The next big thing or too big for us? New business models for renewable energy cooperatives – barriers in the perception of cooperatives’ members

Carsten Herbes

BIEE Conference, Oxford, September 2016
Owners of RE facilities in Germany

Ownership of installed capacity per 10/2013

- Utilities
- Citizens (households, RECs)
- Financial investors

Source: trend:research; Leuphana Universität Lüneburg
Fast growth of RECs until 2014

Number of RECs in Germany

Number of newly established RECs

Sources: Klaus Novy Institut 2014, DGRV 2016, Leuphana 2016
Factors influencing REC growth in Germany

- Public support for RE and cooperatives in general
- Favourable FIT for green electricity (esp. from PV)
- Simplification of Cooperative Law (founding process)
Barriers for further growth

- Lower FIT, switch to tender system
- Public support for RE and cooperatives in general
- Simplification of Cooperative Law (founding process)
- Less 'easy to use' roofs
- Insecurities about the Capital Investment Act
Research questions

- Which potential business models do members and management contemplate for their REC?

- How do they judge these business models for their REC, especially: which barriers do they see?
Empirical investigation

April - September 2014

Participant observation in general assemblies: 15

January - August 2015

Interviews with various actors in RECs: 38

October 2015

Expert interviews: 4

Case selection:

a) Existing RECs in Baden-Württemberg, Nordrhein-Westfalen, Niedersachsen and Rheinland-Pfalz.
   Broad coverage: Size, urban vs. rural context, business type, etc.

a) One failed REC (has been dissolved)
### Cases

<table>
<thead>
<tr>
<th>No.</th>
<th>Number of members</th>
<th>Setting</th>
<th>Business type</th>
<th>Share price</th>
<th>Founded in</th>
<th>Cooperations (e.g. with local utility)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>53</td>
<td>Big city</td>
<td>PV</td>
<td>100 EUR</td>
<td>2013</td>
<td>no</td>
</tr>
<tr>
<td>2</td>
<td>78</td>
<td>Small city</td>
<td>PV</td>
<td>500 EUR</td>
<td>2012</td>
<td>no</td>
</tr>
<tr>
<td>3</td>
<td>82</td>
<td>Rural</td>
<td>PV</td>
<td>250 EUR</td>
<td>2010</td>
<td>no</td>
</tr>
<tr>
<td>4</td>
<td>109</td>
<td>Small city</td>
<td>PV</td>
<td>1.000 EUR</td>
<td>2011</td>
<td>yes</td>
</tr>
<tr>
<td>5</td>
<td>119</td>
<td>Big city</td>
<td>PV</td>
<td>100 EUR</td>
<td>2012</td>
<td>no</td>
</tr>
<tr>
<td>6</td>
<td>140</td>
<td>Rural</td>
<td>PV</td>
<td>100 EUR</td>
<td>2010</td>
<td>no</td>
</tr>
<tr>
<td>7</td>
<td>146</td>
<td>Big city</td>
<td>PV</td>
<td>250 EUR</td>
<td>2011</td>
<td>no</td>
</tr>
<tr>
<td>8</td>
<td>148</td>
<td>Big city</td>
<td>PV (wind)</td>
<td>50 EUR</td>
<td>2010</td>
<td>no</td>
</tr>
<tr>
<td>9</td>
<td>160</td>
<td>Small city</td>
<td>PV (wind, hydro)</td>
<td>250 EUR</td>
<td>2011</td>
<td>no</td>
</tr>
<tr>
<td>10</td>
<td>166</td>
<td>Rural</td>
<td>District heating, biogas</td>
<td>500 EUR (x5)</td>
<td>2011</td>
<td>no</td>
</tr>
<tr>
<td>11</td>
<td>247</td>
<td>Rural</td>
<td>PV</td>
<td>100 EUR</td>
<td>2009</td>
<td>no</td>
</tr>
<tr>
<td>12</td>
<td>267</td>
<td>Big city</td>
<td>PV</td>
<td>100 EUR</td>
<td>2012</td>
<td>no</td>
</tr>
<tr>
<td>13</td>
<td>281</td>
<td>Small city</td>
<td>PV</td>
<td>500 EUR</td>
<td>2009</td>
<td>yes</td>
</tr>
<tr>
<td>14</td>
<td>469</td>
<td>Rural</td>
<td>PV</td>
<td>500 EUR</td>
<td>2009</td>
<td>yes</td>
</tr>
<tr>
<td>15</td>
<td>597</td>
<td>Rural</td>
<td>PV, district heating, e-mobility</td>
<td>500 EUR (x2)</td>
<td>2008</td>
<td>no</td>
</tr>
</tbody>
</table>
Characteristics of most German RECs

Business model: generating electricity with PV and receiving FIT

Low investment volumes, local / regional focus

Non-salaried management
A typical REC in Baden-Wuerttemberg

- Founded in 2010
- 174 members
- 5 PV installations
- Total capacity: 142 kWp

Source: http://www.buergerenergie-ask.de
Only 35% of RECs earned more than EUR 10 k p.a.

Source: Debor 2014
## Business model structure

<table>
<thead>
<tr>
<th>Main elements</th>
<th>Value proposition</th>
<th>Customer interface</th>
<th>Infrastructure</th>
<th>Revenue model / financial model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-elements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Target customers / customer segments</td>
<td>Key activities</td>
<td>Revenue streams</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Customer relationships</td>
<td>Key resources</td>
<td>Cost structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Channels</td>
<td>Key partners</td>
<td></td>
</tr>
</tbody>
</table>

Source: Osterwalder 2004, Osterwalder et al. 2005
## Business model „green electricity retail“

<table>
<thead>
<tr>
<th>Main elements</th>
<th>Value proposition</th>
<th>Customer interface</th>
<th>Infrastructure</th>
<th>Revenue model / financial model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>Green power from local sources</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub-elements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Target customers</td>
<td>Key activities</td>
<td>Revenue streams Sales, price per kWh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Own members / regional consumers</td>
<td>Production, marketing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Customer relationships</td>
<td>Key resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Based on reg. context</td>
<td><em>RE installations, regional network</em></td>
<td>Cost structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Channels</td>
<td>Key partners</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Internet / directly</td>
<td><em>Utilities / service providers for administration</em></td>
<td></td>
</tr>
</tbody>
</table>
Regional electricity brands by RECs

Source: http://www.bermeg.de/portal/01.05.html
## Business model „wind project minority investment“

<table>
<thead>
<tr>
<th>Main elements</th>
<th>Value proposition</th>
<th>Customer interface</th>
<th>Infrastructure</th>
<th>Revenue model / financial model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Investment in renewables with limited risk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub-elements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value proposition</td>
<td>Target customers / customer segments None</td>
<td>Key activities Taking a minority stake in large wind projects Raising capital from members</td>
<td></td>
<td>Revenue streams Dividends from the investment</td>
</tr>
<tr>
<td>Customer interface</td>
<td>Customer relationships None</td>
<td>Key resources Local network for raising capital Financial know-how</td>
<td></td>
<td>Cost structure</td>
</tr>
<tr>
<td>Channels</td>
<td>None</td>
<td>Key partners Project developers, utilities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Other potential activities for RECs

- **Energy-related**
  - Energy consulting
  - Energy audits
  - Contracting
  - Grid operation
  - E-Mobility / Carsharing

- **Non-Energy-related**
  - Telecommunication
  - Village store
  - Consulting for other RECs
Barriers

Cognitive barriers
- High perceived risk of new biz
- Risk aversion

Lack of resources
- Financial resources
- Time
- Know-how

Lack of profitability

Ethical concerns
- Environmental
- Effects on land use
- Loss of regional focus
- Conflict with intention of legislation

New barrier
Strategies for overcoming the identified barriers

- Cooperation strategies / partners
  - (Municipal) utilities
  - Other RECs
  - Project developers
  - Housing cooperatives

- Professionalization, employing salaried management

- Careful handling of ethical concerns
Outlook: RECs potential future role

- Probably many mergers and closures of RECs in the next years
- RECs can be attractive partners for utilities in building local green energy brands (customers value local origin and RECs as producers)
- District heating and maybe storage are also potential growth options
EWS: a successful REC from the South West

Source: https://www.ews-schoenau.de
Other ISR research projects

- **Marketing of green electricity**
  - Content analysis of green energy providers’ websites
  - ~480 providers under review, >600 products analysed

- **Willingness to pay for green electricity**
  - Neuroscience-based
  - Differentiation between different types of RE

- **Green energy cooperatives (ongoing)**
  - Marketing / business models
  - Conflicts

- **Employees’ initiatives for green energy in the workplace**

Follow our research on [www.hfwu.de](http://www.hfwu.de)