



European  
Commission

## JRC TECHNICAL REPORTS

# Smart specialisation and social innovation: from policy relations to opportunities and challenges

*Evidence from six case studies on clean energy regional initiatives*

*S3 Policy Briefs Series  
No. 24/2018*

Spiesberger, M., Gómez Prieto, J., Seigneur, I.

2018



Joint  
Research  
Centre

EUR 29230 EN

This publication is a Technical report by the Joint Research Centre (JRC), the European Commission's science and knowledge service. It aims to provide evidence-based scientific support to the European policymaking process. The scientific output expressed does not imply a policy position of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use that might be made of this publication.

**Contact information**

Name: Javier Gómez Prieto  
Address: Edificio EXPO. C/ Inca Garcilaso, 3. E-41092 Seville (SPAIN)  
Email: Javier.gomez@ec.europa.eu;  
Tel.: +34 954480582

**JRC Science Hub**

<https://ec.europa.eu/jrc>

JRC111371

EUR 29230 EN

PDF ISBN 978-92-79-85890-1 ISSN 1831-9424 doi:10.2760/601340

Luxembourg: Publications Office of the European Union, 2018

© European Union, 2018

Reuse is authorised provided the source is acknowledged. The reuse policy of European Commission documents is regulated by Decision 2011/833/EU (OJ L 330, 14.12.2011, p. 39).

For any use or reproduction of photos or other material that is not under the EU copyright, permission must be sought directly from the copyright holders.

How to cite this report: Spiesberger, M., Gomez Prieto, J. and Seigneur, I., *Smart specialisation and social innovation: from policy relations to opportunities and challenges*, EUR 29230 EN, Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-85890-1, doi:10.2760/601340, JRC111371.

All images © European Union 2018, except: the cover picture, © *alphaspirit*, image #48500453, 2018 source: Fotolia.com

## Contents

Acknowledgements.....	1
Abstract.....	2
1 Introduction.....	3
2 Methodology.....	4
3 Defining the framework: social innovation and energy.....	5
4 Overview of SI in energy.....	8
5 Case studies on SI in energy.....	10
5.1 Croatia, Green energy cooperative.....	10
5.2 Hungary, energy poverty and Roma communities.....	12
5.3 Belgium, EU REScoop and federation of renewable energy cooperatives.....	14
5.4 Finland, Ostrobothnia region OSIRIS project, SI and energy in the business sector.....	17
5.5 Spain, Navarra Region strategically addressing social economy, social innovation and energy.....	21
5.6 Germany, crowdfunding, LeihDeinerUmweltGeld.....	24
6 Conclusions.....	26
References.....	28
List of figures and tables.....	29
List of interviews.....	29
Interview questionnaire.....	29
List of abbreviations and definitions.....	30

## Acknowledgements

The authors would like to express their gratitude to colleagues who attended the Session: "*Smart Specialisation in Energy, driving societal challenges*" in the European Sustainable Energy Week (EUSEW) 2017. Also, for their availability and great contributions over the interviews, many thanks to Melani Furlan (ZEZ, Croatia), Nora Feldmar (Vedegylet, Hungary), Johanna Dahl and Magnus Rudehäll (OSIRIS project, Finland and Sweden), Daan Creupelandt (REScoop, Belgium), Mikel Irujo Amezaga and Luis Goñi (Navarra region, Spain), Peter Mayr (expert on Crowdfunding, Austria).

Also, special thanks to the JRC colleagues Dimitrios Kyriakou, Manuel Palazuelos, Inmaculada Periañez, Ana Díaz and Fernando Mérida for their kind and useful contributions.

### **Authors**

Manfred Spiesberger, Centre for Social Innovation (ZSI), Vienna (Austria)

Javier Gómez Prieto, Joint Research Centre, Smart Specialisation Platform, Seville (Spain)

Isabelle Seigneur, Joint Research Centre, Smart Specialisation Platform, Seville (Spain)

## Abstract

In this paper some ongoing tendencies of Social Innovation (SI) in the EU and its relation to the smart specialisation (S3) approach are discussed. The analysis is limited to the energy field, particularly to the context of renewable energy production, energy efficiency measures and heating and cooling. The paper is part of the policy support provided by the Smart Specialisation Platform on Energy (S3PEnergy) to EU regions and member states<sup>1</sup>. Therefore the focus has been put on Smart Specialisation, and the relevance of such SI initiatives for economic development and potential upscaling in regions, and for an increased proactive consumer involvement.

Smart specialisation is a regional policy framework for innovation driven growth. It helps to focus resources on key national and regional priorities, challenges, and needs for knowledge-based development. S3 is a bottom-up process relying on an entrepreneurial discovery process, which involves various stakeholders such as businesses, private stakeholders and policy makers for capacity and priority identification. It is evidence based and includes sound identification of priorities, monitoring and evaluation (RIS 3 guide, 2012; OECD, 2013)

The social innovation approach is disaggregated here in the categories of organisational, social, financial, educational and business. Case studies were developed to understand the character of those categories.

---

<sup>1</sup> <http://s3platform.jrc.ec.europa.eu/s3p-energy>

## 1 Introduction

In the energy field as understood it here, it can be seen that Social Innovation (SI) may evolve into a strong transformational function of the whole energy system. Citizens are in the focus of the European Union's plans towards an energy transition based on citizen energy and a more decentralised energy system where the consumer is in focus. SI would in this sense not be any more an add-on to classical technology focused innovation, but driving the whole transition process in the energy field. This means also serious repercussions on the regional level, as a more decentralised energy supply system will open-up opportunities for usage of local resources and involvement of citizens and local businesses. With smart specialisation strategies in the implementation phase, clean energy is one of the main priorities for most EU regions.

In chapter 2, the methodology applied in the research work is described. This is followed by an overview of social innovation concepts and their link to energy and smart specialisation (chapter 3). A first tentative categorisation of SI in energy is given in chapter 4, explained in more details and illustrated with first examples. In chapter 5, six detailed case studies are provided, showing concrete examples and strategies for SI in energy. Finally, conclusions and recommendations are derived on the basis of the framework and from the cases.

## 2 Methodology

The paper relies on a methodology based on desk research, data collection and interviews to stakeholders.

Literature review and project searches have been performed on social innovation, renewable energies and energy efficiency policy interventions, and its links to smart specialisation. In particular, projects recently supported by the EU in Framework Programmes for Research (FP7 and H2020) on social innovation and by the Interreg Programme on innovation and energy have been studied.

Interviews were conducted in order to gather quantitative and qualitative information for case studies of SI in the energy field. An interview script has been designed by the authors and applied to six personal and structured interviews for backing-up the case studies.

Preliminary discussions and information gathering took place during the European Sustainable Energy Week (EUSEW), session: "*Smart Specialisation in Energy, driving societal challenges*" in June 2017, which was followed by in-depth interviews in summer and autumn 2017.

The preliminary findings of the research were presented and discussed at the European Week of Regions & Cities (EWRC) in Brussels, 9-12 October 2017 in the session "*Smart Specialisation platform on Energy. European interregional partnerships for the implementation of the Smart Strategy*".

### 3 Defining the framework: social innovation and energy

According to the Young Foundation (2012), social innovations are defined as “new solutions (e.g. products, services, models, markets and processes) that simultaneously meet a social need (more effectively than existing solutions) and lead to new or improved capabilities and relationships and better use of assets and resources. In other words, social innovations are both good for society and enhance society’s capacity to act.” This definition has been challenged more recently by a sociological approach, which defines SI as a “creative, collaborative, and targeted change of social practices” (Domanski and Kaletka, 2017). While these innovations can have a positive impact on certain target groups, others may be disadvantaged.

Social Innovations start from new practices, which are often bottom-up initiatives. To qualify as a social innovation, certain criteria can be applied to assess the status of a new practice.<sup>2</sup>

- Novelty of the idea: this rarely happens in absolute terms, and usually refers to location, time, social strata and/or field of action.
- Social quality of the intervention: involvement, participation of the target group(s) and benefits.
- Sustainability of the implementation: effectiveness after acceptance by those concerned.
- Notable impact: are there durable and real, tangible changes, potential of up- or out-scaling, replicability<sup>3</sup>?

Social Innovation (SI) has become an important topic and activity area over the last years. At the EU level SI has gained relevance with a report prepared by the Bureau of European Policy Advisers (BEPA) in 2010, and subsequently several activities have been deployed<sup>4</sup> and projects on SI supported, e.g. in the EU Framework Programme for Research and Technological Development (RTD)<sup>5</sup>. Many of these projects rely on case studies to develop their theoretic considerations. Those that have put a focus on energy in case studies are highlighted.

The FP7 TRANSIT project<sup>6</sup> (*Transformative Social Innovation Theory*) has been developing a theory on Transformative Social Innovation, whereby this is defined as a process of change in social relations, involving new ways of doing, organizing, framing and/or knowing. Transformative Social Innovation challenges, alters and/or replaces dominant institutions and structures. TRANSIT features the NGO network INFORSE (International Network for Sustainable Energy), which promotes sustainable energy via local citizen engagement, development of low carbon scenarios and influence on national politics. A detailed case study analyses the Danish INFORSE member organisation VE<sup>7</sup> and its activities.<sup>8</sup>

SI-DRIVE - *Social Innovation – Driving Force of Social Change* (2014-2017), has been collecting examples of SI to provide an overview of SI activities. One field of study here

---

<sup>2</sup> We use here criteria as applied by the social innovation price Sozialmarie: [www.sozialmarie.org](http://www.sozialmarie.org)

<sup>3</sup> In SI literature the term “upscaling” is used either in a usual understanding for describing the expansion of scale of an innovation, and for horizontal replication in other settings or organisations. Several scholars differentiate however between up-scaling and out-scaling, the first one referring to systemic change and impact at policy level, and the second to expansion of the innovation in terms of numbers, and different geographical areas (Domanski and Kaletka, 2018).

<sup>4</sup> See: [http://ec.europa.eu/growth/industry/innovation/policy/social\\_en](http://ec.europa.eu/growth/industry/innovation/policy/social_en)

<sup>5</sup> A collection of EU sponsored SI projects is available at <http://siresearch.eu/social-innovation/research-projects>

<sup>6</sup> <http://www.transitsocialinnovation.eu/home>

<sup>7</sup> VE – Vedvarende Energi (directly translated into 'Renewable Energy')

<sup>8</sup> <http://www.transitsocialinnovation.eu/resource-hub/inforse>

has also been related to energy. SI-DRIVE states that "Social Innovation focuses on changing social practices to overcome societal challenges, meeting (local) social demands, and exploiting inherent opportunities in better ways than done before, referring to the different context specificities, being more than social entrepreneurship and different from pure technological or business development".<sup>9</sup>

The BENISI project (*Building a European Network of Incubators for Social Innovation*) focuses on upscaling social innovation, including initiatives in the energy field.<sup>10</sup> The consortium has aimed at identifying and highlighting 300 of the most promising, impacting and employment-generating of these social innovations that are often only developed locally – in the public, private, social enterprise and cooperative sectors. They should be upscaled either significantly within their originating country or internationally.

The S3 guide to Social Innovation (2013) highlights that SI "approaches are open rather than closed when it comes to knowledge-sharing and the ownership of knowledge, multi-disciplinary and more integrated to problem solving than the single department or single profession solutions of the past; participative and empowering of citizens and users rather than 'top down' and expert-led, demand-led rather than supply-driven, tailored rather than mass-produced, as most solutions have to be adapted to local circumstances and personalised to individuals."

In support of the energy transition, SI helps to develop a systemic transformation of the energy systems that requires new, more sustainable energy production, smarter and more demand responsive technologies and consumption patterns. That implies a radical change of the entire societal system through which provision and consumption of energy occur, entailing new structures, new cultures and new practices. SI can contribute towards the energy transformation and use of Renewable Energy Sources (RES), where citizens take ownership to the energy transition, benefit from new technologies to reduce their bills, participate actively in the market, and where vulnerable consumers are protected, i.e. "putting citizens at the heart of the energy transition" (REScoop, 2016).

For linking the concepts of Smart Specialisation and Social Innovation, Richardson *et al.* (2015) in the frame of the SMARTSPEC project (*Smart Specialisation for Regional Innovation*) suggest the notion of complementary-social innovation. Here they understand SI "as a complement that can add something to traditional innovation policy by focusing on need and by finding ways to reach segments of the population that would not be served by traditional innovation".

In the energy field as we understand it here, we can see that SI may evolve into a strong transformational function of the whole energy system. Citizens are in the focus of the European Union's plans towards an energy transition based on citizen energy and a more decentralised energy system where the consumer is in focus. Moreover, the EU regional policy is putting a lot of emphasis on a sustained dialogue engaging quadruple helix actors at subnational levels through the smart specialisation strategies of regional innovation. SI would in this sense not be any more an add-on to classical technology focused innovation, but driving the whole transition process in the energy field. This means also serious repercussions on the regional level, as a more decentralised energy supply system will open-up opportunities for usage of local resources and involvement of citizens and local businesses.

We categorise the examples of SI in energy here and will illustrate these categories in the following chapter with case studies back-up:

---

<sup>9</sup> SI-DRIVE project: <http://www.si-drive.eu/>, <https://www.si-drive.eu/wp-content/uploads/2017/11/SI-DRIVE-Policy-declaration-2017-final.pdf>; [https://www.si-drive.eu/wp-content/uploads/2017/03/SI-DRIVE-Deliverable-D7\\_3-Energy-1.pdf](https://www.si-drive.eu/wp-content/uploads/2017/03/SI-DRIVE-Deliverable-D7_3-Energy-1.pdf)

<sup>10</sup> <http://www.benisi.eu/>

- Organisational - consumer/producer associations and cooperatives;
- Social - measures to face and reduce energy poverty
- Funding - innovative financing schemes for energy involving citizen investment
- Educational – educational initiatives to advance RES and EE
- Business – using social innovation approaches for the benefit of energy business

We consider these categories as socially innovative, as they require a strong involvement of citizens or are driven by them, they focus on improvements of the situation of certain social groups, and they lead to a new organisation of the energy production and the energy market. Although the examples are mostly about SI, they involve in some respects also technological innovation.

The current EU energy policy has also identified the citizens and consumers as key in the transition towards RES and improving EE. With its clean energy package of November 2016 the European Union seeks to accelerate the transition to clean energies to reach the target of 27% of renewable energy consumed in the EU, or even beyond to a target of 30%.<sup>11</sup> To achieve this, the EC has put among other issues the consumer in the focus: "...in future the consumer has to be at the centre of the energy system: demanding competitive low-carbon solutions; participating as producer and manager of decentralised energy networks; acting as an investor, through decentralised platforms; and driving change through user innovation."<sup>12</sup> However, utilities and vested interests are blocking to an important extent innovation and transition to renewables.

Also, from the EU regional policy perspective, the smart specialisation strategies as a requisite to operationalise European Structural and Investment Funds in research and innovation, promote a participatory and inclusive dialogue among regional stakeholders. This dialogue, also known as Entrepreneurial Discovery Process (EDP) aims at facilitating the identification of innovation priorities. However, when observing tendencies of participation in these multidisciplinary dialogues, civil society has been in several cases underrepresented (Kroll, 2017).

---

<sup>11</sup> Proposal for a Directive of the EP and of the Council on the promotion of the use of energy from renewable sources, COM(2016) 767 final/2.

<sup>12</sup> Communication from the Commission to the EP, the Council, the EESC, the CoR, and the EIB. Accelerating Clean Energy Innovation, COM(2016) 763 final.

## 4 Overview of SI in energy

We define first here that when we use the term energy, we focus and refer to renewable energy production, energy efficiency measures, heating and cooling. This pre-identification of energy-related domains appear as the most relevant in terms of socially innovative initiatives, and good potential for SI the future. Certainly, energy is closely tied to mobility and its huge potential for SI (e.g. through sharing, use of renewables for mobility), but that would go beyond the scope of this paper. In the following lines we go more into detail of the SI energy categories we have pre-defined in the previous chapter.

With **organisational SI** we refer to how social innovation in energy is structured. This category is related in first place to consumer/producer associations and cooperatives for renewable energies. Such associations and cooperatives have sprung up all over the EU countries in recent years. Countries in Western Europe have dominated the trend, including Belgium, Germany, and Denmark. A significant share of them are organised in networks such as REScoop.eu, the European Federation of Renewable Energy Cooperatives. This network involves currently 1,250 European REScoops and their 650,000 participating citizens.<sup>13</sup> The cooperatives bring together citizens, for jointly owning and participating in renewable energy (RES) or energy efficiency (EE) projects. Citizens are usually participating via a share/shareholding in the cooperative.

**Social** refers here to measures addressing energy justice and energy poverty. Energy poverty is affecting people and to date more than 50 million households in the European Union are struggling to attain adequate warmth, pay their utility bills on time and live in homes free of damp and mould<sup>14</sup>. This situation can be more or less accentuated depending on geographical location or social status, resulting in different levels of access to options in energy provision services and state-of-the-art technology.

Some of energy cooperatives have been founded for dealing with energy justice or include it as an activity among others. There are also non-governmental organisations and utilities involved in such approaches to address energy poverty issues. For example CARITAS Austria cooperates with the utility VERBUND to replace energy inefficient appliances with new efficient models for households who have stopped paying their energy bills.<sup>15</sup>

**Funding SI** refers to innovative financing schemes for energy involving citizen investment. The funding category we can further differentiate into the following sub-categories:

- Shareholdings for participating in cooperatives/REScoops, which has become a frequently used instrument.
- Crowdfunding initiatives: in Western European EU member states crowdfunding for RES and EE projects is becoming more relevant. About ten EU members have specific RES crowdfunding platforms.<sup>16</sup>
- Citizen financing renewable power stations, which has been applied by utilities. This is usually done also via a shareholding. As an example, Wien Energie (the Vienna city utility), collects citizen investments for installing solar and wind power plants in the city and its vicinity.<sup>17</sup>

---

<sup>13</sup> See [www.rescoop.eu](http://www.rescoop.eu)

<sup>14</sup> See also launching of EU energy poverty observatory <https://ec.europa.eu/energy/en/events/launch-eu-energy-poverty-observatory-epov>

<sup>15</sup> See [http://energiearmut.com/?page\\_id=2073](http://energiearmut.com/?page_id=2073)

<sup>16</sup> Several German platforms are listed in the crowdfunding case study below; other European examples concern the Dutch platform oneplanetcrowd <https://www.oneplanetcrowd.com/>, the French platform LUMO <https://www.lumo-france.com/>, the Belgian econova <https://www.econova.com/>, or the British abundance <https://www.abundanceinvestment.com/>. A cross European platform is citizenenergy <https://www.citizenenergy.eu/>.

<sup>17</sup> See <https://www.buergerkraftwerke.at/eportal2/>

- Allocation of public resources via vouchers or grants. Innovation vouchers for SMEs have allowed them to implement RES/EE projects and for becoming prosumers of RES. Such voucher schemes have been implemented for example in the frame of EU funded projects, such as the ener2i project (*Energy research to innovation*) for Eastern European countries<sup>18</sup>.
- Donations, citizen's voluntary financial contribution to an energy action without expecting any return. As an example we can quote here a good practice case from REScoop: donations from citizens helped the German Elektrizitätswerke Schönau, a citizen energy initiative, to buy the local grid of the village of Schönau and take the energy provision in its hands. (REScoop, 2013).

**Educational** – education and information on RES/EE play an important role for raising awareness and for increasing the acceptance of RES/EE measures and projects. An example of a more specific, socially innovative approach, concerns here the so-called “end of the road events” implemented in Denmark by INFORSE NGO. This initiative looks to inform citizens of a neighbourhood on energy efficiency measures they can take for their private housing.<sup>19</sup>

**Business** – activating citizens and their know-how on energy business. Such measures are at an early stage of development. They can be implemented via workshops, hackathons or other citizen engagement methods, which bring company representatives in direct contact with citizens.

---

<sup>18</sup> See [www.ener2i.eu](http://www.ener2i.eu)

<sup>19</sup> <http://www.transitsocialinnovation.eu/resource-hub/inforse> and <http://www.transitsocialinnovation.eu/content/original/Book%20covers/Local%20PDFs/250%20TRANSIT%20Case%20Report%20-%20INFORSE%20-%20Final.pdf>

## 5 Case studies on SI in energy

In the following six case studies of social innovation (SI) in energy we highlight current developments and the SI potential for regional development in the energy field. In the field of energy, we have narrowed down the analysis to renewable energy production, energy efficiency measures, and heating and cooling. Interviews were conducted for the six cases gathering quantitative and qualitative information. They were based on an interview guide prepared by the authors (see annex). We have selected the case studies to cover a mix of EU regions, which are different from a geographical point of view and present a diverse innovation potential<sup>20</sup>. The case studies have been selected according to the following matrix:

**Table 1:** Summary of case studies

Innovation/Region	Western EU	Central EU	Eastern EU	Southern EU	Northern EU
<b>Innovation Leaders</b>	Crowdfunding (Germany)				Business (Finland)
<b>Strong Innovators</b>	REScoop (Belgium)				
<b>Moderate Innovators</b>		Energy coop. (Croatia)	Energy poverty (Hungary)	Strategy and citizen engagement (Spain)	

### 5.1 Croatia, Green energy cooperative

#### Background

In Croatia, renewable energies are developed almost entirely by individual companies and with minimal engagement from citizens and the local community. Public interest in RES is quite strong, but citizens' participation is mostly limited to roof-top solar power, cumulative installed solar power accounts for only 6% of all RES in Croatia. On the other hand, energy cooperatives and citizens are not engaged in wind power which accounts for 83% of renewable energy power in Croatia.

#### SI initiative in energy



**Zelena Energetska Zadruga**

Green Energy Cooperative (ZEZ) is a Croatian energy cooperative established in 2013 and based in Zagreb. ZEZ is one of the 10 energy cooperatives operating in Croatia and is considered as a social enterprise that

reinvests 75% of their end-of-year profits back into local community and socially responsible RES and EE projects. ZEZ is a member of REScoop.eu, the European

<sup>20</sup> We use the classification of countries according to their innovation performance as suggested by the EU's Innovation Score Board 2017: [http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards\\_en](http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en)

federation of renewable energy cooperatives, and is sharing their mission of empowering citizens and cooperatives in their fight for energy democracy. In the focus of their work RES & EE projects have been already initiated with the aim of empowering local communities through use of local resources.

ZEZ realised the first Croatian crowdfunded energy project in 2014, engaging local citizens to invest in photovoltaics (PV) solar system for a public school. The project was implemented in cooperation with United Nations Development Programme (UNDP) and the municipality of Kastel Luksanic.

**SI elements used in the initiative are:** citizen involvement in the form of a cooperative, cooperation with municipalities on RES projects, cooperative funding and crowdfunding used for financing of initiatives

### **Actors involved**

ZEZ gathers 15 experts, who are citizens, some of them with expertise in the energy field. Currently the cooperative employs 5 people. The cooperative members have experience in coordinating and working in innovative green energy initiatives, development projects, designing policy recommendations and carrying out educational activities. The cooperative is well linked to municipalities and implements with them jointly RES projects.

### **Barriers /success factors to the initiative**

Croatian legislation is not yet favorable for active citizen participation in the development of renewable energy. Only big investors have the human and financial capital required to overcome the administrative requirements. There is no governmental support for PV, aside from feed-in tariffs, which stopped when 30 MW of solar and 400 MW of wind power were reached.

All Croatian energy cooperatives are experiencing difficulties in carrying out their RES projects, because of the current business climate and of many legislative barriers. For example, members of a cooperative are excluded from receiving unemployment benefits and other social support, even if they are unemployed and this can be very discouraging. According to the Croatian Law on Cooperatives, after covering expenses, cooperatives are required to reinvest at least 20% of the profit into development and new projects. This reinvestment is taxable, while all other business subjects are exempt from paying taxes on reinvested profit.

### **S3 relevance and local impact**

Croatia is according to the European Innovation Scoreboard a moderate innovator, only slightly ahead of the modest innovators (Bulgaria and Romania), and according to this ranking overall the third least innovative EU member. It has formulated a national smart specialisation strategy (and no regional one), where energy features prominently. Energy and sustainable environment are one of the six thematic priority areas. The prioritisation is based on solid industrial and research capacities in the field. Two thematic sub-areas have been addressed, firstly with energy technologies, systems and equipment, and secondly with environment friendly technologies, equipment and advanced materials.<sup>21</sup>

Croatia has important potential for SI in energy. Due to its geographical situation in south-eastern Europe it has high insolation levels and PV potential. Enhanced use of

---

<sup>21</sup> Croatian Smart Specialisation Strategy, 2016.

renewable energies and environmental protection can provide an important advantage for its strong tourism industry.

With its many islands it can also take advantage of trends for energy independent islands.<sup>22</sup> For example, the island of Krk disposes of a cooperative, which works on strengthening the reputation of Krk as an eco-island. The local municipality and small businesses are members of the Cooperative, together with the islanders. The Cooperative managed to decrease the costs of obtaining the required permits for more than 50 households. The prices for a solar PV system also went down because of the scale of the cooperative and their greater negotiating power. The Cooperative's recommendation for allowing construction of wind farms on island has been accepted by the Government. The cooperative has prepared comprehensive feasibility studies, and is currently pursuing new projects.

### **Evidence for policy-making on smart specialisation**

The smart specialisation strategy of Croatia includes in its action plan the development of a policy framework for social innovation in the framework of the strategic objective 5: working in partnerships to address societal challenges<sup>23</sup>.

Evidence from this case shows that removing legal barriers and changing the mindset (especially in Central and Eastern European EU member states) are important elements for advancing RES and EE in the frame of cooperatives. The number of islands is significant in Croatia, providing a good opportunity for innovation and specialisation in this field as well as contributing to energy independence. In addition, this clean energy approach underpins the specialisation field of tourism; it contributes to a clean nature and provides for a public relations argument. Cooperatives allow engaging citizens directly and are well established in the Former Yugoslavia region. However, there are only few examples yet in the energy field.

## **5.2 Hungary, energy poverty and Roma communities**

### **Background**

Several EU countries have important Roma minority populations, in particular Bulgaria, Hungary, Romania, and Slovakia. The overall Roma population is estimated at about 5-6 million in the EU.<sup>24</sup> Many of these communities live in extreme poverty.

Large shares of poor rural households rely on wood and coal as their primary heating fuel. Wood burning is the biggest contributor to fine particle emissions and it is estimated that outdoor air pollution due to particulate matter causes approximately 400,000 premature deaths in Europe every year (EEA, 2017). The associated socio-economic health costs amount to approximately 330-940 billion Euro annually. The households affected by energy poverty are more likely to use outdated and highly inefficient stoves, which also means a larger economic burden and health risk to these individuals and families.

Regulation regarding the use of solid-fuel burning devices will become stricter targeted to reduce emissions and increase efficiency. The EU will introduce new eco-design labelling and emissions standards for all space heaters applicable to all member states in

---

<sup>22</sup> See the related EUSEW 2017 session.

<sup>23</sup> See more at: <http://s3platform.jrc.ec.europa.eu/regions/HR/tags/HR>

<sup>24</sup> The Roma population is estimated at about 10-12 mio in Europe, half of them living in the EU. See: [http://ec.europa.eu/justice/discrimination/roma/index\\_en.htm](http://ec.europa.eu/justice/discrimination/roma/index_en.htm)

2022.<sup>25</sup> The implications of this for energy poor households should be considered and appropriate solutions need to be employed to avoid additional vulnerability.

In Southern and Central Eastern Europe the people at the most serious risk of energy poverty are Roma communities. Millions of Roma live in extreme poverty often in geographically and ethnically segregated settlements. The state of housing and infrastructure is considerably worse than that of the rest of society. Often these communities are not connected or are disconnected from the electricity network and it is very rare that they have access to piped gas or any other heating fuel network. For these households the cost of buying sufficient amount of wood to keep warm – given their low income and that the energy efficiency of their houses and heating equipment tends to be sub-standard – is virtually impossible to pay. This forces families to source wood directly from forests or through informal channels; resulting in increased amounts of time to gather and prepare wood and risk of legal prosecution, both reinforcing the cycle of poverty.

When tackling energy poverty the options presented to communities need to be diversified based on their specific socio-economic circumstances such as the ones mentioned above.

### **SI initiative in energy**



Protect the Future Association (Vedegylet)<sup>26</sup>, a Hungarian NGO, facilitates through its programme Transition Communities the introduction of innovative, sustainable technologies to Roma communities living in extreme poverty (e.g. Told village in Eastern Hungary). These include biomass briquette production, efficient masonry heaters and post-fitted insulation. The approach is to engage locals in combating their own energy poverty situation with

low-cost, low-investment solutions. These solutions reduce expenses and time used to gather wood for the households, as well as they reduce harmful environmental and health impacts. They also have a positive community-building aspect. In addition, the project brings unemployed Roma into work.

**SI elements used in the initiative are:** activation and involvement of citizens for energy production, educational aspects for Roma communities on a more healthy and sustainable heating system.

### **Actors involved**

Protect the Future Association is one of the best known environmental NGOs in Hungary. It collaborates with organisations in other countries such as Slovakia, where another successful case of the briquette project has been running for over two years.

### **Barriers /success factors to the initiative**

Scepticism /prejudice /ignorance towards the situation Roma communities are living in. Resistance of local Roma communities to innovation and lack of financial means for implementing the initiatives.

---

<sup>25</sup> See <https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficient-products/local-space-heaters>, and the related regulation: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015R1186>

<sup>26</sup> <http://vedegylet.hu/>

### **S3 relevance and local impact**

Hungary is according to the European Innovation Scoreboard a moderate innovator, only slightly ahead of the modest innovators.

The country has developed a national S3 strategy, featuring national research priorities. These include six sectoral priorities, one being clean and renewable energy, and two horizontal priorities. From a regional perspective, these priorities are important for all counties of Hungary. Green energy includes in the strategy renewables and bio-energy, nuclear energy, and energy efficiency. Cost effectiveness, in particular for households is mentioned as an important issue among others in the priority description.

### **Evidence for policy-making on smart specialisation**

We have discussed here a specific case of communities in the EU, who are living in extreme poverty, including energy poverty. Citizen engagement has been successfully implemented with these communities. Combined with innovative know-how on bio-briquetting<sup>27</sup> this has helped reduce pollution through more sustainable heating material, brought unemployed into work, and solved an energy provision problem. In terms of specialisation the project was using agricultural residues for bioenergy. Several regions in Eastern Europe are marked by important agricultural branches of the economy, providing a basis for bioenergy. The example shows as well that innovative processes, usage of regional resources and engagement methods can improve the situation of extremely poor citizens.

## **5.3 Belgium, EU REScoop and federation of renewable energy cooperatives**

### **Background**

Cooperatives are an important organisational form for bottom-up renewable energy and energy efficiency initiatives, which are based on citizen involvement. The acronym REScoop stands for "Renewable Energy Sources Cooperative". It refers to any group of citizens that cooperate in the field of renewable energy, which includes developing new production, selling renewable energy or providing energy related services.



REScoop do not necessarily have the legal statute of a cooperative, but rather distinguish themselves by the way they do business. They typically respect 7 principles that have been outlined by the International Cooperative Alliance:

- Voluntary and Open Membership
- Democratic Member Control

---

<sup>27</sup> Biomass briquetting refers to the process for obtaining compacted units of biomass as a substitute of coal and charcoal for small scale industry and domestic purposes (e.g. heating).

- Economic Participation through Direct Ownership
- Autonomy and Independence
- Education, Training and Information
- Cooperation among Cooperatives
- Concern for Community

REScoop was initiated in 2012 with an EU funded project in the Intelligent Energy Europe (IEE) programme. It consisted of establishing an inventory of existing European RES cooperatives, collecting good practice from cooperatives, and for establishing 12 new pilot cooperatives. Overall 2300 European initiatives on RES coops were collected.

In 2013, another project was initiated with Cooperatives Europe, the European interest organisation for cooperatives. It resulted in establishing the REScoop European Federation of renewable energy cooperatives.

### **SI initiative in energy**

All citizens are eligible to join a REScoop. After purchasing a cooperative share and becoming a member or co-owner of local RES and EE projects, members share in the profits and often are given the opportunity to buy the electricity at a fair price. In addition, Members can actively participate in the cooperative: they can decide in what and where the REScoop should invest, and are consulted when setting the energy price. One of the main goals of REScoop and cooperatives is decentralisation of energy, production units getting closer to the people. This is very important for the social acceptance of RES installations - the more people are involved and informed, the higher the acceptance (e.g. windpower). The trend goes towards more cooperatives and citizen's involvement, which is also fostered from the EU level.

Another trend which can be observed is that cooperatives are diversifying their activities: while at the beginning, activities targeted mostly financing and establishing RES production units, and educational activities; a shift is taking place to activities on energy efficiency, e-mobility and IT services (grid management, energy monitoring, etc.)

**SI elements used in the initiative are:** citizen engagement, innovative citizen financing of RES/EE projects (e.g. via shareholdings in the cooperative)

### **Actors involved**

REScoop was initiated by the Belgian cooperative ecopower. The number of coops and citizens represented by them has constantly increased. REScoop federation is currently representing about 1 million citizens, and it can be expected that this will increase further.

In terms of members the biggest one is probably cooperative energy<sup>28</sup> from the UK with 240,000 members. In Belgium ecopower<sup>29</sup> has 50,000 members, similar to enercoop<sup>30</sup> in France with also 50,000 members.

### **Barriers /success factors to the initiative**

The legal framework for cooperatives and prosumership is crucial. While a good development can be observed at the EU level towards stimulation of cooperatives, REScoop struggles with implementation of the EU directives at the national level. A lot of different interpretations can be found here, which hamper cooperative development and prosumership. For example, Enercoop in France is the only coop selling renewable

---

<sup>28</sup> <https://www.cooperativeenergy.coop/>

<sup>29</sup> <https://www.ecopower.be/>

<sup>30</sup> <http://www.enercoop.fr/>

energy in France. A key problem in France is that Enercoop cannot simply sell the energy produced to consumers, but has to sell it first to Electricité de France, consequently, increasing the price.

A key issue for advancing cooperatives is therefore a fight against monopolies, and a struggle with utilities. They are entangled with the public authorities and try to defend their positions. It is a slow process, which is however surely advancing, to get out of this situation in Europe. Another barrier is that public support schemes for RES were reduced over the last years. Different schemes are in place, for example in Belgium a green certificate system is used.

In Eastern Europe there are few cooperatives and specific barriers. The reasons, why cooperatives are not so developed yet are:

- Cooperatives are associated with Communism
- Only few support schemes are in place
- Citizens have more limited financial means

### **S3 relevance and local impact**

The REScoop Federation has currently members from across 20 European countries. It is conceived as inclusive as possible, and features also national and regional branches. Most Federation members are from Western Europe, as coops are more developed here.

Federation members do advocacy work at regional level. There are for example now REScoop Flanders and REScoop Wallonie in Belgium and REScoop Spain. In Flanders 10 cooperatives are operating, and all have become member of the regional cooperative – that has then some regional impact. REScoop.eu is providing the European umbrella.

Cooperatives are in fact an interesting business model to foster RES acceptance. They are often linked to communities and municipalities. Many of them have signed up to the Covenant of Mayors initiative and are required to develop and implement sustainable energy plans. The evaluation of the Covenant of Mayors initiative has shown that municipalities:

- do not have time for implementing sustainable energy plans, and many remain on paper
- lack of support from communities
- no financial means and expertise for implementation

Cooperatives are reaching out to municipalities and are informing them, helping them with the implementation of the sustainable energy plans. Workshops are organised and tangible investments done. For example in Asse (BE), the local energy cooperative is replacing public lighting bulbs with LEDs, which helps saving energy, and it is done by local citizens.

Cooperatives set up workshops with citizens and municipalities, and they feature a lot of partnerships with businesses. Local businesses/SMEs are involved in installing RES, they execute work, and provide servicing.

Project developers are required to work with citizens for new installations /RES projects, e.g. for wind. Private developers have to work with citizens and coops, to ensure acceptance and citizen participation. This is a general trend in Europe.

### **Evidence for policy-making on smart specialisation**

Cooperatives, associations and other forms of bottom-up innovative citizen initiatives have great potential for advancing towards decentralised energy and making the energy transition herewith happen. Policy makers have to provide the appropriate regulation at

various governance levels to allow these cooperatives and SI initiatives flourish at the regional level. Cooperatives help filling smart specialisation priorities on RES and EE with activity. With their focus on citizen involvement they address the quadruple helix of actors, where citizen and NGOs are usually weaker involved than other actors. Finally our case has shown that important potential for local economic development is available due to the cooperatives and their need for support from local companies.

## 5.4 Finland, Ostrobothnia region OSIRIS project, SI and energy in the business sector

### Background

OSIRIS -*Open Social Innovation policies driven by co-creative Regional Innovation ecosystems*- is a project funded by the Interreg Europe programme<sup>31</sup> and which is under the coordination of the Swedish region of Västerbotten. OSIRIS is implemented from 2016-2020 and aims at improving the design, rapid delivery and implementation of open and social innovation policies and action plans. The project organised a workshop on open and social innovation in the energy field in Vaasa, Ostrobothnia region of Finland in 2016.

A key branch in Ostrobothnia is renewable energy technology, including bio energy and wind power. The region's cluster of energy technology companies is the largest energy cluster in the Nordic countries. The cluster consists of 140 companies with a combined turnover of € 4.4 billion<sup>32</sup>, and it is a central growth engine in the region (AMCER report, 2013).



**Figure 1:** OSIRIS project screenshot.

Companies rely to a large extent on doing-using-interacting (DUI) forms of innovations based on customers' needs, as compared to science-based innovations. Still, the innovation system is rather well-connected from a triple-helix standpoint (Virkkala et al, 2014<sup>33</sup>). However, there is a need to include the fourth blade of the helix emphasizing "users" of innovations. In other words, there is a need for both the public and firm sector to use a bottom up approach and to create new working processes which more strongly involve citizens and the local community. Similarly, there is a need to find new ways on

<sup>31</sup> <https://www.interregeurope.eu/osiris/>

<sup>32</sup> EnergyVaasa, website, available at: <http://energyvaasa.vaasanseutu.fi/>

<sup>33</sup> See also <https://www.obotnia.fi/regional-development/smart-specialisation/preliminary-results/>

how open and social innovation could be used as an engagement tool in the field of smart energy.

### **SI initiative in energy**

The initiative is realised within the OSIRIS project and, thus, funded through the Interreg Europe program. The social innovation initiative concerns an engagement tool for citizens /society, integrating their input into energy business. In order to explore how citizens and the local community could be more actively involved in the field of smart energy, a mutual learning exercise on SI and energy was implemented via an open and co-creative workshop in 2016 (mentioned above). The workshop also served to establish a dialogue and shared perspective on measures to be taken to approach the identified problems and needs in the energy sector of the region. The learning exercise included a hands-on session on the merits and challenges of open and social innovation in developing smart energy solutions and anchoring them in the society. The exercise/workshop was organised in collaboration between the OSIRIS project partners and local actors from the public, business and educational sector in Western Finland.

The exercise generated a number of ideas on social innovation in the field of smart energy. Many of the ideas departed from the standpoint that there is a need for learning and changing attitudes among citizens towards smart energy. In addition, the challenge and need for building up an interest and awareness of sustainable energy was emphasised. Despite the similarity of the needs and challenges identified by the groups, the exercise resulted in different ideas on methods and processes to use for approaching the identified needs. The participants' suggestions and conclusions have been grouped into four categories of ideas on how citizens and the local community could be more actively involved in the field of smart energy:

- **Education:** this suggestion emphasised the importance of engaging students and children in the field of smart energy, for example by making every student an "energy ambassador". To achieve this, three key actions were pointed out. First, there is a need for actions which increase students' knowledge and understanding on energy matters, sustainability and how to reduce energy consumption. Such actions ought to target pre-schools, schools and universities. Second, there is a need for engaging children by introducing a debate about energy in schools. Third, there is a need for more students choosing mathematics and physics in schools.
- **Information:** the point for action was to more frequently use storytelling as a method for raising awareness of sustainable energy. Through story-telling people are engaged and it is possible for companies and universities to make sustainable solutions more visible and part of the citizens' everyday lives. Also, the use of good showcases and competitions related to energy matters were put forth as potentially valuable methods to give information to citizens. In a similar way, the role of gamification<sup>34</sup>, test and experiments was underlined.
- **Engagement:** this suggestion put forth the importance of engaging citizens by the use of Hackathons<sup>35</sup>, idea workshops, prototyping, and experience labs for smart energy environments. This idea underlined that the region should create a process which would give a constant flow of ideas and concepts at the same time as citizens are gradually more and more included into the field of smart energy.

---

<sup>34</sup> Gamification refers to games or game elements, which are used here for communicating and making sustainable energy issues accessible to citizens.

<sup>35</sup> Hackathon originally refers to an event in which computer programmes, graphic designers, data analysis and other ICT-skilled profiles meet with the objective of developing open access software in a collaborative way.

- Company perspective: this point relates social innovation to a firm perspective. This particular idea emphasised the need for more cooperation between companies in the energy sector by open data solutions and cooperation on research.
- The last two points will be combined in a follow-up key activity: Hackathons and local workshops will be organised to bring citizens and local energy companies together. This will allow for co-creation of energy solutions among citizens and business representatives.

**SI elements used in the initiative are:** The initiative uses socially innovative approaches in energy business in Western Finland: citizen engagement; co-creation among the public sector, the business sector as well as research and wider society. Hackathons and local workshops will be organised to bring citizens and local energy companies together.

### **Actors involved**

Key actors involved in the learning exercise were OSIRIS project partners and stakeholders, and representatives of the public, business and educational sectors in Western Finland. In particular, the exercise targeted local project developers and stakeholders working with projects funded under the European Regional Development Fund (ERDF) in the Western Finland region and interested in energy as a topic and open social innovation as an engagement tool. Some, but not all, participants had specific energy expertise. Citizens were not involved in the learning exercise at this stage. However, citizens will have a key role in further refining and in implementing the generated ideas.

In Finland the key actors involved are the region of Ostrobothnia and Vaasa Energy cluster.<sup>36</sup> The Regional Council of Ostrobothnia has through its involvement in the OSIRIS project a key role in starting the initiative. In particular, there are two generic needs that underlie the social innovation initiative: 1) to broaden the region's innovation system to a quadruple helix way of thinking, 2) to set up and host a system for incubating ideas into innovations which support better projects and better results in the form of new products, services and processes.

The regional council has a key role in driving and pushing the initiative and the generated ideas forward. Within the OSIRIS project, the regional council will form an action plan on how strengthen its focus on open and social innovation as a tool and method for regional development. This action will set out an approach for how to more strongly involve citizens and the local community in order to influence the regional policy making and the structural funds program. Within this action plan the generated ideas will be considered and further developed.

### **Barriers/success factors to the initiative**

Currently, there are no stimulation measures specifically targeting the social innovation in the field of smart energy. Overall, national level funding programmes support to some extent different kinds of projects related to social innovation. Regarding rural development, the LEADER program has a key role in stimulating projects for social innovation and citizens' involvement. However, the intention is that the OSIRIS project will stimulate and contribute to the implementation of new projects in the region focusing on open and social innovation both in the field of smart energy and in other areas. Moreover, from a policy standpoint, the intention is that that OSIRIS will

---

<sup>36</sup> <http://energyvaasa.vaasanseutu.fi/energyvaasa-shortly/>

contribute to the modification of the structural funds program funding by a stronger focus on open and social innovation as a method for regional development.

The ideas generated through the learning exercise are about to be implemented, therefore experiences and measurements of success factors and barriers are at an early stage. Still, an important point related to this question is that the use of open and social innovation in energy may have a key role in avoiding opposition from citizens when realizing projects and initiatives related to smart energy and renewable solutions. For example, the region of Ostrobothnia has experience of wind power projects meeting a strong opposition from citizens. This experience shows the importance of creating a shared view on new energy solutions alongside discussing and anchoring ideas and initiative among members of society.

This point can be linked to the discussion in question 1 where the ideas generated by the groups took a starting point in outlining the importance of learning and changing attitudes to energy among citizens. From a generic viewpoint, there are various legal hindering the implementation of innovations in the field of energy. An example is barriers hindering citizens to sell excess power produced through solar panels.

### **S3 relevance and local impact**

Finland is one of the six innovation leaders in the EU and Ostrobothnia was the first region in Finland to join the S3 platform. The Ostrobothnian Model of Smart Specialisation was developed in 2013 and has since then functioned as an important development tool in smart specialisation planning (see Virkkala et al. 2014 referred to above). The social innovation on energy initiative has a strong and important link to the region's smart specialisation strategy. First of all, the energy industry means an important domain where the regional smart specialisation strategy focuses on. This means that actors from the cluster are actively involved in the process of formulating and reformulating priorities in the regional strategy of specialisation. Second, the smart specialisation model implemented in the region has focused on analysing the nature and depth of relationships between the triple helix actors (firms, university sector and public sector) in order to find activities for prioritisation to be included in the strategy. However, there is a need to find new working processes which more strongly connect the model to a fourth helix consisting of citizens and users of innovation, which is also key for the S3 process. In this sense, the social innovation initiative and the OSIRIS project have an important role to complete the local S3 process.

OSIRIS applies social innovation approaches for smart specialisation purposes. Its activities focus on experience and good practice exchange, for application in different European regional contexts, in particular to transfer of knowledge among regions involved in the OSIRIS project besides Finland, which are from Greece, Italy, Portugal, Slovakia, and Sweden.

The model is based on a continuous processes consisting of five interrelated steps of activities. These activities are surveys, gaps analysis, focus group meetings, policy measures and evaluation. The model focuses on analyzing the nature and depth of relationships between the triple helix actors (Firms, university sector and public sector). The key purpose of this analysis (and the model as a whole) is to identify gaps in the network structure and innovation activities performed by the actors. Based on the identified gaps policy measures are suggested to bridge the gaps, create new links and strengthen the weak ones.

### **Evidence for policy-making on smart specialisation**

This case study has shown perspectives for combining citizen engagement with firm level innovation in a co-creation approach. Input from citizens will be generated and matched with business requirements in the frame of hackathons and workshops. This socially

innovative approach will allow local energy business to integrate citizens' requirements to their energy innovations. In general, these co-creation approaches are at an early stage of development in the EU, but in line with, and promising for S3.

## **5.5 Spain, Navarra Region strategically addressing social economy, social innovation and energy**

### **Background**

Navarra is a region in the north of Spain, bordering France. It is one of the economically most prosperous regions of Spain, and its Gross Domestic Product (GDP) per capita is one of the highest, just after Madrid and Basque country<sup>37</sup>. Navarra has developed a strategic base for its regional policy making, including a smart specialisation<sup>38</sup> and energy strategy<sup>39</sup>, and a social economy plan<sup>40</sup>. In its previous Technology Plan for Navarra (2012-2015), it encouraged R&D and innovation activities on the basis of:

- Smart specialisation;
- Social innovation;
- Open innovation as a result of the need for collaboration in R&D in order to be competitive.

The 'social economy' in this region has an important historical background in the region and is relatively strong. The term social economy here includes Worker Cooperatives, Worker-Owned Companies, Agro-food Cooperatives, Insertion Companies, Foundations and associations that carry out a business activity, Solidarity Economy Entities, and Special Employment Centres. Cooperatives are important in the agricultural sector and for its industry base. For example Mondragon cooperative group is originating from neighbouring region Basque country, but several dependencies are operating in Navarra.

Navarra has technological and industrial capacities for RES development, as it has in conservation and exploitation of natural resources and environmental management. The fight against climate change is one of its major commitments. The region has a percentage of renewable energy production of over 80% of electrical consumption (Navarra S3 Strategy, 2016). The energy strategy postulates the objective to increase energy efficiency by at least 27% in Navarra. This will be achieved by a modified fiscal policy that promotes energy saving, energy efficiency and the use of renewable energy. Furthermore, cooperatives of producers and consumers of energy will be promoted. Accordingly, a tax incentive of 30% has been introduced, which will be applied as of 2018.

### **SI initiative in energy**

Socially innovative initiatives and projects are strategically supported in Navarra region. The region has recently created a new Social Innovation Unit within the regional government, to follow and stimulate these initiatives.

The legal basis will be modified to support energy cooperatives. The Cooperative Act of Navarra will allow legal persons as potential partners in cooperatives besides natural persons. A specific legal framework for energy cooperatives will be established. The tax

---

<sup>37</sup> Gross Domestic Product (GDP) per inhabitant reached in Purchasing Power Standards (PPS) an amount of €32,500 in the year 2015. See EUROSTAT [http://ec.europa.eu/eurostat/statistics-explained/index.php/GDP\\_at\\_regional\\_level](http://ec.europa.eu/eurostat/statistics-explained/index.php/GDP_at_regional_level)

<sup>38</sup> <http://sodena.com/index.php/en/estrategia-regional>

<sup>39</sup> [http://www.gobiernoabierto.navarra.es/sites/default/files/pen\\_2030\\_borrador\\_definitivo\\_20170330.pdf](http://www.gobiernoabierto.navarra.es/sites/default/files/pen_2030_borrador_definitivo_20170330.pdf)

<sup>40</sup> <http://na.bruselassite.es/comprehensive-social-economy-plan-navarra-2017-2020>

incentive of 30% will be used for investment projects of production and consumption or storage with renewable energies, and for supporting the creation of cooperatives of producers and consumers of energy.

Several large and small scale projects, which have been recently supported or are about to start, fill the strategies and plans mentioned above with activity and serve to implement them:

- a project on Energy Efficiency in buildings for social housing (€ 80 million), which has been supported by the European Investment Bank in the frame of the Juncker plan. It will facilitate access to affordable social housing in metropolitan areas of Navarra by providing € 40 million (50% co-financing) for the construction of 524 units. These will be Nearly Zero Energy Buildings (NZEB).
- the NAdapta project<sup>41</sup> (€ 14.5 million), supported in the EU's LIFE programme (55% co-financed) deals with climate adaption measures and will help increase the resilience of the region towards climate change in key areas such as water, forestry, infrastructure and land use planning (including pilot projects on energy). The project is focused on Navarra region and relies on a strong stakeholder involvement element.
- Participation in the STARDUST project<sup>42</sup> (€ 18 million) funded under the European Union's Horizon 2020 smart cities and communities lighthouse programme. To make cities smarter, including Navarra's capital Pamplona, the project will rely on competence in smart buildings, energy efficiency, Information and Communication Technologies (ICT), and e-mobility, which will be coupled with innovation and social engagement coming from the local citizens. As a result citizens will have the possibility of using their cities as "innovation islands" or urban incubators of technological, social, regulatory and market solutions.
- Participation in the H2020 SCREEN project<sup>43</sup> (€ 2.5 million) dealing with the transition to a circular economy in EU regions within the context of their Smart Specialisation.
- Distributed energy e-HIERA project<sup>44</sup>. In this case, the project defined and the subsidy granted covers the technological development, but not the social innovation that is essential for its configuration and implementation. The plan is to cover this social function so that the project is oriented towards citizenship and can work.
- Creation of a collaborative community of small producers and consumers of solar energy (it has a technological, organisational and legal component to work with). This project is in an incipient phase.
- First shared solar energy installation in protected areas of Pamplona, led by the city council.
- First community of neighbours with shared solar energy in a private building. In June a law banning shared solar installations was repealed. It was the first case and may open the way to replicate it and be able to provide solar energy to the apartment buildings, where most of the population lives.

---

<sup>41</sup> NAdapta project: *Towards an integrated, coherent and inclusive implementation of Climate Change Adaptation policy in a region: Navarre.*

<sup>42</sup> STARDUST project: *Holistic and integrated urban model for Smart Cities*

<sup>43</sup> H2020 SCREEN project: *Synergic Circular Economy across European Regions*, <http://www.screen-lab.eu/>

<sup>44</sup> <http://www.sakanagaratzen.com/es/archivos/1252>

- Hydroelectric co-production in Puente la Reina, a project to recover a small power plant to supply municipal facilities and the community of neighbours of the town that joins the initiative.

### **SI elements used in the initiative are:**

Social economy, cooperative movement, citizen involvement, energy efficient social housing, commitment of regional and municipal public authorities

### **Actors involved**

The initiatives are driven and supported from the top-down level, the regional government of Navarra. The government can rely here on traditionally strong bottom-up initiatives, including cooperatives, associations and other organisational forms. Social economy companies of Navarra have an own interest organisation: ANEL<sup>45</sup> is their Business Association involving both Labour and Associated Work Cooperatives. It was established in 1982 and involves today 191 associated companies in which 4,200 people work (data for 2016). ANEL represents companies and promotes the social economy business model. It supports the creation of companies and the improvement of management, training and business cooperation.

### **Barriers /success factors to the initiative**

Success factors are that the initiatives have a strong back-up from the policy maker level in Navarra, and that bottom-up citizen involvement is traditionally well established. However, there are some general framework conditions that provide limitations to social innovation in energy. Self-consumption of energy is restricted in Spain, and it cannot be regulated at the regional level. The existing grid cannot be used for feeding in self-produced energy. Barriers to establishing energy cooperatives are the required initial investment, uncertainty of regulation in the electricity sector and the taxes imposed on the activity.

### **S3 relevance and local impact**

Spain is a moderate innovator in the EU, but Navarra is one of the economically leading regions in the country. Navarra has a very well developed regional strategic base for advancing its policy in the field of social economy and renewable energies and energy efficiency. The strategic base is underpinned by offices in the government, and outside, and it can rely on a historic base of social economy and cooperative movement. Social innovation and support for renewables and energy efficiency are combined here in a fruitful way to advance policy on renewable energy production and climate policy targets. Relevant initiatives are linked

### **Evidence for policy-making on smart specialisation**

The case study of Navarra shows the potential of strategic planning for renewables, energy efficiency and for combining it with social economy and social innovation approaches. Although many initiatives are still in early implementation phase, it has to be underlined that the region has succeeded in filling the strategy with suitable projects financed from a different portfolio of funding instruments (EU, regional) to implement the strategies.

---

<sup>45</sup> Asociación de empresas de economía Social de Navarra / Association of Social Enterprises of Navarra. <http://www.anel.es/>

## 5.6 Germany, crowdfunding, LeihDeinerUmweltGeld<sup>46</sup>

### Background

Crowdfunding is a relatively new financing instrument, which allows small scale investments by citizens into innovative projects, products and services. Often, crowdfunders are driven by social aspects of investment into projects which benefit society. However, attractive interest rates play a role too, and the sector is getting professional. Crowdfunding is becoming a more usual investment form.

In a future perspective crowdfunding for renewable energy and energy efficiency projects is set to gain ever more importance. This is based on policy of citizen involvement into the energy transition, and attracting of private money for RES. The EU Horizon 2020 project CrowdFundRES<sup>47</sup> (*Unleashing the potential of Crowdfunding for Financing Renewable Energy Projects*) furthers the development of crowdfunding for renewable energies through analysis, development of guidelines for crowdfunding initiatives, and promotion of the concept and its advantages. Crowdfunding does in many cases not provide the entire funding of a RES/EE project, and it is combined with own or other additional financial resources. Crowdfunding is frequently used to refinance projects, which help project developers or renewable energy producers to further expand their activities.<sup>48</sup>

Project financing for RES/EE by crowdfunding is more developed in Western Europe, while the market is at a very early stage in Eastern Europe. Among the EU member states 17 have crowdfunding platforms which include RES Projects as potential investments. Nine of these 17 Member States (Austria, Finland, France, Germany, Italy, the Netherlands, Portugal, Spain and United Kingdom) have crowdfunding platforms focussed exclusively on RES projects. Among the Member States in Eastern Europe, only three (Croatia, Estonia, Romania) have seen small RES projects funded via crowdfunding platforms (CrowdFundRES, 2017).

### SI initiative in energy



We study here the German RES crowdfunding platform LeihDeinerUmweltGeld<sup>49</sup>. It is one of seven crowdfunding platforms focused on RES and EE in Germany. It has been selected as it finances projects primarily in Germany, and which have therefore relevance for regional energy. Other platforms such as bettervest<sup>50</sup> or ecoligo<sup>51</sup> invest in German projects as well as in emerging markets.

The platform LeihDeinerUmweltGeld is run by the company CrowdDesk GmbH, established in 2011 and based in Frankfurt am Main. The crowdfunding platform is operational since 2013 and since then a number of projects has been successfully financed. Projects have been dealing with photovoltaics, wind power, bioenergy, and energy efficiency (in particular energy efficient buildings). Crowdfunders can participate with an investment starting from € 100; on average crowdfunders invest about € 5,000 at the platform LeihDeinerUmweltGeld. Investment projects range from € 50,000 to €1.5 million, whereby a trend towards projects with higher financing amounts can be observed. Project duration is between 12 months and 15 years. Interest rates have been

---

<sup>46</sup> LeihDeinerUmweltGeld is an artificially created German word meaning "Borrow your environment money".

<sup>47</sup> See <http://www.crowdfundres.eu/>

<sup>48</sup> See information of the German Bundesverband Crowdfunding at <http://www.bundesverband-crowdfunding.de/crowdfunding-und-erneuerbare-energien/>

<sup>49</sup> <https://www.leihdeinerumweltgeld.de/>

<sup>50</sup> <https://www.bettervest.com/de/>

<sup>51</sup> <https://invest.ecoligo.com/>

attractive for investors with a nominal 6% on average, given the low interest rate environment over the last years. No administration fees are applied for the crowdfunders, which adds to the attractiveness of the instrument.

A certain risk is associated with crowdfunding in the sense that projects may fail and the investment be lost for the crowdfunders. In the case of LeihDeinerUmweltGeld, no project failures or delays in payment have happened yet.

**SI elements used in the initiative are:** innovative financing for RES and EE projects, collecting citizen investments for this area,

### **Actors involved**

The platform LeihDeinerUmweltGeld is run by the company CrowdDesk GmbH. It assesses and selects suitable projects for crowd investment. Project developers can be municipalities, cooperatives, renewable energy producers, and real estate companies, which need financing for RES/EE projects. On the investor side it is citizens, who provide small scale investment for the projects.

### **Barriers / success factors to the initiative**

In general, the legal framework is a challenge and not yet fully suitable in most EU countries to take full advantage of crowdfunding for RES/EE projects. This concerns financial services regulation and a consistent regulation over the EU. Another issue is that enough investors need to be attracted to the platform and to invest into projects.

### **S3 relevance and local impact**

Germany is among the innovation leaders in the EU and at the forefront of socially innovative approaches in RES/EE. LeihDeinerUmweltGeld invests in projects in different regions in Germany, such as Saxony Anhalt, Bavaria, Rhineland Palatinate, etc. It focuses on small scale investment projects with local impact. Private capital is essential for the growth of the renewable energy sector, and crowdfunding can serve as a complementary source or viable alternative for financing RES /EE projects.

### **Evidence for policy making on smart specialisation**

Crowdfunding for RES/EE is still at an early stage in the EU, but has a highly interesting perspective for the future. It contributes to financing decentralised renewable energy, and underpins herewith the energy transition. Crowdfunding provides for citizen participation in RES/EE projects and consequently may lead to a better local acceptance of such projects. Furthermore, it allows businesses in the RES/EE sector to have an alternative to bank credit, and to expand their business activities at local and regional levels.

## 6 Conclusions

In this final section, the lessons learned from the socially innovative actions in energy described above are discussed, and some evidence for policy making in smart specialisation is deducted.

A regional impact for this kind of activities would be higher if supported by **top-down measures and framework conditions**, which have to be taken at the higher national and EU levels. In the cases of energy cooperatives and of crowdfunding for RES, the national regulation has to allow and facilitate such initiatives. However, the legal framework is in most countries not yet adapted to these new developments, and these limitations and restrictions hamper taking full advantage of the social innovation potential for RES/EE. In EU countries, and in particular in Central and Eastern European members, the necessary regulation needs to be modified or introduced. Moreover, measures for facilitating cross-border crowdfunding should be considered (CrowdFundRES, 2017). Another top down measure is providing financial incentives for starting-up RES/EE initiatives locally, which can be done in a co-funding approach combined with citizen investment.

**Regional strategic thinking and strategy development** can underpin and lead to a multitude of socially innovative actions. Many smart specialisation strategies in EU members highlight renewable energies and energy efficiency as focus areas of specialisation. These postulations need to be fulfilled with implementing and complementary actions operative in a specific territory (e.g. region). The region of Navarra in Spain has been instructive in this respect. It can rely on a tradition of social economy, and has on this basis devised a range of socially innovative projects in the energy field, which add up to impact for RES/EE.

**Citizen involvement** and their willingness to contribute to the energy transition is in many respects key to making socially innovative actions in the RES/EE field a success. The Finnish region of Ostrobothnia and its regional capital Vaasa can rely on a strong energy cluster and strategic support for it. They have moved into new co-creation approaches for integrating citizen knowledge and requirements into energy innovations in its cluster businesses. These measures should be closely followed and assessed for impact, and further disseminated to other regions. Energy cooperatives rely on active citizens or citizens contributing and using the cooperative services. In the more specific case of energy poverty among Roma communities in Hungary, we have shown citizen activation that has led to improve energy provision.

The **local and decentralised nature of many socially innovative actions in the energy field** has to be kept in mind. The link to municipal and regional authorities is crucial for a successful and speedy implementation of cooperative RES projects (REScoop, 2014). The initiatives discussed in the case studies open up ways for using local resources, for example local biomass as in our Hungarian case study, and for using local competence and business involvement (e.g. for establishing and servicing installations). They strengthen herewith the local and regional economy.

**Broad dissemination and popularisation of SI initiatives in energy and of its good practice examples is required** to bring RES/EE forward and underpin prosumerism. Several good practice examples have been gathered via EU supported SI projects, via REScoop and other projects. The social characteristic of initiatives analysed here is directly related to the evolution of communication in society. Therefore, it is necessary not only to capture key messages and lessons but also to transmit them in a catching way to a broad audience (e.g. story telling examples seen in OSIRIS)

From our case studies and from REScoop best practice case studies we have learned that **SI categories as we have defined them (organisational, social, funding, educational, business), are often dealt with in parallel**. We can observe cooperatives for renewable energy production, which use an innovative citizen financing

scheme for funding its activities, and which also implement educational or awareness raising projects for RES/EE.

**Social innovation is not per se good for all actors of society**, as normative SI theories postulated. While SI and decentralisation of energy production will be required to make the energy transition happen, it challenges the business model of utilities. Resistance from utilities and public administration has to be overcome to take benefit of the full potential of SI in energy. Removing legal barriers is an important element here, and changing the mindset especially in Central and Eastern European EU member states. SI elements can be taken up by businesses and utilities, and applied successfully; citizen financed RES power stations established by utilities are an example here.

Social innovation in the context of smart specialisation has been discussed from a theoretical perspective in the SMARTSPEC project. SI was defined here as complementary element in the regional innovation context. However, this **concept of complementary SI may underestimate the role of SI in the energy field**. A multitude of initiatives and cooperatives for RES and EE have sprung-up in recent years. If the EU gets its way with a more consumer and citizen driven energy system, SI may become a transformative function.

## References

- AMCER (Advanced Monitoring and Coordination of EU R&D Policies at Regional Level), *Report*, 2013.  
[http://www.espon.eu/export/sites/default/Documents/Projects/TargetedAnalyses/AMCER/FR/AMCER\\_SCIENTIFIC\\_ANNEX\\_.pdf](http://www.espon.eu/export/sites/default/Documents/Projects/TargetedAnalyses/AMCER/FR/AMCER_SCIENTIFIC_ANNEX_.pdf)
- Bureau of European Policy Advisers (BEPA), *Empowering people, driving change. Social Innovation in the European Union*, 2010.  
[http://ec.europa.eu/growth/industry/innovation/policy/social\\_en](http://ec.europa.eu/growth/industry/innovation/policy/social_en)
- Croatian Smart Specialisation Strategy, 2016.
- CrowdFundRES, Proceedings of the European Policy Workshop, 2017.  
<http://www.crowdfundres.eu/wp-content/uploads/2017/04/D4.3.-Proceedings-EU-Policy-Workshop.pdf>
- Domanski, D., Kaletka, C., *Social Innovation Research on Concepts and Theories*. Social Innovation Communities project, 2017.
- Domanski, D., Kaletka, C., *Social Innovation Ecosystems*, in Atlas of Social Innovation, SI-DRIVE project, 2018.
- Elle, M., van Gameren, V., Pel, B., Aagaard, H.K., Jørgensen, M.S., *WP4 CASE STUDY: INFORSE*, TRANSIT project: EU SSH.2013.3.2-1 Grant agreement no: 613169, 2015.
- European Commission, *European Innovation Scoreboard 2017*.  
[http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards\\_en](http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en)
- European Commission, *Guide to Social Innovation*, 2013.
- European Environment Agency (EEA), *Air quality in Europe – 2017 report*, 2017.  
<https://www.eea.europa.eu/publications/air-quality-in-europe-2017>
- Government of Navarra. Economic Development Department, *Comprehensive Social Economy Plan of Navarra 2017-2020*, 2017. <http://na.bruselas.site/es/comprehensive-social-economy-plan-navarra-2017-2020>
- Government of Navarra, *Smart Specialisation Strategy of Navarra*, 2016.  
<http://sodena.com/index.php/en/estrategia-regional>
- Hungarian Smart Specialisation Strategy*, 2014. <http://nkfih.gov.hu/policy-and-strategy/national-strategies/s3>
- Kroll, H., *The challenge of Smart Specialisation in less favoured Regions*, 2017.  
[http://www.isi.fraunhofer.de/isi-wAssets/docs/p/de/arbap\\_unternehmen\\_region/2017/ap\\_r1\\_2017.pdf](http://www.isi.fraunhofer.de/isi-wAssets/docs/p/de/arbap_unternehmen_region/2017/ap_r1_2017.pdf)
- REScoop, *Best Practices Report I*, 2013.
- REScoop, *Best Practices Report II*, 2014.
- REScoop, *Putting citizens at the heart of the energy transition*. Report on potential of energy citizens in Europe, 2016.
- Ooms, M., Bijnsdorp, S., Huygen, A., Rhomberg, W., Berger, A., *Social innovation in energy supply: case study results*. SI-DRIVE project. EU Grant Agreement no: 612870, 2016, [https://www.si-drive.eu/wp-content/uploads/2017/03/SI-DRIVE-Deliverable-D7\\_3-Energy-1.pdf](https://www.si-drive.eu/wp-content/uploads/2017/03/SI-DRIVE-Deliverable-D7_3-Energy-1.pdf)
- Richardson, R., Marques, P., Morgan, K., *WP2: D2.2 Social Innovation for an Age Friendly Society*. Smart Specialisation for Regional Innovation – SMARTSPEC project, EU Grant Agreement no: 320131. 2015

Rüdinger, A., *Local Energy Ownership in Europe. An exploratory study of local public initiatives in France, Germany and the United Kingdom*. Energy Cities, 2017. <http://www.energy-cities.eu/-Publications-62->

The Young Foundation, *Social Innovation Overview - Part I: Defining social innovation*, 2012.

Virkkala, S., Mäenpää, A., Mariussen, A., *The Ostrobothnian Model of Smart Specialisation*, 2014. [http://www.uva.fi/materiaali/pdf/isbn\\_978-952-476-577-0.pdf](http://www.uva.fi/materiaali/pdf/isbn_978-952-476-577-0.pdf)

## List of figures and tables

**Figure 1:** OSIRIS project screenshot. .... 17

**Table 1:** Summary of case studies ..... 10

## List of interviews

Case study 1: Melani Furlan, ZEZ, Croatia

Case study 2: Nora Feldmar, Vedegylet, Hungary

Case study 3: Johanna Dahl, Finland and Magnus Rudehäll, Sweden for OSIRIS project

Case study 4: Daan Creupelandt, REScoop, Belgium

Case study 5: Mikel Irujo Amezaga, Navarra region, Spain

Case study 6: Peter Mayr, expert on Crowdfunding, Austria

## Interview questionnaire

1. Can you briefly describe your energy related initiative? What is it about? Which elements could we consider as innovative /social innovation (SI)?
2. Who are key actors involved? Who has driven and pushed the initiative forward? How many do have energy expertise? What is the role of citizens, public actors/policy makers, business, NGOs?
3. Was a specific legal entity set-up for implementing the initiative, or does it remain at the level of a non-formal network?
4. Have there been or are there specific stimulation measures available for SI in energy? E.g. through prizes, innovation support measures, funding programmes.
5. Is your initiative co-financed with regional, national, and/or EU funding (e.g. European Social Fund, ERDF)? What is the share of own financing vs. co-financing from public or business sources? How was the own financing raised (e.g. shares, crowdfunding, etc.)?
6. What are success factors / barriers met for implementing the social innovation initiative in energy? (E.g. think of legal framework, opposition from utilities /public actors, attitude of policy makers, funding).
7. Are you aware of Smart Specialisation strategies at your national / regional level? Do you see a link to your SI energy initiative? What impact of the SI energy initiative do you see for the local economy? What is its future potential?

## List of abbreviations and definitions

EC	European Commission
EDP	Entrepreneurial Discovery Process
EE	Energy Efficiency
ERDF	European Regional Development Fund
EU	European Union
EUSEW	European Sustainable Energy Week
EWRC	European Week of Regions & Cities
FP7	EU 7 <sup>th</sup> Framework Programme for Research and Technological Development
GDP	Gross Domestic Product
H2020	Horizon 2020, EU Framework Programme for Research and Innovation
ICT	Information and Communication Technologies
INFORSE	International Network for Sustainable Energy
IT	Information Technologies
MW	Megawatt
NGO	Non-Governmental Organisation
NZEB	Nearly Zero Energy Buildings
PV	Photovoltaics
RES	Renewable Energy Sources
RTD	Research and Technological Development
S3	Smart Specialisation
S3PEnergy	Smart Specialisation Platform on Energy
SCREEN	Synergic Circular Economy across European Regions
SI	Social Innovation
UNDP	United Nations Development Programme
ZEZ	Zelena Energetska Zadruga / Green Energy Cooperative

## **GETTING IN TOUCH WITH THE EU**

### **In person**

All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: <http://europea.eu/contact>

### **On the phone or by email**

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696, or
- by electronic mail via: <http://europa.eu/contact>

## **FINDING INFORMATION ABOUT THE EU**

### **Online**

Information about the European Union in all the official languages of the EU is available on the Europa website at: <http://europa.eu>

### **EU publications**

You can download or order free and priced EU publications from EU Bookshop at: <http://bookshop.europa.eu>. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see <http://europa.eu/contact>).

## JRC Mission

As the science and knowledge service of the European Commission, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle.



**EU Science Hub**  
[ec.europa.eu/jrc](https://ec.europa.eu/jrc)



@EU\_ScienceHub



EU Science Hub - Joint Research Centre



Joint Research Centre



EU Science Hub

