Business models, ownership

Josip Beber, Green energy cooperative

Green Energy Cooperative

Key partners

Partners for hardware and software

Financial partners

Grid operators

Key activities

Installing

Limited engagement

Key resources

Photovoltaics

Energy storage system

Digital platform

Knowledge

Finances

Value propositions

Environmental benefits

Energy independence

Cost savings

Social energy

Customer relationships

Incumbent societal structures

Geographical locality

Channels

Digital platform

Incumbent societal structures

Peer effects

Customer segments

Local grassroots movements

Early birds

Local but benefits through scale

Cost Structure
Fixed and variable costs

Combination of cost and value driven

Revenue Streams
Flexibility market

Fixed and variable revenues

https://www.diva-portal.org/smash/get/diva2:1588437/FULLTEXT01.pdf

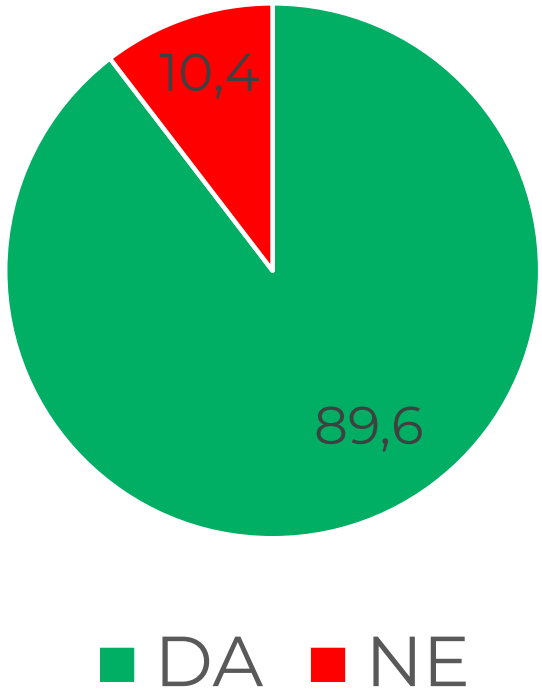
Business Models for Energy Communities A Case Study of the Swedish Market Robin Lindblom and Eric Hartmanis

First crowdinvesting model for Solar Power, Croatia

- CF Considerably easier to implement compared to building retrofit
  - Ownership issue – who owns the building vs. who owns the PV?

- Already existing examples in Croatia
  - Energy cooperative ZEZ
    - Crowdlending model (3-4% interest rate)
    - 2 projects, 30 kW each

Are you interested to invest in renewable energy projects?



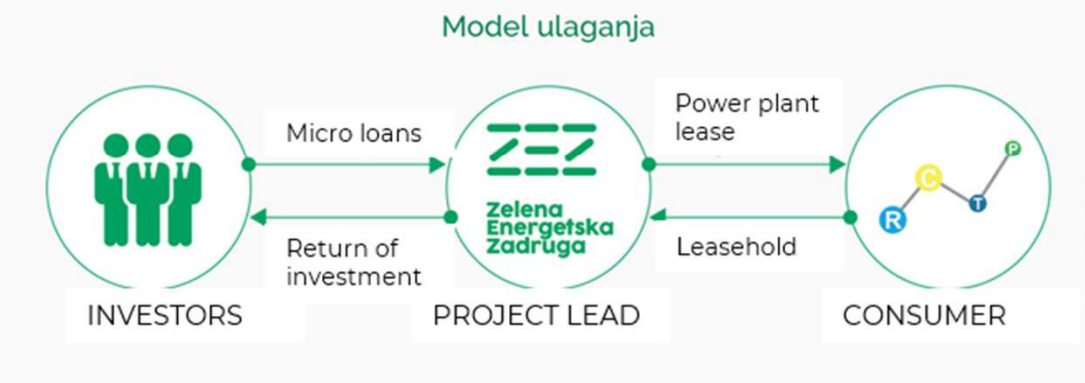
Question from survey conducted by ZEZ on citizens will to invest in renewable energy (late 2017)

First crowdinvesting model for Solar Power, Croatia

RENEWABLES

Funds raised for Croatia's first renewable energy crowdfunding project

The model



Solar district :

- 30kW Technology park
- 30kW Libary

Pilot site: technology

2018

10 kWh battery installed –
Compile project

Key figures

Annual savings: 34.796,00 kn/annum

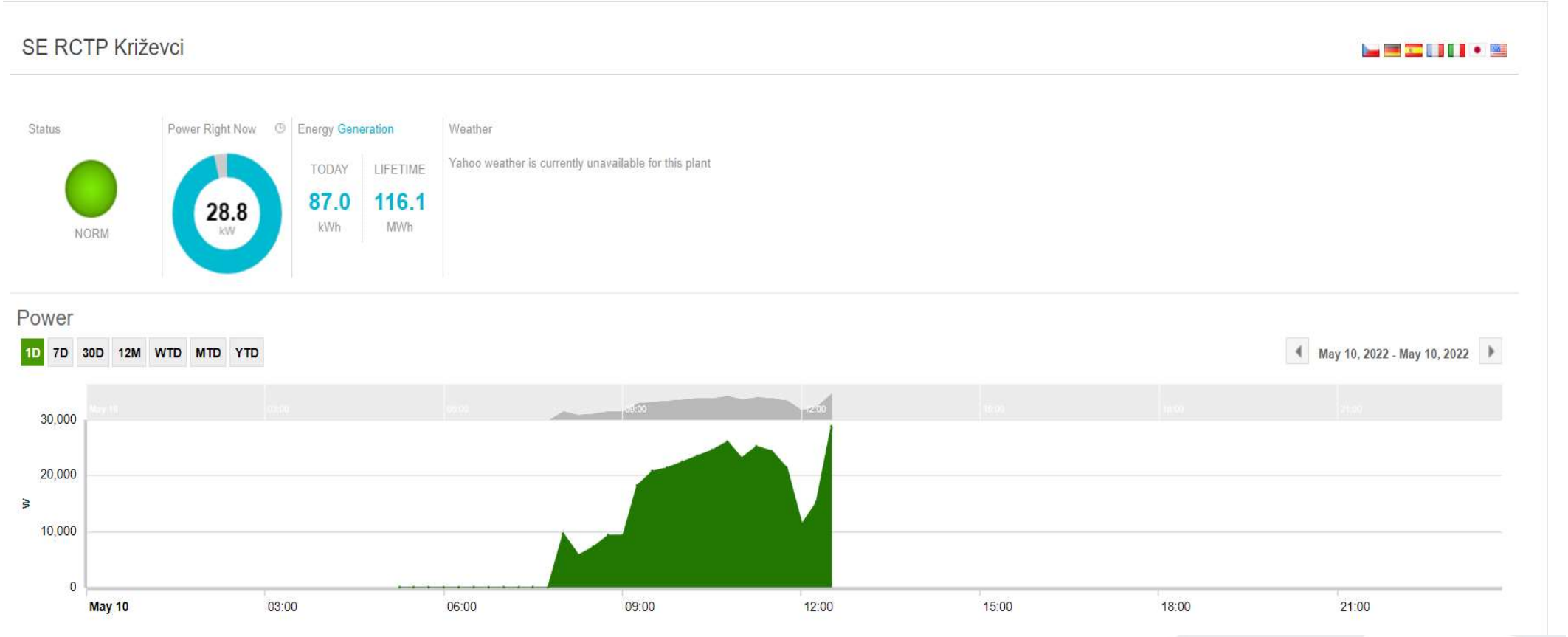
Power: 39,3 kW

Investment: 300.000,00 kn

Number of investors: 51

Using the energy for self-consumption

Today – managed to produce enough energy for one US avarage household or 1,5 EU households



Rekapitulacija – godišnji izvještaj 2019

	Potrošnja objekta		
	Ref./analiza	**2019.**	**jedinica**
Potrošnja na lokaciji (uk)	149.431	156.763	kWh
Potrošnja na lokaciji (VT)	89.561	86.295	kWh
Potrošnja na lokaciji (uk)	143.876	143.123	kn
Potrošnja na lokaciji (VT)	111.040	37.192	kn
	Proizvodnja FN elektrane		
	Ref./analiza	**2019.**	**jedinica**
Proizvodnja (uk)	43.882	44.558	kWh
Proizvodnja (vl.)	43.882	41.499	kWh
Proizvodnja (u. m.)	0	3.059	kWh
Prosječna cijena (vl.)	0,79	0,74	kn/kWh
Prosječna cijena (u.m.)	0,00	0,28	kn/kWh
Cijena ukupne uštede (vl. + u.m.)	34.796	31.562	kn

Rekapitulacija – godišnji izvještaj 2020

	Potrošnja objekta		
	Ref./analiza	**2020.**	**jedinica**
Potrošnja na lokaciji (uk)	149.431	114.305	kWh
Potrošnja na lokaciji (VT)	89.561	55.533	kWh
Potrošnja na lokaciji (uk)	143.876	100.936	kn
Potrošnja na lokaciji (VT)	111.040	25.549	kn
	Proizvodnja FN elektrane		
	Ref./analiza	**2020.**	**jedinica**
Proizvodnja (uk)	43.882	44.960	kWh
Proizvodnja (vl.)	43.882	40.721	kWh
Proizvodnja (u. m.)	0	3.969	kWh
Prosječna cijena (vl.)	0,79	0,76	kn/kWh
Prosječna cijena (u.m.)	0,00	0,29	kn/kWh
Cijena ukupne uštede (vl. + u.m.)	34.796	32.183	kn

Conclusions

Weather variation is visable (+/-15%) on yearly production of PV.

Insurance is about 200-300 EUR/year

Suitable BM for buildings with similar consumption and energy price.

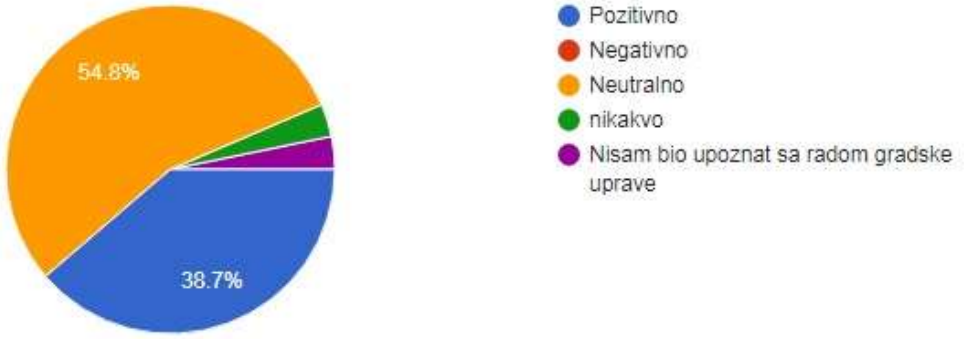
Buildings with 100.000 kWh consumption or more.

What happend right after?

- Klik – energy cooperative (50 interested in solar and scaling up)
- Consul participatory platform & Magda gardens (urban gardens)
- Funding non-integrated solar power plant 6 MW (at least one 1MW by citizens); using water protection area (not suitable for agriculture); cities
- Chekcing the geothermal potentail for district heating

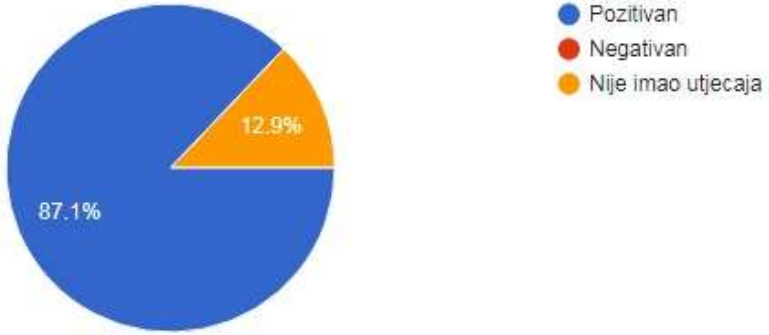
Kakvo ste mišljenje imali o gradskoj upravi grada Križevci prije kampanje Križevački sunčani krovovi?

31 responses



Kakav utjecaj je imao projekt Križevački sunčani krovovi na vaše mišljenje o trenutnoj gradskoj upravi grada Križevci?

31 responses



Križevački laboratorij inovacija za klimu

klik

ENERGETSKA ZADRUGA
KRIŽEVCI

Cooperative

Green Energy Cooperative

Green Energy Cooperative

Green
Energy
Cooperative

Green
Energy
Cooperative

How do you build your communities ?
Partnering up with region, cities and citizens

Good energy tour

On the sunny side platform

Solar club

Partnering up with region, cities and citizens

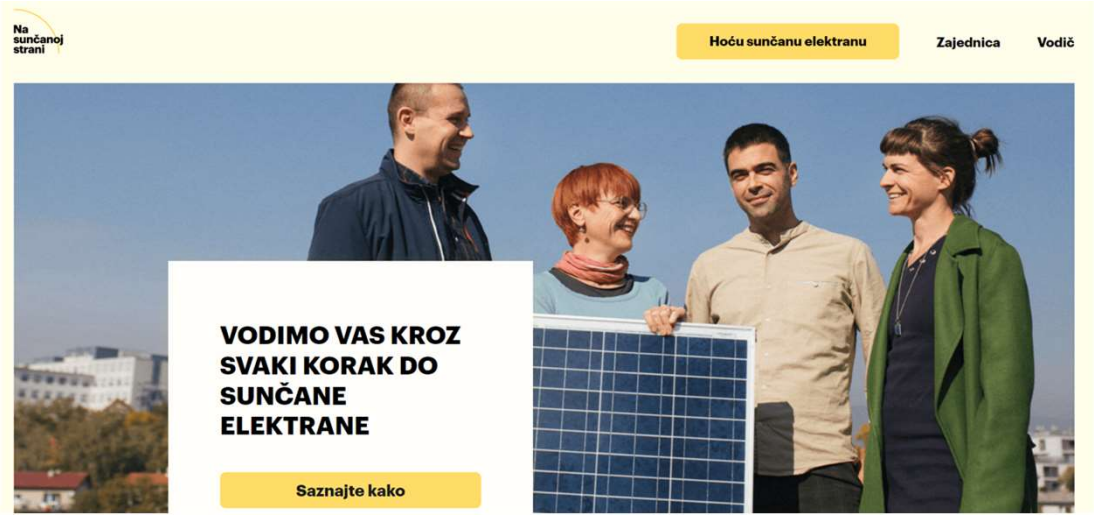
Good energy tour

- National campaign to promote solar for households.
- Education opportunities for **+1000** citizens of **22** Croatian cities.

Partnering up with region, cities and citizens

On the sunny side platform

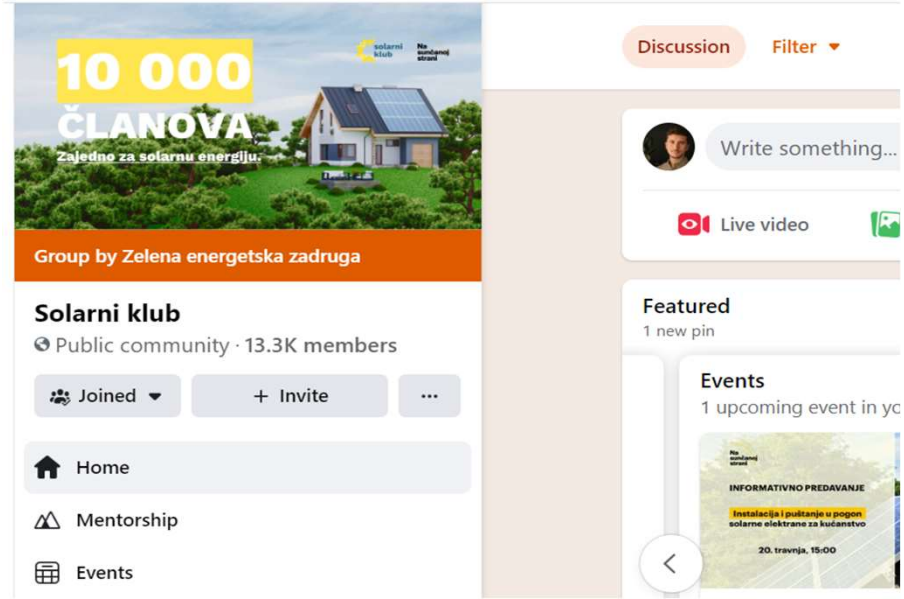
- 1.800+ citizens supported in 12 months through website and Call center - Sunny Call
- Service to support small PV for citizens



Partnering up with region, cities and citizens

Solar Club

- CREATOR OF „SOLAR CLUB” +10.000 MEMBERS OF FACEBOOK GROUP - exchange of experience with experts and other citizens who utilized solar system



Partnering up with region, cities and citizens

Creative competition

CREATIVE COMPETITION ON SOLAR

2021

- 5x PV up to 3kW
- 17x main eletrical projects

Fotografija snimljena na krovu obiteljske kuće sa krovom koji je prilikom izgradnje, deset godina prije, pripremljen za montažu fotonaponske elektrane. Daljnji razvoj ovisi o poticaju kako bi ukupna investicija prešla u isplativu kategoriju... Prijedlog naziva fotografije bi bilo -spojimo se na Sunce rađe nego na termoelektranu. Istovjetna fotografija se može ponoviti kad malo zazeleni priroda [...]

2030.
je danas

Djecu, od malenih nogu, učimo o važnostima izvora obnovljive energije. Na zanimljiv način potičemo svijest o drugačijem načinu dobijanja energije. Malenima je to veoma neobično i zabavno te oni potom informacije, igrom, šire dalje među svojim vršnjacima. Frcaju iskre topline i znanja na sve strane jer energija malenih je nešto poput solarne – zanimljiva, svijetlji, [...]

2030.
je danas

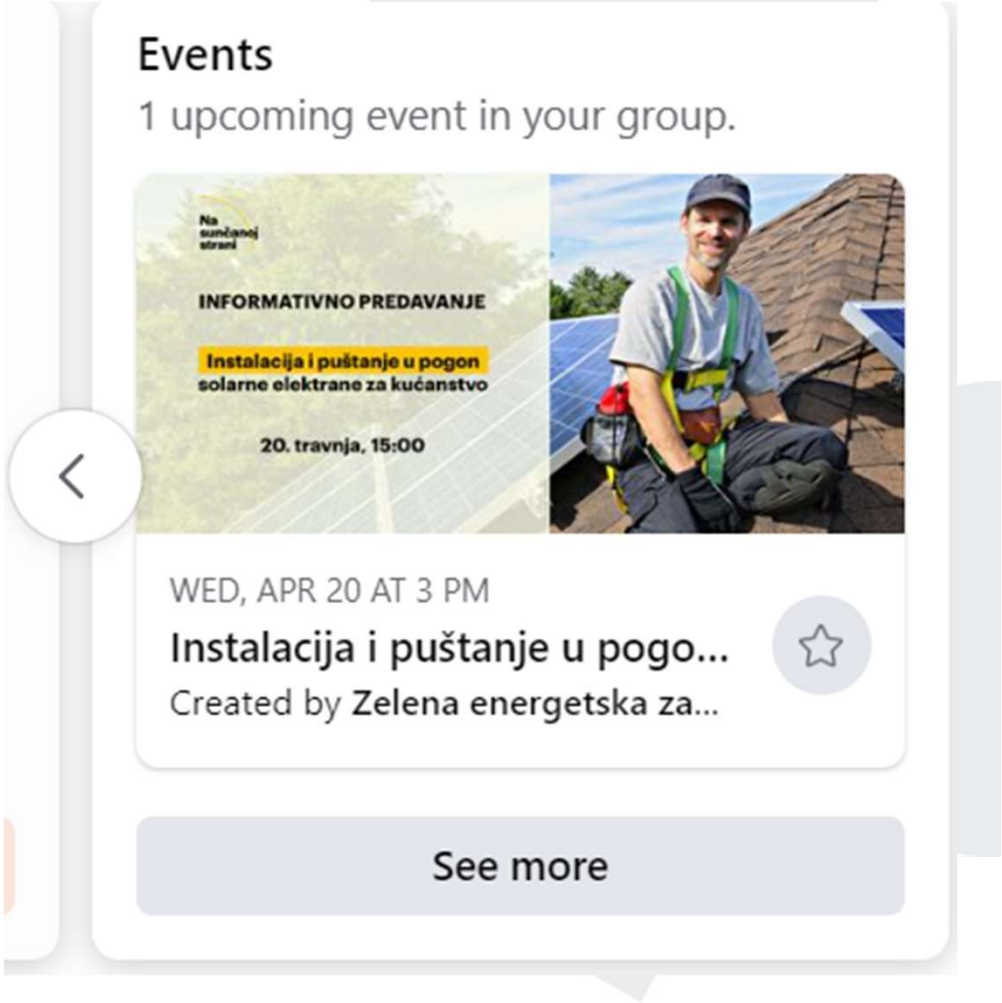
2022

- 10x people to get roughly 3.000 EUR for their solar powerplant

Partnering up with region, cities and citizens

Professional educatioan and webinars

- Started webinar series on how to install small solar power plant on household
- Topics: sizing, administrative proceduers, equipement, laws and sublaws, new opportunities etc.



Implementation of „new” technologies/concepts

Implementation of new technologies/concepts and choices your fellow humans will make are emotional and rooted in their history. So use sentiment, history and examples when explainging.

Meaning:

- In some cases saving even 100 EUR/year people wont be motivation enough
- have experts in social sciences

Thank you!

Zelena Energetska Zadruga
Solarni klub

josip.beber@zez.coop

Green Energy Cooperative