Innovative financing and business models for RES

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• Why innovative financing and business models to finance RES?
• Energy cooperatives
• Green energy suppliers
• RES + ESCO
• Crowdfunding for RES
• Net metering / net billing
Barriers to RES

- Administrative barriers
- Technical and technological barriers
- Market barriers
- Financial barriers
Paradigm shift

Democratization of energy sector
Large power utilities not fully recognized RES – old school thinking prevails
10 largest EU power utilities had only 4%* of generation from RES in 2014 (without large hydro)
Citizens very interested to invest

*Locked in the past, Greenpeace, 2014
THE PROBLEM:

Picture credits:
http://www.b4bschwaben.de/cms_media/module_img/202/10/129_1_lightbox_Atomkraftwerk_fotolia.jpg,
http://www.aukeva.com/blog/wp-content/uploads/2012/06/Real-estate-investment-opportunities-300x238.png
Energy cooperatives
Germany

Renewables in the hands of the people
Ownership of renewables installed capacity in Germany, 2010

Source: www.unendlich-viel-energie.de

The Big Four energy suppliers: 6.5%
Other energy suppliers: 7%
Industry: 9%
Investment funds and banks: 11%
Project firms: 14%
Other: 1.5%
Private individuals: 51%
Farmers: 11%

Total installed capacity 2010: 53 GW
Denmark - 70% wind power plants co-owned by energy cooperatives and farmers
GÜSSING / SCHONAU
Organized 20 seminars across Croatia, developed web site, Manual on setting up energy coops;

International conference „100% renewable energy on islands” in cooperation with REScoop project;

As a result in 2013, ten energy coops started in Croatia

All energy coops are in early stage, and new financing and new business models needed;

Focus of cooperatives: biomass, PV, electro mobility, biogas, wind, energy efficiency in buildings...
Energetske zadruge

Što su energetske zadruge?
Energetska zadruga je usmjeren hrvatskih lokalnih a氛围 (jedinstvena organizacija) koji je zajedno razvijanje projektovanja i obnovljivih izvora energije. Zajedničko rješenje energetske koalitsije se razvija i povećava uključenost lokalnih zajednica.

ULAGANJE U ODRŽIVI RAZVOJ
Obnovljivi izvori energije kao

ENERGETSKE ZADRUGE

Take part in the European energy revolution
www.energetskezadruge.hr
Crowdfunding is a public call via the Web 2.0 with the aim to mobilize financial resources for a certain project with and without returns. – Karsten Wenzlaff
• In 2014 - **16.2 billion USD collected worldwide**; 167% rise from previous year (in 2013 - **6.1 billion USD**)
• In 2015 – **35 billion USD** (estimation)
• Expected to grow to **100 billion USD** in 2025 (World Bank)

Get ready to get funded

[Visit citizenergy.eu](http://citizenergy.eu) to take part in the European energy revolution
€ 1.3 million in 13 hours by selling 6,648 shares to 1,700 Dutch households
Kaštel Lukšić

Indiegogo: 10,000 USD; total collected: 115,000 USD

citizenergy.eu
RENEWABLE ENERGY CROWDFUNDING MAP

USA
- Divvy: Since 2014, 4 projects, $115,500 raised
- Clean Reach: Since 2014, 6 projects, $5,980 raised
- CollectiveSun: Since 2015, 5 projects, $32,781 raised
- RE-Volv: Since 2011, 3 projects, $111,746 raised
- SunFunder: Since 2011, 21 projects, $437,500 raised
- MOSAIC: Since 2013

UK
- Abundance: Since 2009, 14 projects, €15,857,783 raised
- Trillion Fund: Since 2011, 23 projects, €204,379,948 raised
- Microgenius: Since 2011, 18 projects, €2,130,000 raised
- Solar: Since 2013, 65 projects, €736,164 raised

FRANCE
- Landspare: Since 2014, 12 projects, €90,000 raised
- Lumo: Since 2012, 6 projects, €200,000 raised
- Enerfi: Since 2015, 2 projects, €7,900 raised

GERMANY
- Econeers: Since 2013, 3 projects, €4,100,000 raised
- Beettervest: Since 2015, 28 projects, €700,000 raised
- GreenVesting: Since 2009, 9 projects, €60,000 raised
- GreenMoney: Since 2014, 14 projects, €31,100 raised
- Innkraft: Since 2013, 19 projects, €4,000,000 raised

PORTUGAL
- Coopérnico: Since 2013, 7 projects, €327,000 raised

NETHERLANDS
- De Windcentrale: Since 2010, 9 projects, €15,000,000 raised
- Duizend aan Investeringen: Since 2011, 24 projects, €1,833,600 raised
- GreenCrowd: Since 2012, 1 project, €700,000 raised

QUICK FACTS
- There’s more than 1250 active Crowdfunding Platforms (CFPs) worldwide.
- 2015 Crowdfunding Volumes:
  - North America: $9.46 billion
  - Asia: $3.4 billion
  - Europe: $3.26 billion
- There are 25 crowdfunding platforms solely focused on renewable energy.
- Renewable Energy Crowdfunding raised over €165mln, funding more than 300 projects.
- Crowdfunding may supply rooftop solar projects with $5 billion of investments within five years, more than 50 times the amount raised to date.

NOTABLE PROJECTS OPEN FOR FUNDING
- #1: Platform: Abundance Generation Project: Ecosol PV
  - Raising target: £1.900.000
  - Type project: Solar PV
- #2: Platform: Trillion Fund
  - Project: Whalley Hydro
  - Raising target: £750.000
  - Type project: Hydro
- #3: Platform: Abundance Generation
  - Project: Oakapple Two - Debenture 2
  - Raising target: £388.000
  - Type project: Solar PV

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SOLARPLAZA
Abundance

£14,834,703 invested in projects
16 projects funded
£1,241,437 returned to investors
Trillion fund

Good Energy Bond
by Good Energy Group PLC

Support this pioneering UK energy company, generating purely from renewable energy and gain a 7.25% per annum target return.

Min. Investment: £500
Type: Bond
Return: 7.25% (Interest)

£15,000,000

The Converging World
by The Converging World

5.0% loan to The Converging World, a UK charity which invests in renewable energy in India.

Min. Investment: £50
Type: Loan
Return: 5.00% (Annual Interest Rate)

TIPPING POINT: £200,000

£50,000

0 HOURS LEFT
43 LENDERS

Plymouth Energy Community
by PEC Renewables

Receive a target 6 per cent annual return on an investment in solar PV that will help the local community cut energy bills.

Min. Investment: £50
Type: Community Share
Return: 6.00% (Projected Internal Rate of Return)

£600,000

0 HOURS LEFT

Take part in the European energy revolution

citizenergy.eu
Solar fishing lights for fishers in Uganda

Bring solar fishing lamps and solar lanterns to fishing villages around Lake Victoria

INVEST NOW

96% investment progress

$24,200 of $25,000

View Project

Solar home systems for families in Kenya

Support local households and families in Kitale with access to electricity through solar home systems

FULLY RESERVED

100% reserved amount

$50,000 of $50,000

View Project

Solar energy to support Kenyan community

Provide 50 households with electricity, light and other services

FULLY FUNDED

100% fully funded

€30,000 of €30,000

View Project

citizenenergy.eu
Pedro
Nicaragua | Personal Use | Home Energy
A loan of $350 helps Pedro to buy a 100 watt, 3 panel solar energy system.
Read their story »
Funding via TECNOSOL

85% funded
$50 to go
Lend $25

Rat
Cambodia | Personal Use | Home Energy
A loan of $700 helps Rat to buy a solar panel for her family to use.
Read their story »
Funding via VisionFund Cambodia

42% funded
$400 to go
Lend $25
Mobile Solarkraftwerke Afrika GmbH & Co. KG - Mourdiah (Mali)

9% Rendite
 erreicht in 4 Tagen

41,16 t CO₂ Einsparung

7 Jahre Laufzeit

10% effizienter

107,700 € benötigt

107,700 € von 174 Investoren

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## TOP 5 BY AMOUNT

<table>
<thead>
<tr>
<th>Platform</th>
<th>Country</th>
<th>Amount raised (€)</th>
<th>Projects*</th>
</tr>
</thead>
<tbody>
<tr>
<td>TrillionFund</td>
<td>UK</td>
<td>€104,379,968</td>
<td>23</td>
</tr>
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<td>Abundance</td>
<td>UK</td>
<td>€15,857,783</td>
<td>14</td>
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<tr>
<td>Windcentrale</td>
<td>NL</td>
<td>€15,000,000</td>
<td>9</td>
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<tr>
<td>Village Power</td>
<td>US</td>
<td>€4,600,000</td>
<td>10</td>
</tr>
<tr>
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<td>DE</td>
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<td>65</td>
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<td>Bettervest</td>
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<td>US</td>
<td>€402,500</td>
<td>21</td>
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</table>
ESCO for PV/LED project: led by Green Energy Cooperative

- Investment: **70,000 USD**
- LED: **474 lamps**; consumption: 19.6kWh instead of 65.9kWh
- PV: **22kW**
- Return of investment: 6.6 years
- Apart from own resources (crowdfunding) ESCO investment by a private company
Green energy suppliers

• Different business models are possible
• Buying and supplying RE at the same time – also through REScoops
• Opportunity for net-billing system
• Planning grid connection
Discussion

• What are the barriers for citizens to invest in RES?
• How to speed this process up?
• Using only one finance model, or a combination of more?
THANK YOU!

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