



HUMBOLDT-VIADRINA
Governance Platform

Greek-German good practice transfer

Energiewende as a mean of strengthening local communities in Greece

Workshop report



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Preface

This report is the outcome of a thematic workshop on energy transition at the local level, set up by the HUMBOLDT-VIADRINA Governance Platform together with the Civil Society Observatory of Central Macedonia, with friendly support of the Hellenic-German Chamber of Commerce and Industry. The event took place in Thessaloniki, on 13 – 14 June 2016.

With the objective of delivering resilient investment ideas in energy efficiency measures, which could be implemented in the municipality of Thessaloniki, examples of good practice, relevant policy developments and challenges in Greece and Germany were analysed and discussed by the key local stakeholders.

Know-how transfer workshops helped to share knowledge and perspectives when custom-designing activities for the local community of Thessaloniki.

The event resulted with the sketching of two initiatives for the promotion of energy efficiency in Thessaloniki: a counselling platform for citizens and energy efficiency cooperatives for the tourist sector. These ideas should be implemented based on Greek-German cooperation and embrace a variety of local stakeholders to integrate them within these activities. The project was supported by the German Federal Foreign Office.



Energy transition as a strategy for Europe

Energy policy and climate change are strongly interconnected. It is energy-related carbon dioxide that contributes most to global greenhouse gas emissions. Strategies preventing the further progress of climate change are two-fold. First, limiting energy production from conventional sources on the supply side. Second, on the demand side – limiting energy consumption by improving the energy efficiency of the infrastructure, introducing energy-saving technologies as well as changing individual habits. Thus, energy policy has become one of the core elements of the European integration. The main areas of interest of the European Union energy policies are: secure energy supplies, competitive environment for energy producers that ensures affordable prices and sustainable energy consumption through the lowering of greenhouse gas emissions, pollution, and decreasing fossil fuel dependence. Moreover, the EU's dependence on energy imports exceeding 50 % of its energy consumption¹ suggests the need for new and innovative solutions. To achieve these goals within a coherent long-term strategy, the EU has formulated future targets for 2020, 2030, and 2050².

The shortest perspective aims at reducing greenhouse gas emissions by at least 20 %, increasing the share of renewable energy to at least 20 % of consumption, and achieving energy savings of 20 % or more by 2020. To meet the targets, five priorities were set: making Europe more energy efficient by accelerating investments in efficient buildings, products and transport; building a pan-European energy market; protecting consumer rights and achieving high safety standards in the energy sector; implementing the Strategic Energy Technology Plan – the EU's strategy to accelerate the development and deployment of low carbon tech-

nologies; and pursuing good relations with the EU's external suppliers of energy and energy transit countries³. The goals for 2030 and 2050 are a continuation of the framework for climate and energy, setting more advanced progress milestones as well as policies for realisation of the Energy Roadmap 2050, with a long-term goal of reducing greenhouse gas emissions by 80 – 95 % compared to 1990 levels⁴.

Energy policy in the context of crisis – innovation and structural change?

Facing the economic challenges on the one hand and social and environmental commitments on the other, there is an urgent need for developing socially responsible energy markets. Thus, the concept of green growth was introduced, following the sustainable development policy. Green growth is a conceptual framework for harmonizing “economic growth with environmental sustainability, while improving the eco-efficiency of economic growth and enhancing the synergies between environment and economy”⁵. Numerous definitions of the green growth mention environmentally sustainable economic progress to foster low-carbon socially inclusive development, with natural assets providing the resources and environmental services, efficiency in the use of natural resources, and climatic and environmentally sustainable economic growth⁶. Especially within the context of the recent financial crisis, new socio-economic models are in demand. In fact, green growth is also a part of the European Union's EUROPE 2020 strategy, which proposes three mutually reinforcing priorities:

1 EU 53 % dependent on energy imports in 2014, Energy News, European Commission, 4 February 2016, <https://ec.europa.eu/energy/en/news/eu-53-dependent-energy-imports-2014>

2 Energy Strategy. Overview. Energy Topics, European Commission, <https://ec.europa.eu/energy/en/topics/energy-strategy>

3 2020 climate & energy package, Climate Action, EU Action, Strategies 2020, European Commission, <https://ec.europa.eu/energy/en/topics/energy-strategy/2020-energy-strategy>

4 2050 energy strategy, Energy Topics, European Commission, <https://ec.europa.eu/energy/en/topics/energy-strategy/2050-energy-strategy>

5 Green growth, Sustainable Development Knowledge Platform, United Nations, Department of Economic and Social Affairs, <https://sustainabledevelopment.un.org/index.php?menu=1447>

6 Ibidem.

smart, sustainable and inclusive growth⁷. It is hoped that when combined with other efforts, green growth will help the EU become a smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion⁸. Moreover, developing new sectors of industry connected with renewable energy sources as well as energy efficiency is believed to generate high quality job opportunities in a decentralized manner, rehabilitating local economies and improving the living conditions of local communities.

Energy transition in Germany and in Greece

Germany holds a very clear policy direction towards its flagship project *Energiewende* – energy transition, indicated by the Masterplan outlined in the Energy Concept of 2010 (*Energiekonzept 2010*). According to the plan, in 2050 80 % of electricity usage should be generated by renewable energy sources. Moreover, consumption of energy should drop by half in comparison to 2008. Last but not least, the nuclear power phase-out is scheduled to be completed in 2022⁹. The long-term perspective reflects the complexity of that enterprise. Nevertheless, the first steps towards it are already visible today. Renewables account for a third of electricity produced in Germany (predominantly wind, biomass, and solar power). The output of harmful greenhouse gases dropped by almost 25 % between 1990 and 2012. So far, 370,000 jobs have been created in Germany in the renewables sector alone¹⁰. These tangible effects of the energy transition are achiev-

able within a legal framework with public incentives fostering their implementation. Through prioritising the feed-in of renewable electricity and guaranteed prices, the Renewable Energy Sources Act from 2000 (*Erneuerbare-Energien-Gesetz, EEG*) enabled the development of the green electricity market. Later amendments in 2014 have fostered further integration of renewables into the federal energy market¹¹. Energy transition in Germany would not be successful without citizen participation. Public support to policies and investments begins already at the planning level. The engagement of municipal authorities plays an important role in empowering citizens, too. Acceptance and support for the energy transition among German society is therefore high. Already 43 % of the green energy comes from citizens (prosumers) – not only households with micro-installations, but also energy cooperatives or citizen investments in public buildings¹². This “citizen energy” contributes not only directly to the improvement of living conditions, but also strengthens the democratisation of energy policy in general.



Despite perfect conditions for the development of renewable energy sources, such as wind, hydro or solar power, the Greek energy mix still depends on crude oil and solid fuels¹³. The first support scheme for renewables in Greece was initiated in the 1990s

7 EUROPE 2020. A strategy for smart, sustainable and inclusive growth. Communication from the Commission, European Commission, Brussels, 3.3.2010, COM (2010) 2020 final, p. 5

8 Europe 2020, European Commission, http://ec.europa.eu/europe2020/index_en.htm

9 Bilanz zur Energiewende 2015, Presse- und Informationsamt der Bundesregierung, Berlin, February 2015, p. 2, https://www.bundesregierung.de/Content/DE/_Anlagen/2015/03/2015-03-23-bilanz-energie-wende-2015.pdf?__blob=publicationFile&v=1

10 Energy of the future. An overall strategy for the energy transition, Federal Ministry for Economic Affairs and Energy, www.bmwi.de/EN/Topics/Energy/Energy-Transition/overall-strategy.html

11 Bilanz zur Energiewende 2015, op. cit., p. 3, https://www.bundesregierung.de/Content/DE/_Anlagen/2015/03/2015-03-23-bilanz-energie-wende-2015.pdf?__blob=publicationFile&v=1

12 Energiewende ist Bürgerwende, Agentur für Erneuerbare Energien, <https://www.unendlich-viel-energie.de/themen/akzeptanz-erneuerbarer/buergerbeteiligung/energie-wende-ist-buergerwende>

13 Country Reports 2014: Greece, Energy, European Commission, https://ec.europa.eu/energy/sites/ener/files/documents/2014_country-reports_greece.pdf

as a purchase obligation on the network operator and regulated feed-in tariffs (FiTs) for the purchase of renewable energy. The second step towards greening energy consumption in Greece was the expansion of the photovoltaic (PV) sector due to simplification of licensing procedures in 2010. But the “solar boom” overheated the market, leaving the Special Account for Renewables – from which green energy producers are paid for their output – in deficit, forcing the government to act by restoring its liquidity. Recent developments for enhancing prosumption (simultaneous production and consumption) of solar energy with rooftop and ground-mounted PV systems allow governmental and non-governmental not-for-profit organizations (e.g. hospitals, schools, universities) to install up to 500 kWp of PV capacity for their electricity needs. Public consultations were also announced by the Greek government in early 2016 for a new national support scheme with an aim to complete the target of 40 % renewable electricity by 2020¹⁴. The financial and political turmoil that Greece experienced within the last few years was an obvious obstacle to designing a coherent and long-term energy transition and phase-out from lignite as well as crude oil.

Energy poverty as a particular challenge

In the aftermath of the financial crisis new problems of energy policy piled up in Greece. During the first years of recession, in 2008 – 2013, a significant reduction of final energy consumption was observed, which indicated gradual reduction of final energy consumption by 30 %. From 2000 to 2013, the final energy consumption in private households decreased by 16 %, making them the first to have felt the effects of the economic recession in final energy consumption¹⁵. Energy poverty and significant aggravation of living conditions of the citizens contribute to the special context of the Greek crisis. According to the latest research, 58 % of Greek households are energy poor.

As a result of the recession 75 % of Greek households have reduced other essentials in favour of energy needs. Despite implementing special tariffs for low-income households to satisfy their energy and warmth needs, Greek energy policy is considered to be insufficient to tackle energy poverty issues, focusing as it does on mainly short-term rather than permanent solutions¹⁶.

Good practices for energy transition at the local level

European strategies highlight general objectives to be achieved, offering financial tools and technical assistance for the implementation of particular projects. At the national level, strategies for energy transition are diverse, corresponding with the country-specific needs and resources. When you add the political and economic aspects of particular national policies the progress of energy transition varies among the EU member states. Luckily, good practices applicable to the local level are to be found Europe-wide. Such investments can improve living conditions and prove the relevance of energy efficiency as well as the sustainability of renewables for local development strategies. Moreover, energy transition not only refers to infrastructure projects, but may also have social implications manifesting in strengthening governance practices and rehabilitating local communities through participation and social engagement in energy policies and investment. There are good practice examples in Greece and Germany proving energy transition can be successful if initiated and implemented through a bottom-up approach.

14 Based on: The Evolution of Renewable Energy Sources (RES) in Greece: A Synopsis of the Legal Framework, Energy Transition. The German Energiewende, Heinrich-Böll-Stiftung, 8 June 2016, <http://energytransition.de/2016/06/the-evolution-of-renewable-energy-sources-res-in-greece-a-synopsis-of-the-legal-framework>

15 M. Iatridis, F. Karamani, 2015, Energy Efficiency trends and policies in Greece, Centre for Renewable Energy Sources and Saving (CRESES), p. 6.

16 L. Papadaa, D. Kaliampakos, 2016, Measuring energy poverty in Greece, Energy Policy, Volume 94, July 2016, Pages 157 – 165.

1. Technological innovations

Thessaloniki is a city actively tackling the challenges of energy transition. The economic advantages of energy efficiency measures and renewable energy sources are important aspects of municipal policies and local governance. Thessaloniki faces numerous challenges and opportunities resulting from its specific infrastructure and location. Core investment areas focus on energy upgrade of the municipal buildings, schools and sports facilities, greening the rooftops of public buildings and bioclimatic upgrade of public areas, including improving the efficiency of municipal transport. Despite the crisis outbreak, the city succeeded in implementing energy transition measures like improving the energy efficiency of street lighting system and developing renewable energy installations in public schools.

LED city lighting¹⁷

There are 19,000 streetlights in Thessaloniki, with 340 km of aerial and underground network. The city lighting system consisted of yellow sodium lamps and halide lamps. Although they performed well in colour rendering and lighting quality, there was no progress in reducing power consumption. New investments in street lighting were priority to the municipality as the age of this infrastructure caused frequent malfunctions and old technologies contributed to significant energy consumption. As Thessaloniki experiences heavy traffic, street lighting is also of special importance to general safety. Thus, the quality of street lighting required investments to decrease energy consumption, improve performance and monitor the impact on the local environment. This was possible by substituting traditional street lighting with LED technology. LED lights are characterized by high performance and long lifetimes while maintaining low energy consumption and minimal environmental impact.

¹⁷ Based on a presentation delivered by during the “Energiewende as a mean of strengthening local communities in Greece” that took place on 13 – 14 June, 2016 in Thessaloniki – “Renewal of street lighting and energy saving in Thessaloniki” by Dimitris Katirtzoglou, Electrical Engineer, Department of Street Lighting, Municipality of Thessaloniki.

The project was launched in 2012 with the support of the JESSICA program – Joint European Support for Sustainable Investment in City Areas, an initiative of the European Commission developed in cooperation with the European Investment Bank (EIB) and the Council of Europe Development Bank (CEB) to support sustainable urban development and regeneration¹⁸. Other costs were covered by commercial loans and municipal funds.

The project foresees the replacement of 2,300 old luminaires with LED ones in 36 main avenues and streets of the city and renovation of the lighting network by constructing new underground networks, new metal masts and placement of 460 new LED luminaires. Additionally, the installation of a remote management control system for city lighting will be implemented. When completed, the project should not only result in reduction of electric power consumption by 50 – 60 % and the city’s energy footprint, but also improve the living standards of the citizens by upgrading safety conditions for pedestrians and vehicles, reducing accidents and criminality and enhancing cultural sights of the city, which is of significant importance for the local tourism sector.

Rooftop photovoltaics in public schools¹⁹

Public buildings are a valuable resource for every municipality but proper maintenance is necessary for their operation. Schools are of particular interest, not only because of their primarily educational objectives but also due to their various functions for the local communities as meeting points and day care for the children. In Thessaloniki 50 schools were accepted for the installation of photovoltaics on the roof tops (34 buildings) and roof terraces (16 buildings). The project started in October 2015, aiming at a total capacity of 490 kWp.

¹⁸ JESSICA: Joint European Support for Sustainable Investment in City Areas, Regional Policy – InfoRegio, European Commission, http://ec.europa.eu/regional_policy/en/funding/special-support-instruments/jessica/#1

¹⁹ Based on a presentation delivered by during the “Energiewende as a mean of strengthening local communities in Greece” that took place on 13 – 14 June, 2016 in Thessaloniki – “Implementation of solar panels on school buildings in Thessaloniki” by Ioanna Tsikoti, Mechanical Engineer, Energy and Bioclimatic Planning Department, Municipality of Thessaloniki.

A special agreement with the Public Power Corporation (PPC) was reached as well as one for the grid connection. The contract duration was set for 32 years with an established price for produced electrical energy. Within the first 6 months of operation the energy produced by PV installations in schools exceeded 210 MWh, which resulted in a net income of 24,450 Euros. Within the first months of operation, the energy produced by the school installations would be enough to power 1,637 computers for 1 year or to operate one TV for 1,477,829 hours. Additionally, the ecological effects were achieved by significantly limiting the emission of greenhouse gases – the amount avoided equalled the greenhouse gases that 78 passenger cars emit over 1 year.

2. Social innovations

Energy transition is not only about technological progress – it also strongly relies on people, their habits and behaviours. The attitude towards energy use reflects the patterns of consumption and people's willingness to change them. The federal government in Germany strongly encourages citizens in their endeavours for access to clean and cheap energy from renewable sources. Support for self-organisation and the prosumer movement are reflected by favourable legal frameworks and financial incentives for bottom-up transformation of energy consumption and production. Such conditions influence not only behaviours of people, but also their lifestyles and relationships in local communities in which they live. Democratic decision-making, its transparency, civil engagement and trust-building are therefore key elements of successful energy transition.



Energy efficiency cooperatives

Energy cooperatives are a growing sector in Germany. More and more citizens organize to produce and distribute clean and cheap energy at the local level. The movement is also dynamic due to state support as the federal energy policy on fostering energy transition relies on civil engagement and self-organization. Based on these positive experiences, a new idea is emerging. Energy efficiency is the second pillar of energy transition and as such also needs investments in infrastructure of various scales. So far, the focus has been on developing renewable energy sources as a direct measure for limiting pollution and greenhouse gas emissions. The potential of energy efficiency has not yet been fully realized. Thus, funded by the Federal Ministry of the Environment, Nature Conservation, Building and Nuclear Safety as part of the National Climate Protection Initiative, a pilot project to establish regional energy efficiency cooperatives (*Regionale EnergieEffizienz Genossenschaften, REEG*) in three pilot municipalities of Aachen, Berchtesgadener Land and Norderstedt has been developed by B.A.U.M. – the German Environmental Management Association. The main objective of these cooperatives is to implement energy efficiency measures in municipal institutions, companies and private households on cooperative conditions, i. e. without third parties or financial institutions involved. The motto of the REEG project is: “From the region – for the region”²⁰.

REEG cooperatives operate through “Future Funds” where private capital is collected to finance energy efficiency measures in companies, public institu-

²⁰ Erste Regionale EnergieeffizienzGenossenschaft (REEG) nach dem Muster des B.A.U.M. Zukunftfonds ist handlungsfähig, Bundesdeutscher Arbeitskreis für Umweltbewusstes Management (B.A.U.M.) e.V., www.baumev.de/News/7982/ErsteRegionaleEnergieEffizienz-GenossenschaftREEGnachdemMusterdesBAUMZukunftfondsist-handlungsfhig.html

tions or in private households. Establishing a REEG not only secures funding for custom-designed energy efficiency measures, but also provides advice on the best technical solutions, planning and implementation. The cooperatives receive a dividend calculated as a percentage of immediate energy saving costs after completed retrofitting. Customers immediately enjoy lower energy costs, while simultaneously repaying part of the loans to the cooperative. The REEG cooperatives operate on non-profit basis covering its costs, with further investments and services such as counseling paid for with the revenues²¹.



Independent consultancy and advocacy models

The Consumer Center North Rhine-Westphalia (*Verbraucherzentrale NRW*) is a non-profit organization gathering 32 consumer-oriented local organizations, such as professional associations, trade unions and NGOs²². It has operated since 1958. The key objective of the Centre is to represent and protect consumer rights. Consumer centers are the only organizations in Germany entitled to provide extrajudicial legal advice to citizens, not only to their members. 61 counseling centers in the region provide their services to citizens and advise on the legal and economic consumer protection regarding loans, health care, media and telecommunications, insurance, tenancy rights or environmental consulting, including energy efficiency and sustainable consumption²³. As a predominantly publicly funded non-profit organization (depending on subsidies from the federal state Nordrhein-Westfalen, municipal payments for local counseling centers, pro-

ject funds, donations and its own revenue²⁴) it gains credibility as an independent and neutral advisor – a contact point for comprehensive consumer information and advice.

The energy department offers counseling in electricity and gas tariffs, energy saving and individual energy-consulting. Core advice refers to guidance on energetic modernization, solar-power and consultation on preventing humidity and mould in buildings. Standard counselling procedure consists of inventory check-ups of the main parts of the building (heating insulation, ventilation), investment recommendations and tips for adequate financing.

The most important aspects of the Consumer Centre's activity are not only advisory. Its mission also encompasses building trust within the local communities, seeking advice and raising awareness about problems and easily-accessible solutions to them. Thanks to small but effective prototype projects and a "door-to-door" approach ensuring individual advice and face-to-face contact, reliability has been established. On the one hand, the Consumer Centre is very active on the internet through social media and their interactive webpages. On the other, conventional channels of communications are also in use, like public workshops or stands in local events. For the sustainability of its activities, educational curricula and activities are launched for school children or kindergartens on topics related to energy, like heating and warm water saving²⁵.

According to a survey conducted for the Centre, more than 90 % of those who know *Verbraucherzentrale NRW* rated it as useful and competent. Moreover, of all those who received energy consulting at their homes, 60 % decided to invest in the energy efficiency solutions suggested.

21 FAQ, Regionale EnergieEffizienzGenossenschaften REEG, www.reeg-info.de/FAQ_Allgemein.html

22 Mitgliedsverbände der Verbraucherzentrale Nordrhein-Westfalen, Verbraucherzentrale NRW <https://www.verbraucherzentrale.nrw/Mitglieder>

23 Häufige Fragen, Verbraucherzentrale NRW, <https://www.verbraucherzentrale.nrw/Haeufige-Fragen>

24 Finanzierung, Verbraucherzentrale NRW, <https://www.verbraucherzentrale.nrw/link430201A.html>

25 Bildungsangebote, Verbraucherzentrale NRW, <https://www.verbraucherzentrale.nrw/bildungsangebote>

3. Governance innovations

Energy transition is a European project but its success starts at the local level. The capacity of the municipal authorities to efficiently react to the structural changes of local economies and the engagement of local communities in fostering energy consumptions play a key role. Fair transition to low-carbon economies minimising social and economic costs of structural adjustments over time is possible but it must be implemented in a transparent way, cushioning uncertainty and the concerns of the local communities. Pilot projects for socially inclusive governance and evidence-based policies are being developed throughout Europe, the innovative programs in Bottrop and Thessaloniki amongst them.



Bottrop InnovationCity Ruhr

Bottrop, a town of 116,000 inhabitants in Ruhr region in Western Germany, was a mining settlement for over 150 years. The last coal pit will be closed in 2018. The city faces emerging structural challenges; 2000 new jobs need to be created to ensure further development of urban structures as well as economic stability. By launching the InnovationCity Ruhr project in 2010, Bottrop adopted an experimental fair transformation model. The town has become a real-life laboratory for innovative urban solutions dealing with climate change and structural transformation of heavily industrialized areas. The InnovationCity project addresses not only the commercial sector but also the inhabitants of the region. Energy transition should become a main method for redeveloping this local community in ecological, social and economic terms. To achieve that, the Masterplan for InnovationCity Ruhr was implemented, aiming at a 50 % reduction of carbon dioxide emissions in the city by 2020 through retrofitting existing infrastructure and reducing emission of pollutants. In the limited pilot area of 70,000 inhabitants at the heart of Bottrop, the “Urban Redevelopment

District”, was set to pursue planned measures²⁶. They refer to 5 core areas of city revival: housing (systematic energy renovation of existing buildings), work (retrofitting non-housing stock to improve working conditions), mobility (reducing traffic-related emissions), energy (enhancing energy efficiency measures and the use of renewable energies), and the city public urban spaces or water management²⁷. So far more than 300 individual projects have been developed within the framework of the InnovationCity Ruhr, including investments in housing, energy and urban infrastructure, mobility, consulting, awareness-raising campaigns, and developing international cooperation²⁸.

The InnovationCity Ruhr project is a public policy innovation in Germany as it represents an experimental and integrated approach to energy efficiency and urban development. Its methodology can be implemented given political will. It is based on a business-based Research and Development approach but implemented at the municipal level on a non-profit basis. InnovationCity Ruhr is a citizen-facing project with transparent participation schemes that enhance co-determination and social participation in its decision-making processes. 20,000 citizen signatures of support to the program were collected prior to launching the initiative. Public workshops were held in the town to provide an exchange of ideas and direct access to the experts, entrepreneurs and non-profit associations. It is also possible to submit suggestions and ideas on the Masterplan online or via the local Centre for Information and Advice.

26 You ask about the Master plan, we answer!, InnovationCity Ruhr Modellstadt Bottrop, www.icruhr.de/index.php?id=277&L=1

27 Die Handlungsfelder, InnovationCity Ruhr Modellstadt Bottrop, www.icruhr.de/index.php?id=134

28 Master plan climate-optimised urban redevelopment, InnovationCity Ruhr Modellstadt Bottrop, www.icruhr.de/index.php?id=276&L=1



Resilient Thessaloniki

Thessaloniki was chosen to join the 100 Resilient Cities project, pioneered by the Rockefeller Foundation. The initiative aims at supporting cities around the world in becoming more resilient to environmental, social and economic challenges. Urban resilience stands for the ability of the urban structure to respond to adverse events such as physical shocks and social stresses in a flexible way to secure its basic functions to all inhabitants. A resilient city is resourceful, reflective, inclusive, integrated, robust, redundant (in terms of spare capacity to accommodate disruption) and flexible, which helps it to develop key dimensions of urban life, such as the physical wellbeing of the inhabitants; economic growth and social progress; maintaining infrastructure and environment as well as sustainable leadership and development strategies²⁹.

Thessaloniki is an old city with a rich history reaching back to antiquity. Today, it is one of the main urban centres of Greece, second to Athens. The municipality of Thessaloniki reaches only ca. 350,000 inhabitants, whereas The Greater Urban Area of Thessaloniki consists of seven self-governing units with a population of nearly 800,000, which is the core of the Thessaloniki Metropolitan Area, consisting of 14 units with a population of more than 1 M inhabitants. The city's economic structure is diverse: the port, universities and the tourism industry being its main pillars. Unfortunately, this interdisciplinary character has not saved Thessaloniki from the aftermaths of the financial crisis that hit Greece in 2009. Growing unemployment, especially among young people, and abrupt impoverishment of the society exacerbated the deep lying problems of ageing and inefficient public infrastructure.

Despite unfavourable conditions, the city of Thessaloniki actively seeks to launch effective sustainable development policies at the local level. Today, it is a member of Energy Cities Network and for that very same reason it joined the 100 Resilient Cities. Within the project numerous technical analyses and meetings with the city inhabitants were held to perform an urban resilience diagnostic. It indicated primary shocks and stresses jeopardising Thessaloniki. Among the shocks, devastating and catastrophic events that occur incidentally, earthquakes, surface flooding, heatwave, fire at peri-urban forests and potential atmospheric pollution incidents were identified. Among the so called stresses – phenomena severely impairing the city's development, lack of access to affordable health care, ageing building and mobility infrastructure, insufficient integration in planning, unemployment and poor livelihood opportunities were listed³⁰. Having diagnosed the core challenges of urban development in Thessaloniki, the project will now proceed with mapping discovery areas – priorities for the route to a resilient city. After data analysis within the respective thematic areas, concrete practical projects should be implemented in line with the elaborated resilience strategy for Thessaloniki³¹.

The future of energy transition in Thessaloniki

Due to its unique geographical location and current capacity for innovative policies, Thessaloniki could become a frontrunner of energy transition in Greece, strengthened by possible synergies between Greek potential and German good practices. Within the “Energiewende as a mean for strengthening local municipalities in Greece” project, know-how transfer workshops were held in Thessaloniki, during which experience exchange and open communication between the local stakeholders was possible.

²⁹ Resilient systems, The City Resilience Framework, 100 Resilient Cities, www.100resilientcities.org/resilience#/-/

³⁰ Thessaloniki Preliminary Resilience Assessment, Office of Urban Resilience of the Metropolitan Development Agency of Thessaloniki, June 2016, p. 39, 40, 42 – 43.

³¹ Ibidem, p. 46.

Discussions were also facilitated by guest experts from Germany. Having previously established a common discourse framework and problematized the key challenges of energy transition at the local level in Thessaloniki, it was possible to follow-up with thematic group work focused on charting road maps for new investments within the Thessaloniki Metropolitan Area. Ideas about how to motivate citizens for energy efficiency and how to identify efficiency investments for tourism sector were also developed.

1. Motivating citizens for energy transition

Civil participation and ownership of energy transition projects at the local level is crucial for their success. The initial condition for initiating any common action of citizens in cooperation with the authorities is **trust-building and open communication with stakeholders**. Secondly, the operational aspects of program implementation relating to their sustainability and engagement with the citizens, including educational tools and programs for school children to sensitize future generations, need to be ensured. In that respect, tackling energy poverty is an important context for engagement in energy projects as economic or financial motivations can be convincing for all stakeholder groups – local authorities, citizens as well as the business sector. Local authorities might not recognize their role in tackling climate change, but they are interested in improving their budgetary conditions through investments in renewable energy sources or energy efficiency. The municipalities can thus meet energy and climate targets and reduce energy costs while becoming a role model. The same mechanism applies to households: once the energy costs become transparent – i. e. the consumers become aware of total (direct and indirect) costs of energy and savings alternatives – it is easier to win their support for and interest in investments and initiatives for energy transition. Civil society has to engage in long-term sustainable support for energy prosumers and citizens investing in energy efficiency. Civil society and municipalities need to inform citizens together about their options for reducing energy bills in order

to acquire their informed consent and engagement. Information and awareness-raising activities about transparent energy costs for final consumers, prototypes and flagship projects to illustrate the credibility and the potential of energy efficiency measures, and education – about energy transition and sustainable development – are urgently needed.

PROBLEM:

unrealized benefits of energy efficiency measures

SOLUTION:

independent consultancy platform for citizens

STAKEHOLDERS ENGAGED:

municipalities, universities, environmental NGOs

IDEA:

Energy Consultancy Platform Thessaloniki

This idea was inspired by the activities of *Verbraucherzentrale NRW*. Awareness-raising on the benefits of energy transition, with a special focus on consulting the residents of Thessaloniki on energy efficiency measures, should be the **main objective of the Energy Consultancy Platform Thessaloniki**. The Platform should be founded based on cooperation between representatives of civil society, the municipality and the technical university (to provide objective expertise). Pro-bono engagement of the private sector (energy utilities) could also be possible. Financing of the Platform could kick-off as a non-profit voluntary service provided by the municipality and civil society to the citizens (i. e. by engaging NGOs, cooperatives, universities/students or joining CSR campaigns of companies representing the energy sector). Following its development, the Platform could then apply for external funds (European Union or other sponsors) to secure its sustainable operation, scaling-up its projects and gradual professionalization.

2. Innovative funding models for energy efficiency in Greece

Energy efficiency measures could increase the added value of establishing a new quality tourism industry in Halkidiki peninsula – investing in retrofitting and green technologies would not only allow better tourism services to be delivered, but also foster a niche market of eco-services. To achieve these objectives, **sustainable financing** is needed. Under capital controls in Greece, access to loans is limited for small and medium-sized entrepreneurs. Thus, alternative financing mechanisms, knowledge transfer and information campaign on the benefits of retrofitting are required. Energy efficiency cooperatives are an emerging form of promoting and implementing energy efficiency measures at the local level: in households, companies, public buildings. They constitute a new idea – none yet operates in Thessaloniki or in Greece. Nevertheless, there is a number of challenges that need to be addressed by energy efficiency cooperatives.

PROBLEM:

energy inefficient tourism infrastructure in Thessaloniki and Halkidiki region

SOLUTION:

founding regional energy efficiency cooperatives in Greece

STAKEHOLDERS ENGAGED:

private citizens, NGOs, other cooperatives, municipality, tourism associations

IDEA:

Regional Energy Efficiency Cooperatives for tourism in Thessaloniki and Halkidiki region

Establishing a financing mechanism for investments in energy efficiency through a cooperative could tackle numerous problems hotels and other tourism units face in Greece. Firstly, the technological aspects of investments such as a lack of innovative solutions, insufficient technical consulting and dependence on

imported technologies instead of investing in their production within the domestic economy have to be improved. Secondly, awareness-raising in terms of cost-benefits analysis and financing possibilities for retrofitting works is likely to encourage more businesses to turn to energy efficiency investments, which in turn would positively influence their affordability.

A roadmap detailing how to start a REEG was identified: first, finding projects or individual hotels willing to undergo retrofitting; then finding citizens to found a local cooperative. Building on already existing local structures of cooperatives involved in energy production or green agriculture would be an asset in establishing a trusted unit. Alternatively, the initiator of the concept – B.A.U.M. – could provide the first project incentives in Thessaloniki to prove feasibility of a cooperative model for energy efficiency and at the same time enhance local stakeholders to invest and launch energy efficiency cooperatives themselves. Legal country-specific issues need further clarification, however cooperative models are universal and easily adaptable. The B.A.U.M. association remains open to invest in projects in Greece or co-finance them in cooperation with local partners.

Conclusions and the way forward

In Thessaloniki, there is a willingness among all relevant stakeholders to develop energy transition measures for the municipality. Starting with the local authorities, there is determination not only to change the image of the city symbolically but also to tangibly improve the living conditions of its inhabitants. There is a similar willingness to close the gap between policymakers and the general population by engaging citizens in developing local policies and the following actions. The actors of organized civil society are motivated to get involved and they are inspired by good practice examples of organizing community energy. Their approach is more community-based than institutionally oriented, and therefore open to bottom-up, self-organisation activities. The private sector is in need of investments as difficulties with access to capital impair them. It seems that a general crisis of trust is one of the barriers for fully achieving generally acknowledged goals. Community-financed investments in energy efficiency measures constitute a possible scenario for overcoming recession. To multiply these effects, a discussion on the competences and responsibilities of the municipalities in Greece is needed as current centralisation of decision-making processes and bureaucratization impair innovative local policies. Last but not least, for international cooperation more intensified mutual knowledge transfer is needed between Greece and Germany to design common investment projects as well as to successfully adapt the exchange of “good practices” to particular legal, economic and social frameworks.



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