA-Net – 3rd call for applied research projects**  
*partners: Croatia, Denmark, Poland, Norway, Sweden and Turkey*  
*budget: 3.200 mil. EUR*

## Focus areas:

- Efficient operation of active distribution networks
- Smart retail and consumer technologies and services
- ICT tools for smart grids
- Interface between the grid and the end-users
- Storage and balancing

EPEEF – national funding partner

[www.eranet-smartgrids.eu](http://www.eranet-smartgrids.eu)

### Environmental protection and energy efficiency Fund

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okolisa, posebnim naknadama koje plaćaju vlasnici i ovlaštenici prava na vozila na motorni pogon, propise koji uređuju ustrojstvo, djelatnost i način rada Fonda za zaštitu okolisa i energetske učinkovitosti te podatke o prikupljanju i korištenju sredstava kojima raspolaže Fond, za financiranje projekata, programa i drugih aktivnosti u području zaštite okolisa i energetske učinkovitosti.

Rad Fonda je transparentan i javan. Ako imate pitanja o radu i poslovanju Fonda možete ih postaviti, a službenici Fonda odgovorit će na svako vaše pitanje.

### SmartGrids ERA-Net objavljuje poziv za primjenjive istraživačke projekte

V A Z N O !!!

OBAVJEST PONUDITELJIMA - PRODULJUJE SE ROK ZA DOSTAVU PONUDA DO 24.LIPNJA 2013. GOD. PO OBJAVLJENIM NATJECAJIMA FONDA

- IZMJENA I DOPUNA NATJECAJA - Sufinanciranje projekata čistijeg transporta
- IZMJENA I DOPUNA NATJECAJA - Sufinanciranje projekata energ.ucinkovitosti i ekološke jav.rasvjete
- IZMJENA I DOPUNA NATJECAJA - Sufinanciranje projekata energ.ucinkovitosti u industriji
- IZMJENA I DOPUNA NATJECAJA - Sufinanciranje projekata korištenja obnovljivih izvora energije
- IZMJENA I DOPUNA NATJECAJA - Sufinanciranje projekata organizacija civilnog društva (udruga) u području ener.ucinkovitosti i korištenja obnovljivih izvora energije
- IZMJENA I DOPUNA NATJECAJA - Sufinanciranje projekata organizacija civilnog društva (udruga) u području zaštite okolisa i prirode

NATJECAJ za korištenje sredstava Fonda radi sufinanciranja projekata zadruga hrvatskih branitelja radi sufinanciranja projekata zadruga hrvatskih branitelja u području zaštite okolisa

- Upute za prijavitelje
- Izjava o partnerstvu
- Opisni obrazac
- Obrazac proračuna

Održan Drugi Zeleni forum o zaštiti okolisa u Istri  
Zeleno Srce Istre

Odluka o izboru kandidata za radna mjesta pod rednim br. 6, 7 i 9

Odluka o odabiru korisnika sredstava Fonda - sufinanciranje projekata energetske učinkovitosti u zgradarstvu

Pitanja i odgovori



AMBALAŽNI OTPAD



OTPADNE GUME I VOZILA



OTPADNA ULJA, BATERIJE I AKUMULATORI



EE OTPAD



GOSPODARENJE OTPADOM KOJI SADRŽI AZBEST

POTICANJE ENERGETSKE UCINKOVITOSTI U HRVATSKOJ



SmartGrids ERA-Net

NATJECAJI FZOEU



# Conclusion

- Key aspects in creating a good investment climate for RES, EE and smart grids in Croatia:
  - Positive perception of RES, EE and smart grids
  - Strong interest and initiative from municipalities and regions
  - Increasing number of entrepreneurs (private companies)
- Measures undertaken in order to improve the investment climate:
  - Legal framework
  - Fund as a key financing institution supporting public and private sector
- Main challenges in raising project finance for RES, EE and smart grids projects:
  - Legislative and institutional barriers
  - Public perception (RES, EE and smart grids as income provider not spender)
  - Long administrative procedure
  - Lack of financing instruments
  - General lack of financial resources (public and private sector)
- Experiences with national or international mechanisms for project financing in Croatia:
  - Strong role and good results of national Fund
  - Promising start of using EU funds and schemes
  - Questionable feasibility of other international donations
- Cooperation and dissemination of lessons learned and achievements with EU members and states in region



# THANK YOU FOR YOUR ATTENTION

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