



**ZEZ**

ZELENA ENERGETSKA  
ZADRUGA

# Energy coops in Croatia

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# Green energy coop

**Energy coop providing consultancy to other energy coops  
and their RE projects**

**Energy coop starting up RES based electricity supply in  
partnership with other coops and RES producers**

**Our vision is to include citizens into development of  
energy sector and energy transition in Croatia and  
Europe**





## **ABOUT US!**

**GEC founded in Nov 2013**

**22 experts from various backgrounds in energy sector:**

Electrical, machinery, physics and ecology engineers and PhDs  
Economy, law, philosophy and sociology experts  
with cumulative experience on many RES and EE projects

**Average age:** 31 years

**Experience from renowned companies and institutions in Croatia:**

Elektroprojekt d.d., RP Global, HEP d.d., Končar,  
Fakultet elektrotehnike i računarstva (FER), UNDP





## **WE COOPERATE WITH:**

### **Locally**

Municipalities and Local Action Groups

Energy coops

Entrepreneurs in agriculture, tourism and RES sector

Coop for ethical financing / ebanka



### **Internationally**

REScoop.eu and individual foreign REScoop's

Horizon2020 partners – Joanneum Research, Ecologic Institute, Center for European Policy Studies, Ecosoluzioni, IFAS, CEDER, AVEBIOM, FEBEA, etc.





## **Services GEC**

**Foundation of other energy  
coops**

**Sustainable energy  
development strategies**

**Project management and  
project finance**

**International projects /  
HORIZON2020**





## **Situation with RES in Croatia:**

- No governmental support for PV – FITs stopped after 50 MW signed, high connection costs;
- FIT for wind energy stopped after 400 MW installed, announced 340 MW more to be allowed by 2020;
- FIT stopped and subsidies limited for bioenergy projects;
- New financing and business models needed that would bring renewables directly to the market – and bypass the dependence on political will to subsidize;





[www.energetskezadruga.hr](http://www.energetskezadruga.hr)

## Energy cooperatives in Croatia:

**Energetska zadruga otoka Krka** – energy independent island Krk

**Energetska zadruga Kaštela** – solar power plant on school and households, biomass production

**Braniteljska zadruga Kapela** – biomass production

**Zelena energetska zadruga** – setting up other energy cooperatives, green supply, agriculture and tourism

**Zadruga za dobru ekonomiju** – micro biogas, houses made of straw, DIY wind power plants, small PVs

**Energetska zadruga Novi otok** – PV systems and EE for small rentiers and agriculture producers on the island

**Biogas cooperatives** – several farmers working together on biogas production





# KRK

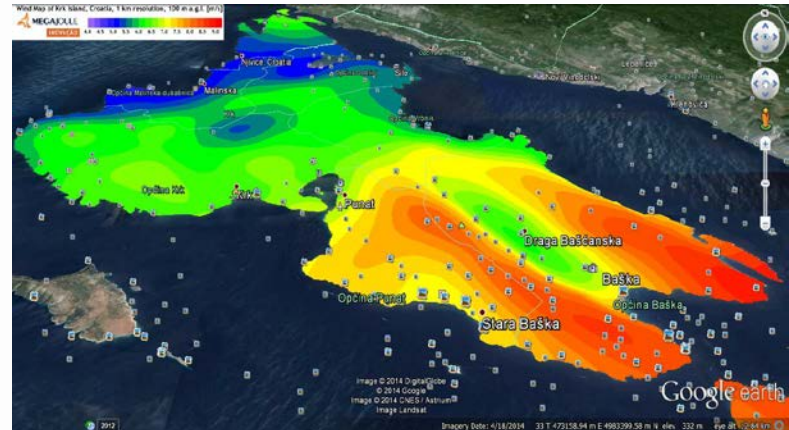
- Largest island in Croatia, 17.000 inhabitants in winter and 8 times more in summer
- Strategy – zero-CO2 emission island by 2030
- Cooperative members – Krk town, all municipalities, NGOs, citizens; 300 members interested to join with first projects funded
- First in Croatia started with waste recycling, best results
- Started working on many feasibility studies and development for RE projects







# KRK



## WORK IN PROGRESS

- Biomass and biogas power plant (180-340 kW)
- PV – net-metering (200 roofs) plus several MW ground mounted
- LED – streetlights
- EVs and 9 charging stations in 2016
- Wind energy (36 MW pre-feasibility study)
- Pumped storage hydro





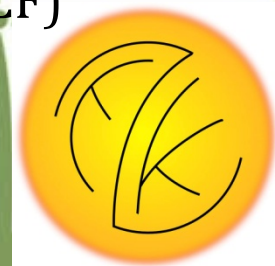
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<http://igg.me/at/solar-school>



## **PV/LED project:**

- Investment: 63.800 €
- Electricity savings: 9.580 €/y
- Simple payback: 6,6 y
- ESCO signed for 5 y period
- LED: 474 lights, installed power 9,4kW instead of 546 lights, installed power 31,3kW = 19.604kWh instead of 65.862kWh
  - PV: 25kW
  - 20.000€ own funds from crowdfunding (80.000\$ overall CF)
- Signed net-metering contract on the market

**Energy coop  
Kaštela**







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<http://igg.me/at/solar-school>



## WORK IN PROGRESS

- Usage of agricultural biomass
  - Olive stones
  - Olive pomace
- Net-metering PV and EE for households

**Energy coop  
Kaštela**





# Energy coop Novi otok

## WORK IN PROGRESS

- EE measures and small RES for rentiers
- EE measures and small RES for agriculture producers – mainly olive oil and wine producers
- EV and charging stations



novi otok





## PROJECT OBJECTIVES

Implement RES, EE and environmental protection measures in camping sector

- Solar water heating
- PV installations
- Waste water treatment
- Waste separation
- Composting
- Biomass usage
- Water and energy savings
- LED lighting







## ENERGY EFFICIENCY IN TOURISM

Implement RES and EE measures in private apartments and small hotels sector

- Solar water heating
- PV installations
- Heat pumps
- Biomass usage for heating
- Water and energy savings
- LED lighting
- Smart energy management





# AGRIFFICIENCY

## HOW CAN FARMERS:

- Save energy and water?
- Use their waste?
- Secure financial closure for projects?



## PROFESSIONAL HELP:

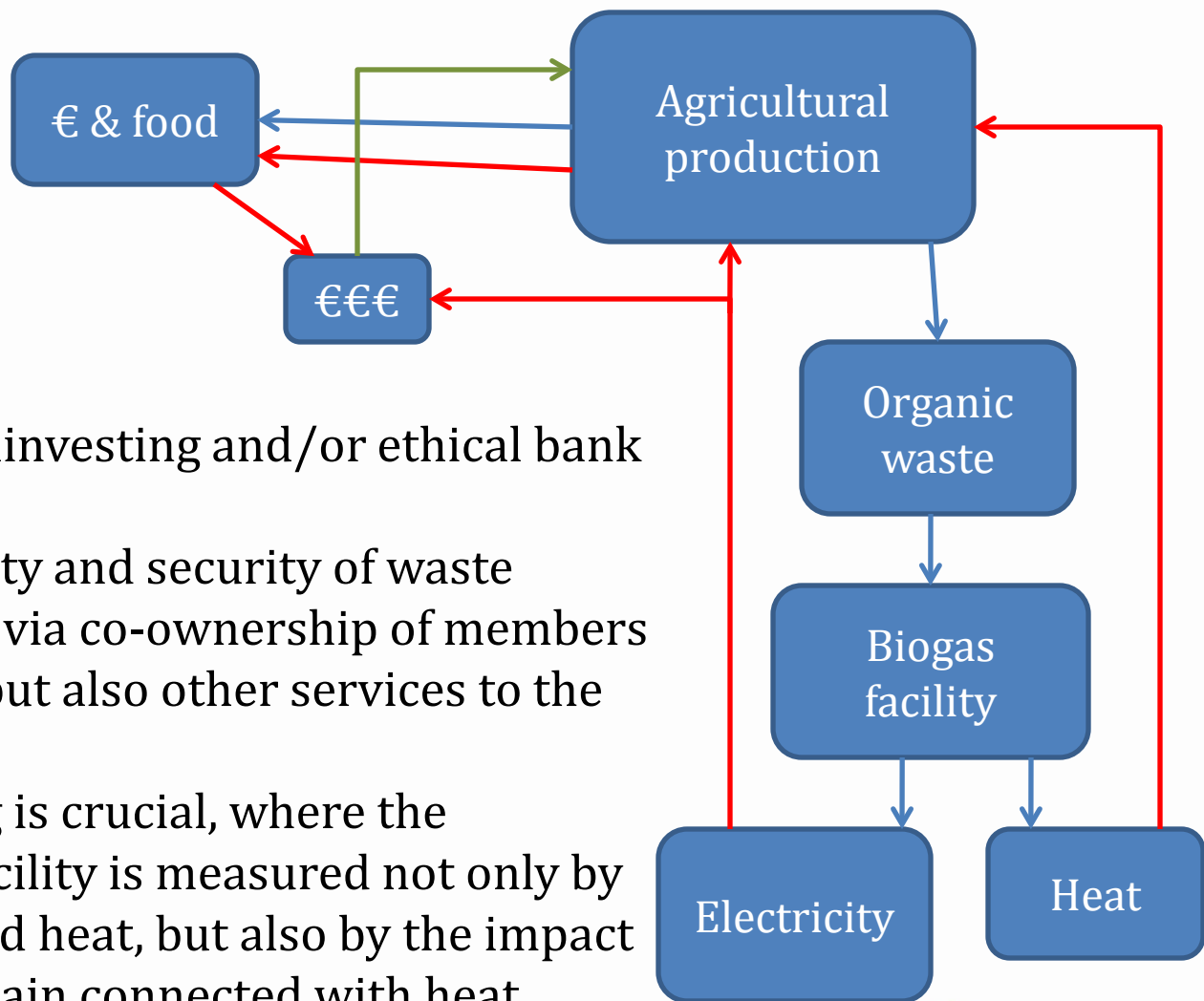
- Low-cost feasibility studies and technical documentation
- Application to EU funds
- Sustainable turn-key projects



## FINANCIAL SUPPORT:

- Financial closure for projects
- Efficient financial services

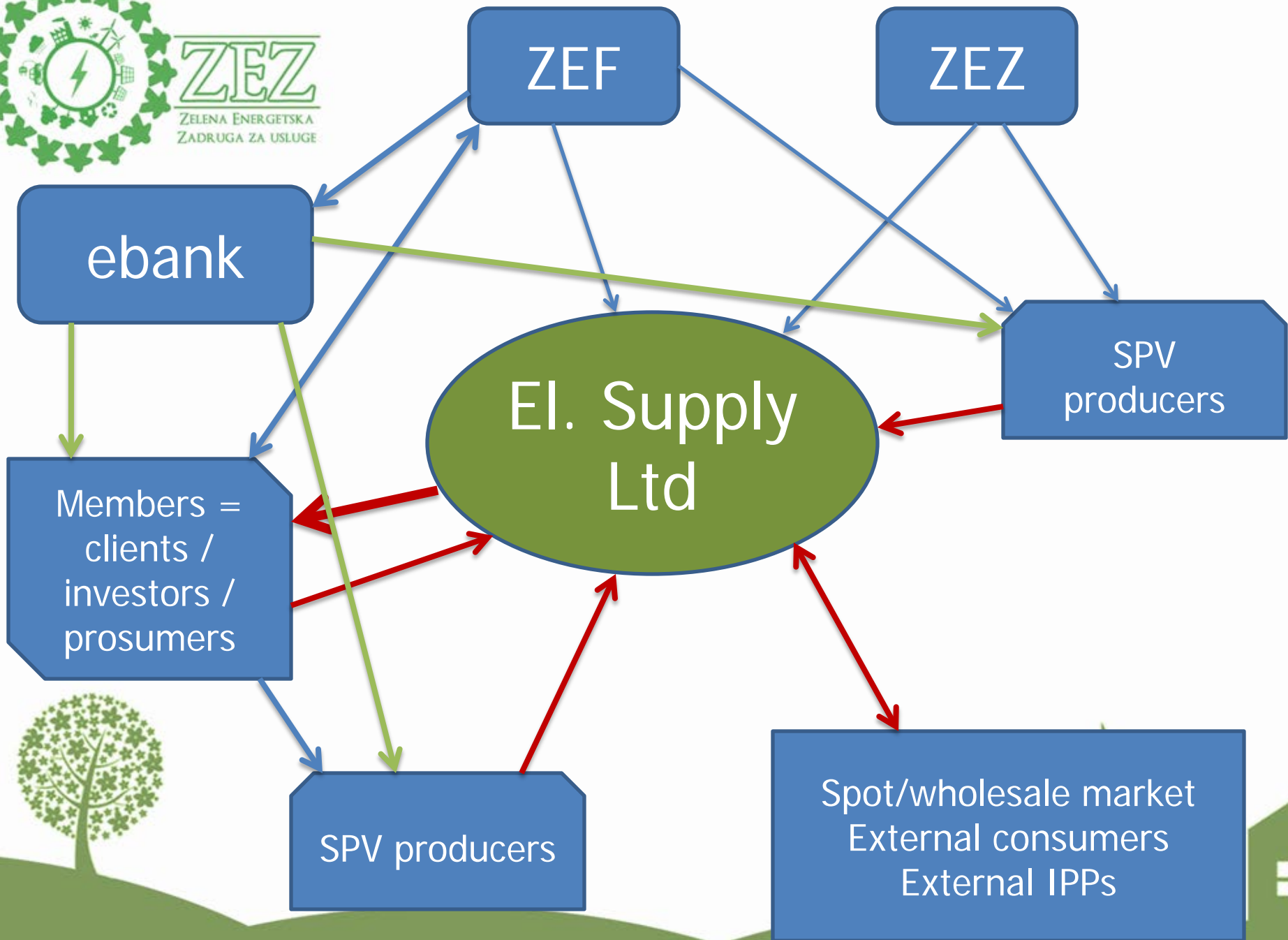




## Biogas

- Equity based crowdinvesting and/or ethical bank financing
- Financial profitability and security of waste supply are enhanced via co-ownership of members who provide waste, but also other services to the facility
- Integrated planning is crucial, where the profitability of the facility is measured not only by sales of electricity and heat, but also by the impact in the whole value chain connected with heat usage, fertilizers and waste treatment in agricultural processes







## Coop for ethical financing

- **Ethical bank** is transparent, democratic organization based on solidarity which, to it's members, offers :
  - Most competitive financial conditions
  - Perpetual consultancy support in business
  - Actively lowers risks through synergy of economy sectors
- Ebank is ethical development bank owned by it's clients whose primary goal is to pursue higher quality of life for it's members
- Criteria for project financing: financial, ecological and social sustainability



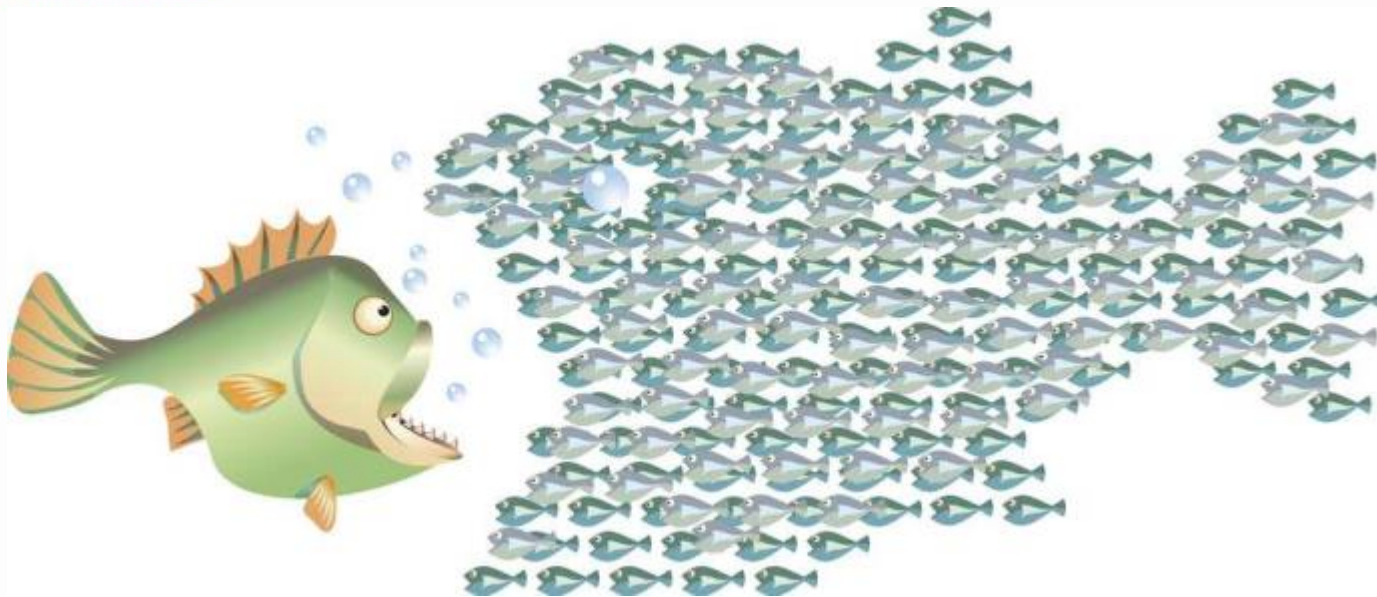




## Coop for ethical financing

- Low interest rates (<4%)
- Best presence on the field through a wide network of coop members (including municipalities, development agencies, etc.)
- Individual approach and understanding clients needs
- Consultancy services and support to members
- Without hidden fees
- Flexibility with collateral and guarantees
- International cooperation (FEBEA, EIF, BCOE,...)
- Innovative models of development financing – e.g. encourages savings through crowdfunding





**HVALA LIJEPA!**  
**THANK YOU!**  
**DANKE!**

