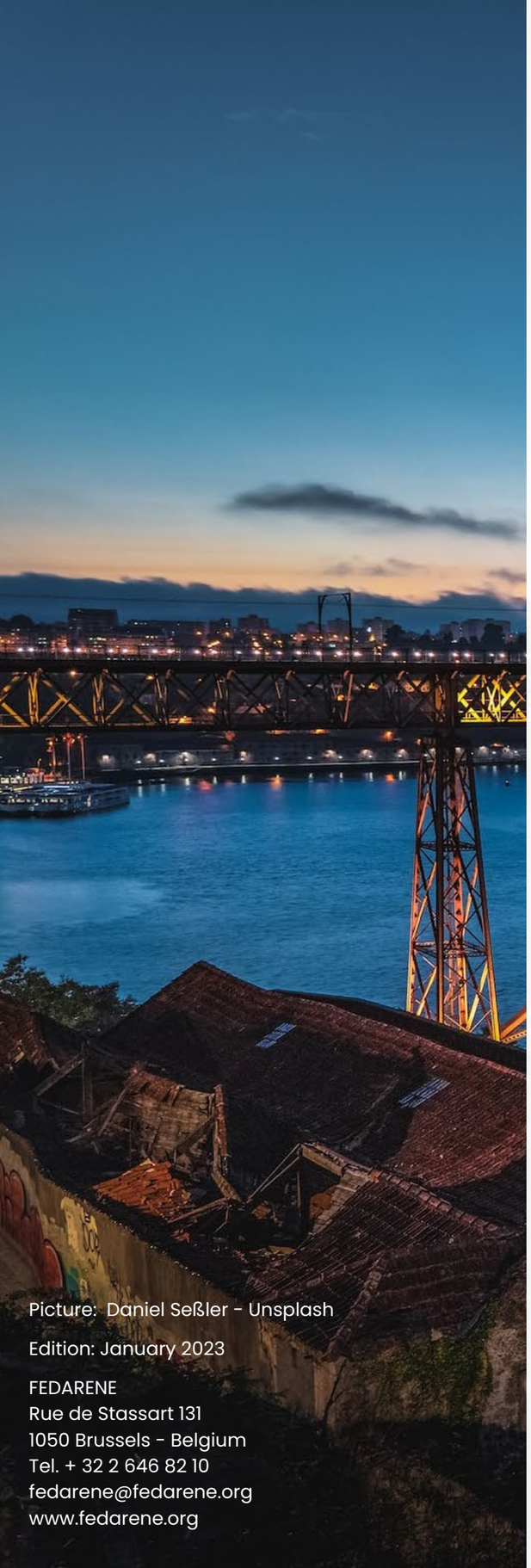
FEDARENE

SUSTAINABLE REGIONS IN ACTION 2023

A unique collection of projects and activities implemented by the FEDARENE office and its Member Regions and Energy Agencies.



Picture: Daniel Seßler - Unsplash

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WORD OF THE PRESIDENT

We have done it. The word 'energy' is finally on everybody's lips. Deepak Chopra said that "all changes are preceded by chaos". I believe in that statement. During the COVID pandemic, the European Union showed historical leadership in managing the health crisis and saving lives, going beyond its scope of competence. Today, Europe is facing another crisis, and our Union will have to show just as much solidarity and tenacity to get out of it.

It won't be easy. Yes, many have joined our cause, pleading for the acceleration of the energy transition. But the threat of short-term thinking is still there. Governments, under pressure, are reopening coal plants. Officials are making deals with nations across the world to secure gas supply, regardless of their respect for European and democratic values.


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JULIJE DOMAC

The first regional energy agencies were created in response to the oil crisis of 1973, to help regions and municipalities in managing their energy supply and demand. FEDARENE was established in 1990, further supporting the development of energy agencies across Europe. Since then, they have had one mission: to increase energy efficiency and renewable energy sources in Europe.

As such, EU's Regions, Islands and their local/regional Energy Agencies have become effective delivery agents of the energy transition in their territories. They have developed exemplary solutions to raise awareness on the importance of saving energy; they have created integrated renovation services; implemented sustainable heating and cooling projects. They are working to transform Europe's industry towards climate neutrality and to alleviate energy poverty. And much more…

Today, Europe is facing another crisis, an Energy crisis. In the last months, we have seen a rise in demand for our services, to support the implementation of the REPowerEU plan, but also to advice citizens, public authorities and businesses. The solutions developed by energy agencies are available now. They can be replicated and upscaled now. We stand ready to support the European Commission and the Member States to accelerate these actions.

In the next pages, you will discover an overview of our regions, islands and energy agencies' exemplary projects.

I wish you a pleasant read.

Julije Domac
FEDARENE President & Managing Director
of North-West Croatia Regional Energy Agency

ABOUT FEDARENE

The collective voice on energy transition and climate action for regions and energy agencies.

The European Federation of Agencies and Regions for Energy and Environment (FEDARENE) is the network of regions and energy agencies. Our members drive the energy and climate transition in their territories through ambitious policy development and strategic facilitation actions.

Born in 1990, the federation currently counts over 80 members across 24 countries in the European Union, drawing on the advice of 850 experts. Over the years, we have successfully supported the creation of new agencies as well as energy and greenhouse gas observatories. Since 2012, FEDARENE runs an informal network of such observatories for regions and municipalities to exchange on data collection and climate policies.

+80 MEMBERS

24 COUNTRIES

+850 EXPERTS

+50 PROJECTS

REPOWER EUROPE

FEDARENE and its members are committed to Repower the EU. We work closely with the European Institutions to **influence and improve energy policies**. Among others, FEDARENE is also part of the secretariat operating the Covenant of Mayors - Europe and runs the ManagEnergy initiative which aims to turn energy agencies into the leaders of the energy transition.

BUILDING CAPACITY...

FEDARENE is facilitating the development of interregional partnerships and EU projects. We are helping regions develop their capacity to take action, by developing capacity building and mentoring programmes on key topics and providing timely information such as policy developments, project results, funding opportunities, etc.

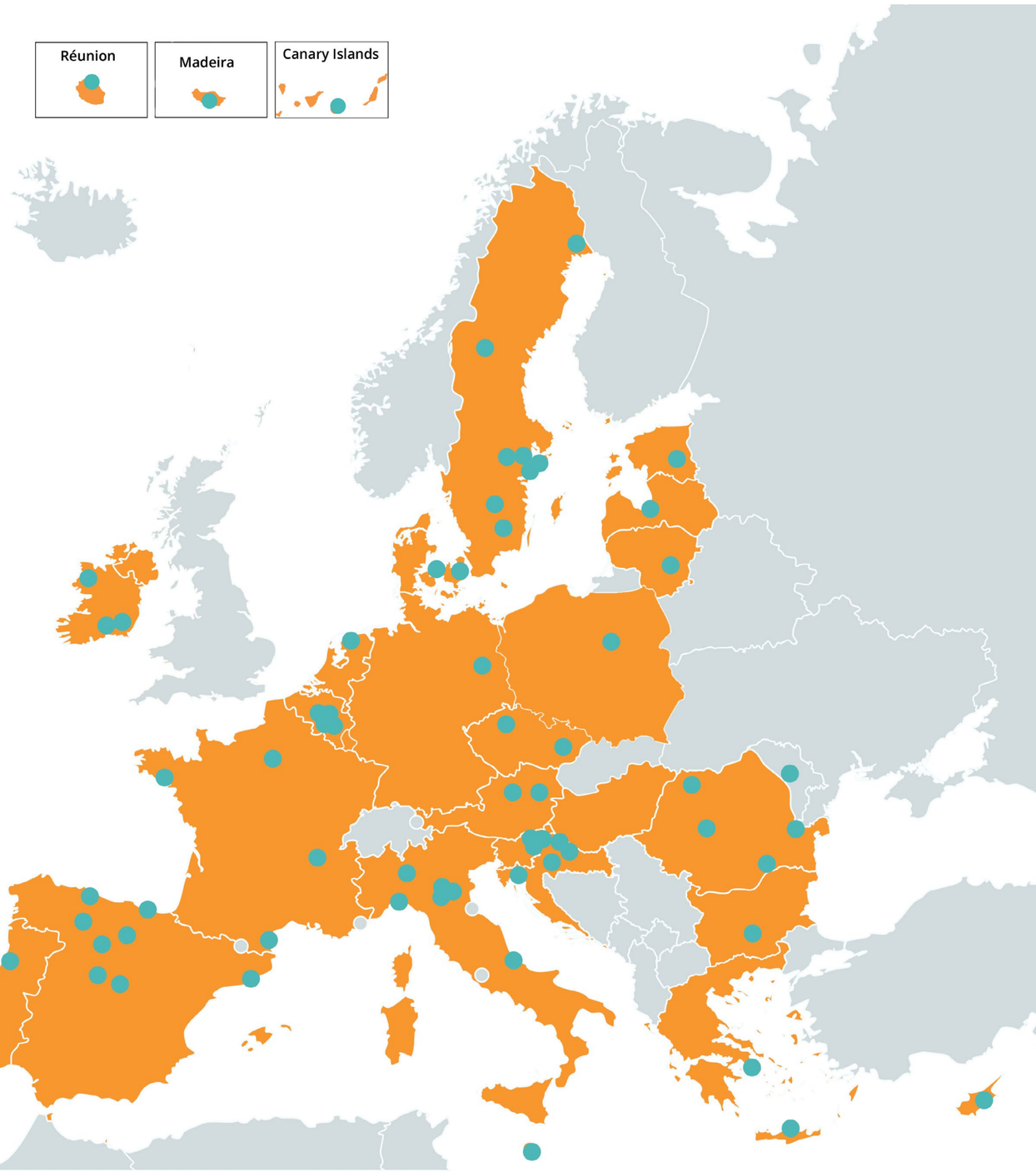
... AND KNOW-HOW

FEDARENE is acting as a centre for the dissemination of information for its members, European Institutions and other stakeholders of the sustainable energy field. The organisation is a highly visible showcase of creativity and innovation which strives to keep its members constantly informed about EU updates. FEDARENE is also actively promoting the activity of its network on social media and beyond.

OUR MEMBERS

FEDARENE has over 80 members across 24 countries, namely: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovenia, Spain, Sweden, The Netherlands.

Discover the complete list of our members and their profile on our website at fedarene.org/members.



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OUR PROJECTS

FEDARENE participates in European projects and initiatives alongside its members and other European organisations. These projects focus on capacity-building, market facilitation, policy implementation and replication of best practices amongst others. We are currently involved in 16 EU projects:

CONNECTHEAT

ConnectHeat will develop an enabling policy framework for the development of community energy initiatives, aiming at decarbonising the heating and cooling sector in 7 target areas located within a wide geographical spread.

Website: fedarene.org/project/connectheat

COVENANT OF MAYORS - EUROPE

The Covenant of Mayors for Climate and Energy - Europe brings together local and regional authorities voluntarily committing to implementing the EU's climate and energy objectives on their territory.

Website: eumayors.eu

ENERGEE WATCH

The overall aim of ENERGee Watch is to enable peer-to-peer learning for regional and local authorities in order to precisely define, monitor and verify their sustainable energy and climate actions.

Website: energee-watch.eu

ENERGY COMMUNITIES REPOSITORY

The Energy Communities Repository is a European Commission initiative to assist local actors with setting up and advancing clean energy projects driven by energy communities in urban areas across Europe.

Website: energy-communities-repository.ec.europa.eu

ENERGY EFFICIENCY WATCH 5

EEW5's goal is to support policy makers in EU Member States in improving the degree of successful implementation of policy instruments for energy efficiency, and thus contribute to reaching the target of the Energy Efficiency Directive.

Website: energy-efficiency-watch.org

EPLANET

ePLANET aims to improve the coordination between local authorities and regional governments by fostering the digitalisation of energy data available in dispersed data sources.

Webstite: fedarene.org/project/eplanet

IN-PLAN

The objective of IN-PLAN (Integrated Energy, Climate and Spatial planning) is to develop, test and roll out the IN-PLAN practice – a long-lasting support structure enabling local and regional authorities to effectively implement their sustainable energy, climate, and spatial plans.

Website: fedarene.org/project/in-plan

ManagEnergy

ManagEnergy is the Commission's initiative dedicated to regional and local energy agencies with the objectives of assisting them in becoming leaders in the energy transition and increasing sustainable energy investments in regions and cities.

Website: managenergy.eu

GREEN HYSLAND

Green Hysland aims to create the first green hydrogen ecosystem in the Balearic Islands. It will generate, distribute and use at least 300 tonnes of renewable hydrogen per year, thanks to solar energy on the island of Mallorca.

Website: greenhysland.eu

LIFE EUROPEAN CITY FACILITY

The European City Facility (EUCF) supports municipalities and their groupings in developing Investment Concepts related to climate and energy action plans. A lump sum of €60.000 is given to successful applicants.

Website: eucityfacility.eu

PROSPECT+

PROSPECT+ enables capacity building in regional and local authorities in order to finance and implement effective and efficient sustainable energy plans, including their proper monitoring and verification and ensuring synergies with other local plans.

Website: h2020prospect.eu

QUALDEEPC

The project QualDeEPC attempts to achieve a high-quality Energy Performance Assessment and Certification in Europe to accelerate deep energy renovation.

Website: qualdeepc.eu

REGIO1ST

REGIO1st will provide guidance to regional authorities to embed the EU Energy Efficiency First (EE1st) principle in their decisions and in the implementation of their energy planning, departing from six participant regions and expanding to over 100 regions in the EU.

Website: fedarene.org/project/regio1st/

SMART EPC

Smart EPC aims to integrate energy efficiency services with other energy services and non-energy benefits, whilst focusing on energy performance contracting and the creation of new revenue streams for local authorities.

Website: energy-cities.eu/project/smart-epc/

REGILIENCE

REGILIENCE aims to foster the adoption and wide dissemination of regional climate resilience pathways, following a demand-driven approach and bearing in mind the expertise and knowledge acquired.

Website: fedarene.org/project/regilience

REMARKABLE CLIMATE LEADERS

REMARKABLE Climate Leaders will build a Climate Leadership Programme through a people-centred approach in order to support leaders of public authorities and communities in implementing transformational roadmaps and innovative solutions to achieve climate neutrality by 2050.

Website: climateleaders.eu

Climate Leadership: What does it really mean?

by Seamus Hoyne, FEDARENE Secretary General

As we face the unprecedented challenges of the climate, biodiversity and energy security crisis the need for leadership in society is in the spotlight. While the policy and regulatory environment (REPowerEU, Fitfor55, Green Deal etc.) is highly ambitious the challenge is now delivery.

Climate leadership is now an absolute imperative as decisions that we will make now affect our ability to meet our climate goals in 2030 and 2050. The concept of climate leadership is one which I have a personal interest in as it forms a central part of my current research. Within organisations and society there are many leadership forms and models. Some that are relevant to the climate agenda include Transformative Leadership (leaders inspire and support people, organisations and society to deliver on innovation and change) or Distributive Leadership (leaders ensure responsibility and authority for change is spread throughout and people are enabled to implement change). There are many more models but these two seem, to me, to align with the specific leadership approaches needed in the context of climate. We need transformation across society (and to support people in that transformation) but individual organisations and people need to take responsibility to implement change.

Within the REMARKABLE Climate Leaders Project, climate leaders within local authorities/ municipalities across Europe have been profiled to gain insights into their approaches and considerations on leadership. What has emerged from our current leaders is their personal and professional commitment to the climate agenda and a clear ambition to deliver on ambitious climate action programmes. As climate leaders, they ensure that climate action is integrated into all decision making but that leadership is a responsibility of everyone. The project is working with emerging leaders through a Climate Leadership Programme to deepen leadership capacity through municipalities. These leaders are working to develop Climate Neutrality Roadmaps, thus charting a path for the future.

Local and regional energy agencies are also developing new Climate Neutrality services in response to the needs of their regions. Thanks to their role of delivery agents of sustainable policies, they have become key stakeholders to advance the energy and climate transition in Europe. The ManagEnergy European Commission Initiative has precisely been focusing on that, and is now back for four more years to raise the skills and know-how of local and regional energy agencies.

Climate leadership will require challenging decisions to be made but leaders can also grasp the amazing opportunities that the clean energy transition will bring. New economic opportunities and jobs, cleaner environments (air, water and land) plus local, green and secure energy supply are just some of the many benefits for society if we deliver on our ambitions.

If we are to deliver on our ambitions we all need to take a leadership role. For 2023 – what leadership role will you take at home, at work or in society?

WALLONIA: LEARN FROM THE PAST, BUILD THE FUTURE

A conversation with Jean Van Pamel

Belgium is a small but complex country, with different levels of governance. This is something our Treasurer Jean Van Pamel knows very well and must navigate on a regular basis, as General Inspector of the Wallonia region. We asked him a few questions about his work and the main challenges he has to deal with.

Belgium is currently in its third crisis: first covid, then the floods of 2021, and now the energy crisis. How have these impacted your work at the region and how are you responding?

With these crisis, energy poverty affects more and more people and our industries (big and small) have a lot of difficulties to survive. To deal with this situation, budgets have increased significantly, coming from different funding streams. This growth led to a restructuration of teams and a reprioritisation of activities, with energy poverty very high on the agenda. Teams have been strengthened, including our own but also the ones we work with and that help us implement our measures, such as the Public Centre for Social Action (CPAS).

The CPAS is at the front line to manage requests from people in precariousness. Some extreme cases are entitled to benefit from direct investments from our administration – we directly make contracts and pay the entrepreneurs to install a stove or change a chassis in their home, for instance. Strengthening the CPAS thus allows to hire new energy managers to deal with these cases, or to provide direct premiums.

Following the floods of 2021, we have also started to review our approach related to land use planning and the organisation of areas with a significant flood risk. In these zones, we are planning adaptation and mitigation risk measures. We had to rebuild roads, bridges, part of the gas and electricity network. All this helps us prepare for future extreme events as well.

Talking about the electricity and gas network, we are currently in a changing energy system. What's the current situation in Belgium, and your take on the potential evolution?

Energy sources at Belgian level are evolving. We are going towards electrification of the energy sector. The electricity demand is increasing. While the system was previously very much centralised and top-down, mainly coming from nuclear centrals, we are now realising that we need to diversify our energy supply and have many sources of renewable energy production. But the horizon is difficult to define.

The government would like to create new high-tension lines to be able to bring the newly produced clean energy (from offshore wind and other sources) to the industries and citizens to be consumed, but there is some resistance. One thing is for sure: we need to act fast, because any decision on this matter will take several years to be implemented.

> “
>
> The energy crisis has accelerated a lot of things in the sector, including the development of renewable energies. We can use this impetus to build the energy system of tomorrow.
>
> Jean Van Pamel

WORKING GROUPS

FEDARENE has established working groups in order to encourage exchange of experience and transfer of know-how in a series of important fields. These working groups are brought to life through the work carried out by our members and FEDARENE Vice-Presidents. Visit them on fedarene.org/working-groups and find here below the most recent activities organised for each working group.

CLIMATE ADAPTATION

In 2022, FEDARENE became Friend of the Mission Adaptation and is now part of the community of regions aiming towards climate resilience. Thanks to our involvement in the REGILIENCE project, all regions can profit from the overview of available funding for climate adaptation. FEDARENE members also enjoyed an exclusive webinar on the EU Adaptation Mission and its funding opportunities, and share their good practice examples in a new dedicated series on Climate Adaptation on our webpage.

- FEDARENE becomes Friend of the Mission on Adaptation to Climate Change
- REGILIENCE funding tool
- FEDARENE series on Climate Adaptation

DATA MONITORING

Assessing the regional impact on climate change will allow identifying areas of responsibilities and priorities for action at the European level. Through the Energee Watch EU Project, FEDARENE addresses the challenges of local and regional authorities in regards to energy and climate data collection, monitoring, processing or communication.

- Overview of energy and climate data ENERGee Watch courses
- Summary of 3rd learning cycle

CIRCULAR ECONOMY

In 2020, we have launched a Circular Economy Webinar Series with the Regional Council of Central Finland. These seminars touch upon the many different aspects of circular economy, from biogas production to public procurement, waste management and recycling.

- Introduction to Circular Economy
- The Energy Dimension of Circular Economy
- Circular Economy beyond Energy: Recycling and Reducing Waste

ENERGY EFFICIENCY

Energy efficiency is a core issue for FEDARENE. Our work on the topic is thus wide-ranging. We have selected three main highlights that happened in 2022 and address different aspects of efficiency:

- All There is to know about Opengela, the Basque One-Stop-Shop!
- Deep Renovation of buildings: what Energy Performance Certificates can do
- Opengela - The Power of One-Stop-Shops

ENERGY SUFFICIENCY

Chaired by AREC Île-de-France, this working group presents solutions to work on more sustainable behaviours to decrease our energy use. In 2022, we organised a webinar in the framework of the Covenant of Mayors - Europe, in partnership with B&SU.

- Spread the Word! Energy Saving Tips

Previous webinars organised in 2020 and 2021 are still available on fedarene.org/working-group/energy-sufficiency/

ISLANDS & RURAL COMMUNITIES

Thanks to our Green Hysland project, FEDARENE was able to support islands across to unlock their potential by organising several interesting events in 2022. These events also advanced stakeholders' knowledge on the potential of green hydrogen technologies.

- Green Hydrogen Technologies Supporting the Energy Transition: Matching Uses with Context
- Green Hysland x H2Ports Webinar: Decarbonising the Maritime Sector
- European Islands pioneering the Green Transition and the sustainable use of natural resources
- Sustainable integration of Green hydrogen on island electrical systems

FINANCING

Sustainable energy finance remains a key theme for FEDARENE. Thanks to PROSPECT+ and ManagEnergy, local/regional public authorities and agencies are able to receive training on innovative financing mechanisms. Through our Opengela project, we discussed how to finance one-stop-shops and established a new model of urban regeneration that is being applied to many neighbourhoods of the Basque Country.

- PROSPECT+ Learning Handbooks
- Opengela Final Conference

MOBILITY

FEDARENE members are setting the example by developing sustainable transport in their territories. This was demonstrated during several webinars hosted in the last years. In 2022, our webinars on energy sufficiency and on green hydrogen both addressed mobility best practices. The latter focused on maritime transport.

- Green Hysland x H2Ports Webinar: Decarbonising the Maritime Sector
- Spread the Word! Energy Saving Tips

RENEWABLE ENERGY SOURCES

Renewable energy sources play a fundamental role in enabling technology and innovation leadership while providing environmental, social and health benefits. Just like Energy Efficiency, RES will be key to achieve the Energy Transition. Thanks to our ConnectHeat project, we will able to work on the penetration of RES in the heating and cooling sector over the next 3 years.

- ConnectHeat project launches to unlock the potential of Energy Communities

MEMBERS' PROJECTS

FEDARENE's best successes are those accomplished by its members on the ground everyday. We want to shed light on these projects which are so diverse in their actions, goals, needs and challenges. In the following pages, you will discover some of the latest and most impressive achievements our members have carried out within their cities and regions across Europe.

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Helping consumers face the effects of the energy crisis

by John Carley, FEDARENE Vice-President for Circular Economy

Europe is facing an energy crisis caused by numerous global factors: the phasing out of fossil fuels (especially from Russia), reduced natural gas storage, the war in Ukraine, and the post-COVID economic recovery. Gas prices rose almost 600%, and electricity prices to an average of 45c/kWh. Though uncertain, these high prices are unlikely to reduce significantly before winter ends.

Don Moore of the Irish Academy of Engineering recently warned: "I would hope that we might scrape through the winter but the consequences of rolling blackouts in our system, even if only a small chance, would be catastrophic. We've put ourselves in this position: the worst-prepared country in Europe - and that is saying something".

Ireland may now have to cut consumption to prevent power cuts if emergency generators are not ready in time. In December, the EU electricity agency ENTSO-E warned that Ireland faces 14.56 hours without electricity this winter - over double the duration first predicted in October (6.25 hours). The situation is looking worse.

The state now considers forcing large energy consumers (e.g., data centres) to rely on their own power supply instead of the national grid. That may be one solution to the crisis, but how can other consumers, like citizens, react?

As Chairman of the South East Energy Agency, I am committed to helping everybody use energy more efficiently and to avail of renewable power.

We help homeowners to plan and manage energy upgrades and grants, including Individual Energy Upgrade Grants, a fully funded Energy Upgrade, and via our One-Stop-Shop. We provide similar services for renewable energy communities, supporting over 50 at different stages of their journey.

In October, we launched additional support for local authorities as part of the national #ReduceYourUse campaign. Carrying out 67 site visits in 20 separate areas, we presented 20 reports to various councils and building owners, and delivered 3 Energy Awareness Open Days to citizens and local administrators.

The focus of that effort was practical measures which reduce energy use, like lowering the temperature to 19°C indoors, turning heating off 1-2 hours before a building is vacated, and addressing minor maintenance and housekeeping tasks. These actions are neither expensive nor difficult to implement, but they do require an understanding that energy efficiency is achievable through behavioural change.

Now assessing the impact of the campaign, it already looks like our agency will have succeeded in reducing participants' consumption by the targeted 15%. If we all achieved the same, both within businesses and our homes, that alone would be enough to avoid the power cuts which have been forecast. Together, we can make a difference.

Young Innovators Cyprus

Cyprus Energy Agency - Cyprus

Students from across Europe and the world are not merely aware of the climate emergency; they are taking to the streets to demand action. "Young Innovators" (YI), a pioneering programme led by the Cyprus Energy Agency, with Cyprus University of Technology [co-partner], empowers young people to respond to local and regional challenges facing their communities.

Considering Cyprus, the team noticed a knowledge gap about the consequences of climate change. A misunderstanding of important concepts must be corrected among educators and students. In this context, YI provides innovative solutions that are just, inclusive, and based on systems-thinking.

At first, differently-specialised teachers (e.g., geography, chemistry, art, etc.) were trained by environmental and sustainable development educators and introduced to the tools of the programme, as well as the challenges that students would be given. The first year of YI was about food waste, while the second year covered the maritime sector and Mediterranean Sea pollution.

Next, the newly-trained educators began to workshop challenges for their students with the support of YI coaches. In response, students returned innovative and sustainable solutions to tackle them.

Finally, an ideation competition took place. Students worked in teams to create bottom-up, long-lasting climate actions based on real-life challenges. With the opportunity to win special prizes, students from across Cyprus participated in the Young Climathon. Following food waste and the maritime sector, this year's competition focused on solutions approaching the circular economy.

Circular economy challenges concern plastic, sustainable fashion, metals, electronics, and more. In the Young Innovators programme, students took a systems-thinking approach that encouraged them to explore intersectionality and take account of people who are affected: their values, their expectations, and their reactions. Inviting students to work towards a healthy and sustainable planet, while encouraging them to catalyse systemic change, is critical.

Overall educational benefits like creativity and problem-solving were fostered by the programme, together with the promotion of a low-carbon lifestyle and the opportunity for students to build a community of others interested in climate action. Empowered students could one day lead this world to system changes that halt climate change. Some will pursue green education, others green jobs. Many sectors await them, including RES, green buildings, sustainable tourism, and sustainable mobility. Moreover, with synergies among other organisations involved in climate change projects, the Cyprus Energy Agency aspires toward further collaboration with schools, to get more young people on board with actions for a sustainable world.

Cyprus Energy Agency

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Energy Consulting Lower Austria

eNu - Lower Austria

The massive increase in energy prices has led to a surge of awareness about energy use and demand. Households as well as businesses and local authorities are looking for energy savings and efficiency potential. A more efficient use of energy helps to reduce the demand for energy – a key ingredient for a successful energy transition. eNu (Energy and Environment Agency Lower Austria) is making a significant contribution to the establishment of efficient use of energy sourced from renewables.

What kind of energy sources will we use to cover our energy needs in the future? And how will we reduce energy consumption? To answer these questions, eNu offers an independent consultancy. On behalf of the Environmental and Energy Economics Department of the Lower Austrian State Government, since 2005, the agency has provided independent company- and product-neutral advice.

Energy Consulting Lower Austria is a service for citizens and municipalities who seek to focus on the efficiency of new and renovated buildings in the region. A network of about 100 consultants is available to provide assistance on all matters concerning the construction of new buildings, the thermal rehabilitation of existing buildings, heating systems, the use of renewable energy, and energy-savings in general.

The hotline +43 2742 22 144 serves as the first contact point and an on-site consultation can be arranged if required. A specific support is given to public buildings and low-income groups to reduce the effect of increasing energy prices for vulnerable groups. The consultancy participates in major building fairs in Lower Austria and Vienna, where it engages with stakeholders at information booths and events, as well as during consultation days. It also offers numerous publications for free download.

Since its inception, the Energy Consulting Lower Austria has given advice to 250,000 households via telephone, email or personal consulting. The number of on-site energy consulting has increased from about 4,000 cases in 2020 to 9,000 cases in 2021. Moreover, about 25,000 energy consultations are expected to have been conducted by the end of 2022, due to high energy prices and new subsidies toward the installation of renewable heating systems in Austria. New tools like online-formats and electronic tools have been developed and successfully implemented to cope with the high demand. Through all these measures, energy consulting has become an important element of the energy transition in Lower Austria.

Lower Austria Energy and Environment Agency - eNu

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Helping consumers in Castilla y León face the effects of the energy crisis

EREN - Castilla y León, Spain

Through actions developed by EREN, the Regional Energy Agency of Castilla y León, consumers are responding to the international energy crisis.

Recently, EREN launched 2 subsidy programmes supported by over €80M from NextGenerationEU funds. The subsidies fund self-consumption and renewable energy storage projects, as well as thermal energy upgrades in buildings across the region.

Among the measures lead by EREN to reduce fossil fuel dependence are:

- PV self-consumption installations in all buildings that are technically, environmentally, and economically feasible, starting with centres with the highest consumption. Before the end of Q1 2023, 1.65 MWp will be tendered or installed; by the end of 2023, 2 MWp will already be in operation.
- Public buildings not already connected will be linked wherever possible to the existing district heating network.
- Obsolete heating and air-conditioning equipment will be replaced by renewable and energy-efficient equipment.
- Decarbonising the car fleet by gradual replacement with electric or hybrid vehicles, in parallel with the installation of charging points in public buildings.

Priority is given to works and actions for the improvement of energy efficiency in buildings owned by the regional administration, focusing on the following aspects:

- Improved heating, cooling, and air-conditioning installations, including digitalisation of controls.
- Improved indoor & outdoor lighting systems, such as LEDs, digitalisation, and sensory detectors.
- Improved vertical transport installations (lifts and escalators).
- Recovered thermal effluents (heat pollution from industrial processes).
- Energy audits, building certifications, and progressive implementation of SGE-ISO-50001 management standards.
- Improvements to the energy efficiency of office equipment and machinery.
- Progressive replacement of electrical appliances that do not have an energy label or that have a low efficiency rating.

On a quarterly basis, a monitoring report shall be submitted to the Regional Government, drawn up by EREN, which shall contain a quantification of the consumption of electricity and gas and a comparison with the consumption recorded in the same period of the previous year. EREN shall be responsible for providing technical assistance to the different bodies of the administration within the scope of its powers.

EREN

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Spain as an energy island: securing through connection

A conversation with Alfonso Arroyo Gonzalez, FEDARENE Vice-President for Renewable Energy Sources

The Autonomous Community of Castilla y León is the largest producer of coal in Spain. Coal reserves bring energy security but contribute to climate change - as the regional authority for both energy and mining, how are you navigating the transition from coal towards renewable energy sources?

Castilla y León is leading the energy transition to renewables. Coal mining ceased in 2018 and, after the closure of the thermal generation plants located in the north of the provinces of León and Palencia in 2020, our region is still generating 1.5 times more electricity than it consumes. Moreover, we produce 89% of our electricity through renewable sources. The first Spanish region to install wind energy with over 6.5 GW, we also fostered PV energy through initiatives such as the Regional Table of Self-consumption of Castilla y León. Our presence in FEDARENE with the Vice-Presidency for Renewable Energies helps us to continue along this path.

However, a major challenge is the socio-economic revitalisation of mining areas, where the main economic activity has vanished and the mountainous terrain makes it difficult to attract new investment. In my view, our future lies in taking advantage of other endogenous resources beyond coal: biomass, inland nature and leisure tourism, and promotion of the agri-food sector.

Spain has recently worked to increase its interconnection and transition the Iberian peninsula away from being an energy island. How important is it to create a true European electricity market, especially in the current crisis?

It is essential to make progress in the gas and electricity interconnections between the Iberia and the rest of the EU. Present interconnections are manifestly insufficient. Spain's capacity to provide energy security and sufficiency to other Member States depends on strengthening these interconnections. The large deployment of renewable energies that is taking place in our country presents an opportunity for the rest of the EU if efforts are focused in this area.

Interconnection and renewable infrastructure contribute to Spanish energy security. What are your region's objectives when it comes to energy?

Our objective is to continue leading renewable energy production in Spain, with a target of 10 GW of wind energy by 2030. We are also committed to large-scale energy storage projects, such as reversible pumped-storage hydroelectric plants, hydrogen, and even compressed air in our many mining cavities. Our goal is to achieve an effective energy transition that is fair both to the territory and its people. Together with FEDARENE, we recently celebrated the 25th birthday of our Regional Energy Agency (EREN); we hope to celebrate many more years in the company of other Spanish and European regions.

Ventos de Poupança 2: Energia + Social

Oeste Sustentável - Portugal

The educational project "Ventos de Poupança" (Winds of Savings) was developed by the Oeste Sustentável Regional Energy Agency and consisted of an inter-school competition across seven regions of Portugal (Oeste, Barreiro, Moita, Montijo, Seixal, Cascais, and Alta Estremadura). The initiative had two editions, spanning more than 27 municipalities and reaching approximately 1.5 million people.

The competition aimed to inspire students and their social networks (families, teachers, local communities) to adopt stronger environmental practices through self-perception about energy consumption and sustainability.

Each school elected an Eco-team composed of five students and one teacher, then participating students were in charge of activities such as basic energy audits of their school premises, responding to social network challenges, and developing presentations for their school boards about energy reduction measures.

Further, a smartphone quiz app on energy and the environment called "ECOmLógica" ("with an eco-logic") was developed and launched to be played by any person who would donate their final score to one of the participating schools. The schools with the highest national score would receive various prizes, including one prize awarded to a social institution nominated by the winning school. This decision was taken to promote energy efficiency as well as social & intergenerational cooperation.

Eco-teams with the best classifications received renewable and energy-efficient equipment for their schools, such as wind turbines, photovoltaic systems, and LED lighting. Also, diplomas were awarded to the 30 schools with the highest savings over the two-year period for the implementation of measures proposed by eco-teams in each school. Participation medals were awarded to all students.

The level of participation among students, their families, and friends was quite remarkable: more than 15,000 responses to the online survey, more than 150,000 online votes for the best energy proposals, more than 525,000 website hits, and over 2,000 registrations for the smartphone quiz game. The final ceremony was attended by more than 120 students and teachers from 22 schools, as well as 29 social welfare institutions from 25 municipalities – revealing the fantastic involvement of the whole community.

In terms of energy savings, and despite the fact that this project was primarily focused on awareness-raising, it was possible to conclude an annual and overall estimated savings of 187 MWh, 60 tonnes CO2eq, and with a potential for savings of approximately €45,000/year.

The project was financed by the Energy Efficiency and Consumption Promotion Plan promoted by ERSE, the Portuguese Energy Services Regulatory Authority.

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Digitalisation solutions for renewable energy sources in households and education

REA North - North Croatia

Digitalisation provides many opportunities and is a key sector that REA North wants to develop in the future. The Croatian energy agency created two digital solutions to help citizens and stakeholders in their projects, as well as help them to understand underlying concepts behind energy efficiency, renewable energy sources (RES), and other green technologies.

The "Green Aura" project focuses on learning via augmented reality (AR) technology. Through a smartphone app, citizens of all ages engage in the AR world. The tool is designed such that citizens have to visit 14 locations in the city of Koprivnica that relate to existing energy efficiency, RES, climate mitigation, and adaptation solutions.

Across the 14 locations, instruction boards and interactive 3D AR content were developed. This content provides more information about each solution and educates about energy, energy efficiency, recycling, renewable energy sources, etc. in an easy and understandable way.

To help citizens decide whether or not an investment in photovoltaic systems on their roofs will be profitable, REA North (with support from the "Social Green" project) developed the first solution in Croatia: a map of solar potential.

Through the platform, citizens receive estimates of the plants' potential output, energy savings and CO2 emissions, and most importantly, profitability of investment. All citizens must do is visit the web page (www.solarnamapa.hr), choose between the cities of Varazdin or Koprivnica, find their house on the map, and estimates of their electricity consumption.

Both projects also help to alleviate energy poverty and mitigate the consequences of the current energy crisis. For citizens that want more specific advice, REA North provides direct support through its one-stop-shop.

These two examples demonstrate the importance of educating citizens in an interactive manner. With AR technology being relatively new, it can be a good trigger to encourage citizens to learn more about subjects so relevant in these unpredicted times we are facing now.

On the other hand, the map of solar potential is a one-stop shop facilitation model. Developed in a logical and easy way, it directs users, so they aren't overwhelmed with all the unfamiliar data they are about to face.

Around 1500 users monthly visit the website, and since May 2022 more than 350 people sent inquiries asking how they can start installing a PV system on their roofs.

REA North's Map of Solar Potential was hailed at the National Environmental Prize Green Prix 2022. Now, a number of cities plan to join Koprivnica and Varazdin with similar solutions for their citizens, improving the energy situation across other regions of Croatia.

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EDITORIAL

Overcoming Barriers to Energy Sufficiency

by Marie-Laure Falque-Masset, FEDARENE Vice-President for Energy Sufficiency

Sufficiency is a voluntary approach to reducing energy and resource consumption based on behavioural changes, lifestyle, and collective organisation. Contrary to energy efficiency, which relies on technology, the French High Council for the Climate claims that sufficiency "consists first and foremost of a rigorous reflection on our needs, then adapting our consumption according to those needs."

Elsewhere, the Club of Rome's famous Limits to Growth report argued that "confidence in technology as the ultimate solution to all problems diverts our attention from the most fundamental problem: growth in a finite system". But rather than disregard technology - efficiency is after all the second pillar of the energy transition - we must recognise sufficiency's place as a social innovator.

In practice, sufficiency looks like: not buying unnecessary equipment or opting for reconditioned goods, favouring built-to-last products over the forcedly obsolete, exploring solutions proposed by low-tech, or even developing digital sufficiency as part of an IT master plan.

Despite the information, incentives, and pleas, many find it difficult to implement changes because of psychological barriers that Robert Gifford called the "demons of inaction":

- **Limited cognition:** we think we know a subject well but ignore it or leave the responsibility to others;
- **Ideology:** we think that the free market, a deity, or some technology will solve the problems, or we live in too-comfortable a situation to assess the situation honestly;
- **Social pressure:** we adapt to the behaviour of others (neighbours, family, friends, colleagues);
- **Sunk costs:** if one has recently invested in a car, one may resist switching to a bicycle soon;
- **Discredit:** lack of trust in the authorities, denial or minimisation of energy and environmental problems
- **Perceived risks:** fear of change, shame, being misunderstood, losing money
- **Limited behaviour:** believing you are already doing your part and don't need to do more, or overusing a frugal piece of equipment, thereby cancelling their sufficient qualities (e.g. driving more often because you have a fuel-efficient car, leaving LEDs on).

Identifying these constraints is an essential step towards a meaningful sufficiency policy. But, as sufficiency questions our use of energy, it also demands a greater interest from us. That is why energy users should be involved in the creation of public policies and those of organisations. The ACTIFS network (led by AREC) connects energy and climate agencies with other actors who offer training to individuals, communities and companies in the form of challenges for citizens, serious games, demonstration areas, and educational bureaus. Together, our behaviour makes the difference.

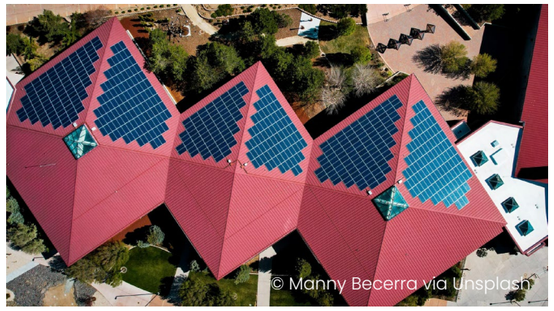
Zagreb's smart energy solutions for citizens

REGEA - North-West Croatia

In 2022, the City of Zagreb together with REGEA (the North-West Croatia Regional Energy Agency) developed numerous energy-related digital tools aimed at citizens, including:

1. **A Solar PV Potential tool**, which enables the calculation of relevant parameters for installation of PV systems on buildings;
2. **The Zagreb Energy Atlas**, which includes data on energy consumption for all buildings (public, residential, commercial) in the City of Zagreb and affords citizens the visualisation and analysis of aggregated data;
3. **A Public Building Renovation Monitor**, which presents relevant data and photo documentation regarding the renovation of public buildings in the City of Zagreb.

The tools are available online at eic.zagreb.hr/portal/apps/sites/#/eic.



Solar PV Potential tool

The main goal of the Solar PV Potential tool is to support citizens investing in PV systems on their own buildings. The tool provides all relevant data for a preliminary feasibility estimation. Every residential building (both multi-apartment and family houses) located within the City of Zagreb can be selected directly by clicking on the city map or by searching its address. The tool then automatically calculates the available roof area, inclination, orientation, and finally the total insolation, taking into account also the shadowing from nearby buildings, chimneys, and other built structures.

The calculation is based on a detailed 3D building model of the City of Zagreb. However, it has been developed to become highly user-friendly and requires a minimum amount of input from the user. Citizens merely have to type in their electricity consumption on a monthly or yearly basis and select the proper electricity tariff. Afterward, the tool calculates the optimal PV system capacity. Main financial parameters are also presented, including monthly and yearly savings, total investment costs, and a simple payback period.

The Solar PV Potential tool was launched in July 2022 and is currently undergoing an extensive revision and upgrade, which will allow citizens to calculate PV parameters in case of the replacement of natural gas with electricity as a source of heating. The tool will also automatically generate the documentation necessary to obtain the permits necessary for the PV installation from the electricity distribution company, which will considerably speed up the process and reduce preparation costs for citizens. The upgrade is planned to be launched in January 2023.

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Engaging citizens and local entities – the "Porto Energy Hub" one-stop-shop

AdEPorto - Porto, Portugal

Promoting energy efficiency in buildings and the production of renewable energy is key for both energy poverty alleviation and achieving carbon neutrality at the local level.

AdEPorto (Porto Energy Agency) coordinates the Porto Energy ElevatoR (PEER) project that supports public and private entities in developing a bold renovation programme, mainstreaming new financial schemes in the Porto Metropolitan Area north of Portugal's Douro river.

The project focuses on existing family buildings, in particular social and low-income housing, both public and privately owned. Its principal goal is, by the end of the project, to have 3,000 refurbished dwellings and 12MW of PV installed capacity. PEER must also mobilise an investment of €27.2M in the renovation of energy-efficient housing and renewable energy in the region. The achievement of these objectives is well underway and has already benefitted from the close collaboration maintained between municipalities and housing entities. The collaboration will ultimately allow for the continuous improvement of the energy performance and living conditions of around 25,700 vulnerable households in the municipality.

One of the most visible outputs of the project is the creation of a one-stop-shop (OSS). The OSS fosters private investment and helps citizens to engage in energy efficiency and renewable energy production, as well as to gather the tools required to guide citizens throughout the whole renovation process.

In this context, several financial incentives for citizens were developed to be implemented by municipalities, including the reduction of property taxes and framework agreements, which were designed to promote the private implementation of renewable energy production. This advice point, designated as Porto Energy Hub, is already available both online (through the project website (www.portoenergyhub.pt) and in physical modes, to ensure the service is available for all.

The first physical space was inaugurated on the 16th of September in the municipality of Porto. By the end of 2022, two other physical OSS will be implemented in two other municipalities of the region. By imparting information from technical issues to funding options, the Porto Energy Hub team has supported citizens and municipalities to improve their energy efficiency, and promoted the implementation of renewable production circumstances. The work developed within the scope of the Porto Energy Hub has also been key in raising the standards of energy performance in the ongoing renovation of the region's social housing building stock, as well as promoting awareness of municipal technical employees and decision-makers regarding the need to foster renewable energy communities that include vulnerable settings.

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Supporting deep renovations in public buildings across small and medium-sized municipalities

AURA-EE - Auvergne-Rhône-Alpes, France

The Auvergne-Rhône-Alpes region counts more than 35,000 public buildings. Only a few hundreds of these are energy refurbished each year. Municipalities in the region face significant challenges with their energy saving goals due to the lack of technical and legal expertise hindering the use of advanced contracting schemes. BAPAURA thus aims to scale up the energy refurbishment of public buildings in small and mid-size local authorities in the Auvergne-Rhône-Alpes region. This is done through the implementation of multi-level advanced services that provide technical support and introduce innovative financing.

How does it work?

The energy renovation support service set up by BAPAURA is deployed in the region by nine experimental territories. Each territorial partner provides its expertise in energy performance and advises the supported municipalities on the financial aspects for projects. Currently, 141 energy renovation projects are being supported. The map of the supported projects over the region is available online.

Focus on the Club-House energy renovation project in Colombier Saugnieu

The municipality of Colombier Saugnieu has been assisted by ALTE 69 (local energy agency) in the energy renovation of the four buildings composing its sports complex.

The first building, the city's Club-House, was inaugurated on the 13th of October 2022. The work carried out (insulation of the roof, external walls, joinery, etc.), will reduce the building's energy consumption by 50%.

Subsequently, the municipality of Colombier Saugnieu and ALTE 69 will work on the energy renovation of three other municipal buildings as well as on the monitoring and optimisation of their energy consumption.

Each BAPAURA partner will, until the end of the project, organise site visits of the supported projects. The objective is to present the support service provided to municipalities and share the experience gained during the project.

Spread the model and upscale renovation

The experience capitalised by partners as well as the tools produced will be gathered in a toolbox that will be made available by the end of the project.

Since May 2022, each BAPAURA partner is twinned with a similar structure located in an external territory. The aim is to disseminate the BAPAURA support service model and the tools created by partners to be adapted to other territories' specificities.

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BAPAURA (FR) – BAPAURA (ENG)

Leading role of the Zlín Region in developing low-carbon districts within the Czech Republic

EAZK - Zlín Region, Czech Republic

The Zlín border region in the east of Czechia holds 307 municipalities, many with under 1,000 inhabitants. These areas often hold insufficient knowledge of how to reduce emissions and increase efficiency, especially in buildings – a crucial part of the energy transition.

The Energy Agency of the Zlín Region (EAZK) recently took part in the LC DISTRICTS Interreg project, which significantly accelerated the development of low-carbon areas nationwide, with targeted buildings energy renovations.

The project also refined the "OP Environment" (OPE) national subsidy programme in the field of environmental protection. For many years, EAZK has worked with OPE and administered hundreds of projects (worth billions of CZK over the past 15 years) where OPE supported a significant part of these investments in EE and RES. One of the challenges for the Zlín Region is to use this investment in the most efficient way possible and to provide feedback to the national level with suggestions for improvements.

LC DISTRICTS created a unique opportunity to connect the regional and national levels through the cooperation of EAZK with state institutions like Czech Technical University, the State Environmental Fund, or the Ministry of the Environment.

Further, participation in the LC DISTRICTS project enabled both EAZK and the Zlín Region to not only capitalise on their own experience but also be inspired by partner regions in Navarra (ES), Småland (SE), Ancona (IT) and Croatia. These learnings contributed to the process of determining the shape of OP Environment for the following programming period 2021 – 2027. Conclusions that emerged during the project cooperation include:

- Modern low-energy and passive houses built in the public sector of pilot areas have great potential to become a model for other similar buildings in the private sector as well.
- Support for renovation to low-energy standards in public buildings apart from passive houses is insufficient, taking into account the fact that not all public buildings are able to achieve passive house requirements.
- The use of functional examples from other countries in terms of ambitions, materials used, and a comprehensive approach can be an inspiration to key entities forming the final form of national operational programs.

Thanks to the comprehensive concept of the LC DISTRICTS project, EAZK will act as facilitator for municipalities and regions through the submission of targeted and carefully selected projects. It will also play an important role in providing feedback at the national level for further adaptations to the program for its most efficient use and the benefit of end users.

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Energy independence from RES through innovation procurement

KSSENA - Savinjska, Šaleška and Koroška, Slovenia

Novel approaches to the energy renovation of buildings are being developed through an international pre-commercial procurement project (PCP) which is addressing the challenges of energy independence, resilience and climate change mitigation. The project will operationalise a PCP mechanism to develop and validate renovation approaches in which the 'energy efficiency first' principle is merged with the EU's quest for a decentralised supply of energy from renewable sources.

The procuRE project will grant up to €7.68M to qualified researchers and technology suppliers through a challenged-based procurement constituted of 3 co-development and implementation phases.

A new co-design procedure between the buyers group and suppliers will facilitate the conceptualisation of technical solutions, prototype testing and finally, the instalment of equipment and management systems across 6 demonstration buildings in Germany, Portugal, Slovenia, Spain, Turkey and Israel. The developed solutions will then undergo operational testing and a comprehensive validation process in everyday use of the buildings. Together, the buyers group operates 21,000 buildings, which represents the project's potential for the scaling of innovative solutions validated by demonstration sites.

The project offers a unique appropriation of innovation procurement into a multi-stakeholder co-development process in which building operators and users play a central role. Focus groups of different stakeholders (occupants, operators, owners) led to a discussion on various topics including existing deficiencies of buildings, levels of understanding, priorities and expectations. Special attention was given to the challenge of communicating the real-time performance of the building to the users in a way that would promote awareness about users' energy consumption.

The building operators are also essential to achieve the highest possible self-sufficiency, thus a strong emphasis on operator training is prevalent in the renovation approaches. Conversely, building owners are encouraged to look past the rudimentary picture portrayed by financial metrics alone and also consider wider benefits (e.g. air quality, thermal comfort, GHG emissions, etc.).

The procuRE project will provide an innovative way to renovate the existing building stock while promoting RES adoption within a user-centred approach based on matching supply and demand. With buildings representing 40% of final energy use and about one third of GHG emissions, whereby 75% of the existing stock today doesn't comply with efficiency targets, meeting the procuRE challenge is essential to the future of resilient energy supply from renewables, economic growth and success in reaching GHG reduction targets.

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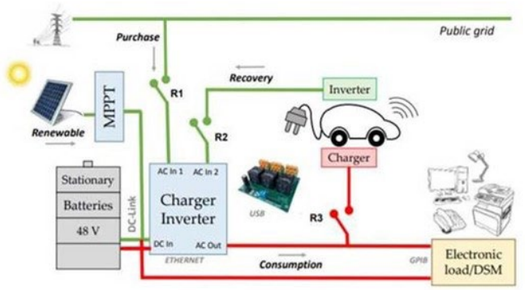
One of Slovenia's first smart grid systems in a public building

LEA Spodnje Podravje - Spodnje Podravje, Slovenia

Local Energy Agency Spodnje Podravje (LEASP) has successfully completed the DEMO project, which concerned a new smart grid for the kindergarten in Destrnik, Slovenia. The smart grid was implemented as part of the CSSC Lab project within the framework of the Interreg-Danube Programme. The main benefit besides energy savings is strong demonstration impact and the great interest of the other municipalities now seeking to implement similar projects.

The applied technology consisted of: PV plant – 24 kWp; BYD battery premium 20 kWh (2 units); Solaredge hybrid invertor 10 kW (2 units); Battery control system – Solaredge, Schneider EvParking 2x22 kW T2 RFID with protective equipment, EVlink LMS 5 for dynamic charging control, BMS controller Schneider ASB24 with web Scada; Schneider power-meter.



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The main goal and innovative aspect of the project was to encourage other municipalities to invest in smart grid technologies and to became prosumers (producers and sellers of electricity).

The monitoring system controls the whole system and measures the electricity produced, consumed, charged and released into grid. From the start-up of the system, 4.8t of CO2 emissions were saved.

The average electrical consumption of the kindergarten is 65.8 MWh/a. The planned production from PV is 26.4 MWh/a. After starting up the system, a hidden consumer of electricity was found to be draining 8.76 MWh/a before becoming eliminated. The total savings were estimated at 35.16 kWh/a or €8,320 per year. The payback period (including total investment of €71,890) is 8.6 years.

LEASP participated in a Slovenian-Japanese partnership demonstration project between 2017 and 2018. Within this project, knowledge of smart grids was transferred into Slovenia – enabling LEASP to plan, design and implement the small grid in the public building. The project was presented at a workshop in the middle of October and resulted in interest for several new PV plants for the municipalities of Markovci, Zavrc, Ormoz and Destrnik as a first step towards smart grid.

The Slovenian government is planning 5 electricity tariffs, three of them to be critical. The presented smart grid system will be easily included into the national electrical grid, leading the kindergarten in Destrnik to become a prosumer.

The battery and the monitoring system of the DEMO investment was partly financed by the Danube Transnational Programme, within the CSSC Lab project. Remaining costs for the PV plant and electric vehicle charging stations were covered by own funds.

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Let's fight for the environment inside buildings too!

Mazovia Energy Agency - Mazovia, Poland

In recent years, Mazovia Energy Agency (MAE) has observed a significant increase in the number of so-called energy efficiency projects to improve the performance of buildings, which, unfortunately, in most cases are not aimed at improving the climate in their interiors at the same time. Therefore, MAE is making efforts to implement new solutions with the objective not only to increase the energy efficiency as such, but also to define guidelines for the integration of media and energy management systems (EMS - Energy Management System), monitoring and control of devices inside. Their design depends on the needs of users, existing environment and responds to the required level of comfort and safety.

At the turn of August and September 2022, MAE undertook the task of improving the quality of the climate inside a 50-year-old school building in Wawer District, City of Warsaw. After pilot testing, the project is considered an undoubted success due to the full integration of EMS, full communication with different technical devices and existing infrastructure inside the building. In this way, users and managers have gained a single tool for monitoring energy and media consumption, combined with sensors that examine comprehensively air parameters indoor.

Moreover, with the help of a few applied modules and connection to the innovative software, the maintenance services can easily manage all devices and indoor systems. As a result, one has the opportunity to perform advanced control scenarios, e.g. lighting, heating/ventilation of rooms depending on the presence of people. The system also analyses external parameters such as temperature, natural lighting intensity, CO2 – based on data from sensors and weather stations indoors and outside. At this point, MAE not only fully controls the air quality in classrooms, determining energy savings and mitigating climate change, but also automatically controls the lighting, ensuring that there is no light pollution as well.

Such functionalities open up new areas in the field of improving the energy efficiency of buildings, complementing earlier thermal modernisation activities. In addition, they enable planning various operations necessary for the proper functioning of a building, possible to be carried out, e.g. outside working hours of people in selected zones/ rooms. All these features and technological and organisational possibilities of EMS energy management systems and BMS building management systems create a new quality of operational and functional service for modern buildings, especially public, commercial, office and industrial buildings.

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Fostering Energy Efficiency and Independence of public buildings in Medjimurje county

MENEA - Medjimurje, Croatia

A rapidly growing population followed by increased energy consumption is causing GHG emissions to continue to skyrocket. In line with this, climate change and unpredictable weather events represent one of the greatest challenges in Medjimurje county, Croatia.

Investments in energy efficiency (EE) and renewable energy sources (RES) are often costly, since they involve high capital expenditures. So, in addition to private participation, European and national funds are the most common financing tool for their implementation. Faced with these challenges, **Medjimurje Energy Agency Ltd. (MENEA) has implemented several projects in order to improve EE of public buildings located in the Knowledge Centre Čakovec (an ex-military complex), where MENEA is located. One of the buildings in question - MENEA's headquarters, is a hundred-year-old administrative building in ex-military complex, where through the years several solutions for fostering EE and RES utilisation were installed.**

After the building was refurbished in 2008, in 2016 a 75 kW pyrolytic furnace was installed, which was the first step in transforming the building into a highly energy efficient one. The pyrolytic furnace replaced the previously used inefficient gas boiler. Since firewood is considered to be a neutral fuel in terms of GHG emissions, thanks to the investment, the pollutant emissions into the atmosphere were reduced by 100%. Following the path in making the building more energy efficient, it became a part of pilot investment within the project RURES financed by INTERREG Central Europe programme. Investment included installation of solar thermal collectors for domestic hot water, a calorimeter and a smart metering system for monitoring energy consumption. Within the investment the building was equipped by new highly efficient LED lighting and new A+++ kitchen appliances. Another valuable project was carried out in 2022, which made the building not only energy efficient but also energy independent, refers to the installation of a 20-kW solar power plant and air-to-water heat pump with 37 kW nominal power for cooling and heating.

The investments resulted in a wide range of positive effects including GHG emissions reduction, monetary savings, etc. The greatest benefit of implemented investments lies in the ability to replicate them in other buildings which will foster the implementation of EE and RES measures and ensure further education of the local population and raise awareness on benefits of EE and RES. Finally, with the implementation of all mentioned measures, the building consumes less energy-intensive and becomes more energy efficient. Since the building is public, it can be accessible by wide range of users, resulting in wider impact on raising awareness.

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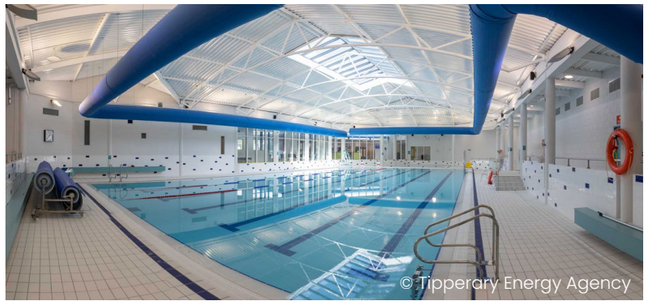
Lahinch Leisure Centre retrofit

Tipperary Energy Agency - Tipperary, Ireland



The Lahinch Leisure Centre retrofit journey began in 2018 when the Tipperary Energy Agency (TEA) building services team completed an energy audit to understand how much energy the building was using and pinpoint necessary works to upgrade the facility. The Leisure Centre had a building energy rating (BER) of E. The building, partly constructed in 1960, had inefficient lighting and was poorly insulated with single-glazed windows. Today, Lahinch Leisure Centre has a A2 BER and NZEB status.

Eoin Conlon, Centre Manager explained: "The leisure centre was extremely difficult to heat. Customers complained that all pools and the changing rooms were cold. It was uncomfortable to change and swim in that environment. The business itself was unable to sustain the cost of trying to heat the facility, this being primarily due to the insulation, the air handling unit (AHU)'s incompatibility and the roof displaying multiple holes for the heat to escape. Essentially the company had massive costs to heat the building only for it to be losing heat through the roof of the building."

The upgrade will result in a 56% decrease in energy costs and a 55% decrease in CO_2 emissions. TEA's technical engineers worked the project and designed all the energy efficient upgrades which included:

- A new GSHP cascade system to serve as the primary heating system for the main 25m pool, the kids' pool, and local space heating via fan coil units located throughout;
- A 300kW biomass boiler to serve the 3 AHU's throughout the facility;
- 3 new AHU's designed & selected for a swimming pool environment;
- Smart LED lighting, complete with occupancy detection, daylight sensing & multiple scene selections;
- A 137kWp solar PV array. When production exceeds consumption, the system will store excess energy in a 30kWh battery system;
- Insulated cavity & external walls; roof & ground floor insulation all upgraded;
- 6 recoup shower heat recovery units installed at 42% heat recovery efficiency;
- All windows & doors upgraded to double glazing & high thermal efficiency units.

Eoin elaborated: "While the systems themselves, such as the geothermal heat pumps, solar panels and wood pellet boilers have state-of-the-art energy efficiency engineering behind them, we must still allow for an ongoing evaluation of their use to maximise their potential. I intend to work closely with TEA to make sure that this process happens. The agency has been nothing but a pleasure to work with on this inspiring and well needed project. The local community will benefit from this; the customers that walk through our doors can rest assured that we are doing our very best to provide a gold standard, energy efficient leisure centre."

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Empowering energy communities in the southeast of Ireland

South East Energy Agency - South East Ireland

The South East Energy Agency supports 60 sustainable energy communities (SECs) with support from the Sustainable Energy Authority of Ireland (SEAI), which also recently celebrated 500 SECs nationally.

© Callan Community Energy / SEEA

Each with their own journey towards energy efficiency and energy independence, our 60 SECs are working through the "learning, planning and doing" steps of the programme, becoming increasingly knowledgeable and confident about energy and delivering benefits to their communities.

Eight communities have carried out a comprehensive study into their consumption and devised an Energy Master Plan for saving energy. The aim is for many more communities to go through this process in the coming years. Other communities are improving the fabric of their community buildings and some have even developed their own renewable energy projects, taking control of how energy is produced and not just how it is used. This effort is funded by SEAI and there is great collaboration with local authorities and leaders in the counties of Carlow, Kilkenny, Waterford and Wexford.

In December 2021, Callan Community Energy in County Kilkenny opened a new solar-powered EV charging station in the Callan Supervalu carpark, supported by South East Energy Agency. This fantastic project will provide up to 22kW of fast charging to support the local transition to electric vehicles. The sales will be paid directly to the community energy company. It is the first community-owned EV charge point in Ireland, a beaming icon of Callan Community Energy and its first project.

The Communities Energy Grant (CEG), a national retrofit initiative managed by the SEAI, enables SMEs and public sector facilities to qualify for 30% funding toward energy saving measures like insulations, window and door upgrades, heating controls, solar, replacement of fossil fuel boilers with heat pumps – and much more. These all lower energy bills while reducing energy usage and CO2 emissions.

The Commercial Sector accounts for 6.7% of national energy demand, and 11% across 3 counties in the Southeast. In Carlow, Kilkenny and Wexford, the total number of commercial businesses in 2017 was 32,609, consuming 1,014GWh of energy. To achieve the 2030 Climate Action Plan across the 3 counties, this consumption needs to reduce by 30% to 720GWh. This will result in an annual cost saving of over €17M across the businesses - an average of €521 per company. The SEAI's SME Guide to Energy Efficiency states that "for a company with a 5% profit margin over 3 years, a €500-a-year saving from energy efficiency makes the same profit as €30,000 of extra sales".

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Citizens at the centre of change

by Thekla Heinel, FEDARENE Vice-President for Climate Protection in Municipalities and Regions


© Thekla Heinel

Achieving climate neutrality by 2050 in line with our commitment to the Paris Agreement and as set out in the Green Deal is a key objective of the European Union. The 2022 energy crisis and related EU energy security issues revealed that an especially key factor in the structure of such climate policy approaches is the active participation of citizens.

The importance of this aspect is underlined in the study *Behavioural Climate Change Mitigation Options and Their Appropriate Inclusion in Quantitative Longer Term Policy Scenarios*[1]. The study concluded that there is considerable potential for reducing CO2 emissions by means of behavioural changes, particularly in the areas of housing, nutrition, and mobility. However, there are several barriers that prevent the realisation of these behavioural changes. In addition to a lack of knowledge and insufficient awareness of one's own energy consumption, cultural norms are also among the hindering factors.

In line with these findings, the Energy Neighbourhoods project was realised, co-funded under the Intelligent Energy - Europe programme. This project is based on an energy-saving bet between municipalities and their citizens, with the aim of reducing energy consumption by a certain percentage. Friends, colleagues, and clubs join to form energy neighbourhoods and bet against their city or district that they will manage to save at least 9% of electricity and heat within a certain period compared to the previous year. The competition is accompanied by information and motivation measures as well as energy coaches, and concludes with a prestigious award ceremony.

But besides energy saving and responsible energy consumption, citizens also play a vital role as energy citizens and prosumers. In the report *The potential of energy citizens in the European Union* (Kampman, Blommerde und Afma, 2016, p. 3), it is estimated that "about 83% of the EU's households could potentially become an energy citizen and contribute to renewable energy production, demand response and/or energy storage, which amounts to about 187 million households". Taking this into account, the Horizon project SHAREs supports local heroes in setting up or expanding energy communities and enables them to motivate and reach out to consumers directly, including those who do not yet have an affinity for energy or are simply unfamiliar with the concept of energy communities.

In summary, behavioural change on the part of citizens and an active role as prosumers are crucial factors to achieve climate neutrality in the EU by 2050. In addition to supportive policy and legal frameworks, information, motivation, the provision of materials and the active cooperation of citizens in overcoming obstacles are necessary to bring the Green Deal to life across the EU.

1 Faber, Jasper; Schroten, Arno; Bles, Mart; Sevenster, Maartje; Markowska, Agnieszka; Smit, Martine; Rohde, Clemens; Dütschke, Elisabeth; Köhler, Jonathan; Gigli, Michaela; Zimmermann, Karin; Soboh, Rafat; van't Riet, Jonathan (2012): Behavioural Climate Change Mitigation Options and Their Appropriate Inclusion in Quantitative Longer Term Policy Scenarios - Main Report; Delft, April 2012

The way for decarbonisation and climate resilience of small municipalities from Alba County

Alba Local Energy Agency - Alba Iulia, Romania

© Diana Cristea via Unsplash

In a post-pandemic period with exploding energy prices and a military conflict in our proximity, several communities in Transylvania are doubling down on decarbonisation and climate resilience; toward this, they are supported by their adhesion to the Covenant of Mayors – Europe initiative.

Benefiting from ALEA's extensive support offered via the CEESEU HORIZON 2020 project, 4 local towns (Zlatna, Abrud, Campeni, Baia de Aries) began their strategy for energy and climate sustainability. Their goals are more collaboration on sustainable energy, more adaptation measures, and more social cohesion by tackling energy poverty. After evaluations of baseline emissions and a risk & vulnerability analysis, a plan was devised to decrease emissions over 40% by 2030, by which local effects of climate change will also be reduced.

Supporting the evaluations, energy and climate databases were created for each municipality on the ANERGO platform (Alba Energy Observatory operated by ALEA). Moreover, responsible municipal staff were also properly trained. Currently, the authorities are finalising measures for:

- High-level energy efficiency in public buildings (educational, social, health sectors);
- Modern public lighting with low consumption;
- Supporting citizens to green their houses and become prosumers;
- Systems for valorisation of local RES potential (biomass, hydro, solar);
- Support measures for households struggling with energy poverty;
- Greening urban mobility: electric vehicles with necessary charging stations; encouraging biking and walking.

The municipalities largely avail of EU Cohesion Funds for the decarbonisation and climate resilience of their territories. ALEA is confident that in the first part of 2023, their SECAPs will be finalised and, after legal approval by city councils, the municipalities can start the implementation phase on their path for sustainable development.

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Many small communities across Alba County must tackle several issues: deindustrialisation of mono-industrial (extractive) areas, the departure of young people, precarious infrastructure, rising energy prices, and difficulties in accessing energy.The answers to these challenges begin with strong political action for development with sustainable capitalisation of natural/energy resources: ecological tourism, valorisation of local traditions, creating a services market, green energy production... The initiative of 4 small towns acting together in the Covenant framework must become exemplary. As a regional energy agency, we ardently promote the effort of local communities on the path for decarbonisation and adaptation; in fact, we try to manifest our motto as an energy agency: 'think globally, act locally'.

Florin Andronescu - ALEA director & FEDARENE Vice-President for Energy Efficiency and Energy poverty

The fight against energy poverty in Réunion Island

Horizon Réunion - Reunion Island, France

The authorities combating energy poverty for households on the island of Réunion have started the national project SLIME (Local Scheme for Energy Efficiency). Horizon Réunion (the energy agency of Réunion) oversees, implementing and animating it, with the electricity supplier EDF, in support of the Regional Council of La Réunion.

The SLIME program aims to find solutions for the fuel-poor households, allowing local authorities to provide concrete solutions to energy poverty, reduce energy demand from the grid, and finally decrease the greenhouse gas emissions.

How does it work?


© Bruno Dennemont

Working closely with social centres, social housing providers, Horizon Réunion identifies energy-poor families, conducts diagnoses, identifies solutions, and then supports families to implement daily and simple measures to reduce energy usage at home.

After identifying an energy-poor family, a technician of Horizon Réunion will visit their home. Then, the objective is to provide neutral and free advice on energy savings. Therefore, they establish diagnoses and propose solutions adapted to each individual case.

Among the small changes made by Réunion islanders: changing lightbulbs to LEDs, disconnecting the rice cooker (an essential item in home's kitchen of Reunion Island), installing solar water heaters and the overall improvement of the building (insulation, double-glazed windows, walls, etc.). Up to now, more than 34,000 households have already been accompanied for a 15 to 20% reduction in their energy consumption: approximately €100 savings per household per year!

The SLIME program is a gateway to all the support offered to families in terms of lower energy consumption through renovation. Involving the population from the start is a key to a successful energy transition. By developing a governance that integrates all the initiatives deployed on the territory, which pools funding and federates all parties – population included – this service contributes to the success of the objective.

Thanks to all these actions, this regional housing energy performance service is totally in agreement with sustainable development thanks to its dimensions social, economic, and environmental.

Focus on Horizon Réunion

Created in July 2013, the local public company Horizon Réunion supports Réunion Island towards self-sufficiency on energy, at the service of communities, territories, and citizens.

Fitting into an approach that promotes local natural resources, Horizon Réunion's role is to support shareholder local authorities in the development of concrete projects with challenges energy. Its fields of action are: control of energy demand, development of renewable energy, observation, governance, information and awareness of population.

Horizon Réunion

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Pilot Roof PV Installations and Energy Storage Systems in Plovdiv Social Buildings

Energy Agency of Plovdiv - Plovdiv, Bulgaria

Within the POWERTY project, the Energy Agency of Plovdiv implemented 3 hybrid installations consisting of photovoltaic modules and battery energy storage systems, across three social housing centres owned by the Municipality of Plovdiv. These homes are inhabited by 22 children and young people with disabilities.

The roof installations consist of photovoltaic modules, hybrid inverters, battery storage modules, smart meters, and monitoring systems. The power metering devices monitor energy data in real time, and the cloud-based system is available to monitor and record all sets of data: including generation, storage, and consumption from all pilot installations.

Two of the buildings yield an installed power of 10kWp and battery capacity of 34kWh, while the third has installed power of 5.8kWp and battery capacity of 12kWh. The total estimated power generation for the first two buildings is around 14MWh per year and 8.6MWh per year for the third one. All three buildings present excess production of around 2.5MWh per year for each one of them which is an additional benefit as the excess energy will be fed to the grid. The investment for the three systems was €55,000 without VAT and the estimated payback period is 7.2 years.

The estimated impact from the implementation is the reduced electricity costs of three social buildings, production of renewable anergy of 37MWh per year, 80% of self-consumed renewable energy and excess power of 7.3MWh per year fed into the electrical grid. The avoided CO2 emissions are estimated to 30 t/a with potential monetary savings of €7,600 per year. It also spurred new set-up of the city energy systems and planning for new energy efficiency measures in the public buildings.

In future, based on the feedback from the POWERTY system, different prosumer profiles will be identified thus facilitating optimisation through prediction models and dynamic and demand-response tariffs. As the building users have been closely engaged in the process, they are now empowered to aim higher at introducing more energy efficiency measures and achieving greater energy savings.


© Energy Agency of Plovdiv

The above-described example is a good practice for introducing a self-consumption model providing a viable solution for social households to achieve a significant share of renewable generation that can be self-consumed and thus decrease their electricity bills and contribute to the decarbonization of the city's energy system.

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Sustainable Business Bridge

Energikontor Norr - North Sweden

> What it all comes down to is helping companies find smart solutions for sustainability challenges and, in the process, helping innovative suppliers to find new business.

Companies and society need to decrease their CO2 emissions and increase resource efficiency by re-using and re-cycling materials at a much higher level than today. There is an urgency to drastically speed up the sustainability transformation and the project Sustainable Business Bridge wants to be that bridge to accelerate the process.

Energikontor Norr (North Sweden Energy Agency) is the project owner of Sustainable Business Bridge and the keyword is match-making. By building the brand Greenably and starting a match-making service for sustainability challenges, Sustainable Business Bridge plays a part in accelerating the process. Greenably supports companies and organisations to be brave and search for new ways forward to find innovative and sustainable solutions. At the same time, Greenably boosts and supports suppliers with new business opportunities. Greenably also arranges virtual match-making events where companies talk about their challenge and suppliers pitch solution proposals.

"For the companies we work with, this saves a lot of time. In addition, we can find solutions that they didn't know about and didn't have time to look for. For example, we may have to turn to the world of research or other industries to find a solution. That sort of cross-sectoral fusion is still unexploited." - Inger Edlund Pedersen, Project Manager from North Sweden Energy Agency.

"Without help, we would not have been able to be as active in this issue as we want to be. The transition includes so many aspects and we need collaborations to cover such a broad spectrum." - Sofia Antonsen, Development Manager at Luleå Energi, one of the companies in the project.

Sustainable Business Bridge is an EU-funded project during the period June 2020 – April 2023. The collaborative partner is WIN Winning Innovation i Lund. Sustainable Business Bridge connects the northern part of Sweden with the south.

Funding comes from European regional funds, Region Norrbotten, Luleå kommun, Bodens kommun, Piteå kommun, Gällivare Näringsliv, 3EFlow, EON, GreenExergy, Kraftringen, Nordkonsult, Relitor and Wibax.

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Hydrogen gains momentum in the Basque Country

EVE - Basque Country, Spain

The Basque Hydrogen Strategy was presented in Spring 2021. Its purpose is to promote the creation of a hydrogen production, distribution and consumption ecosystem in the Basque Country based on the country's industrial, logistical and technological capabilities. The guideline objectives set for the strategy are:

- To create a robust and sustainable local market, boosting renewable, low-carbon hydrogen production and stimulating domestic demand;
- To make hydrogen a viable decarbonisation tool for Basque industry and other hard-to-decarbonise energy consumption sectors, such as transport;
- To deploy a storage, transportation and distribution infrastructure to support the development of the local market, and to provide the basis for the establishment of a future logistics centre for international hydrogen trade;
- To stimulate training, R&D and industrial development in order to position the country as a technology exporter in a market that is expected to grow at a constant rate.

The strategy includes an Action Plan with 58 proposed lines of action. These are structured into six central themes, with a series of targets to be met by 2030.

The most important instrument for achieving the strategy's goals is the Basque Hydrogen Corridor (BH2C), an association created in November 2021 with 78 organisations, including institutions, companies, research centres, universities, etc., through which a public-private partnership strategy is being developed. The Basque Country has a long and successful tradition with such partnerships.

The BH2C includes 38 projects extending to all areas of the hydrogen value chain: production, transport and distribution, usage, product and component development, and even an inter-university training project, now into its second year.

Though the list of projects is too long to present here, two noteworthy projects were named IPCEIs (Important Projects of Common European Interest) last summer. The first involves the design, construction and operation of a 100 MW electrolysis plant, which will produce renewable hydrogen to decarbonise the refinery process at the Petronor plant near Bilbao. The second entails setting up an electrolyser factory in the Basque Country and is led by the engineering firm Sener.

Finally, it is worth mentioning that on 26 October 2022, during European Hydrogen Week in Brussels, the Clean Hydrogen Partnership awarded the Basque Hydrogen Corridor 'European H2 Valley of the Year'.

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INTERVIEW

Mitigating volatility during the energy crisis

A conversation with Maria Fabianelli, FEDARENE Vice-President for Energy Efficiency and Investments


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In the current energy crisis, what are the main challenges facing local authorities and stakeholders?

The crisis hits hardest in countries dependent on Russian fossil fuels. In 2021, Italy imported nearly 40% of its gas from Russia alone. Bills are out of control, hampering economic growth, prosperity and stability.

Liguria feels this acutely. We have very low renewable energy production, and our economy consists primarily of unorganised SMEs that are particularly vulnerable. A cost of living crisis means that local authorities face rising demand for services, but the cost to provide them is also escalating. In everyday terms, municipalities have difficulty providing public lighting, understanding rising energy tariffs, and accessing national incentives.

Citizens, businesses and local authorities need solutions to soaring energy prices. How is IRE Liguria supporting them?

We are busily setting up renewable energy communities (RECs) which can alleviate energy poverty with their distribution of affordable, efficient energy to vulnerable households. Concurrently, we work with municipalities to develop and implement their SECAPs, and assist the regional government with efficiency measures targeting buildings and industry.

Furthermore, we manage "Consorzio Energia Liguria", a consortium of >130 public entities. We help them to analyse tariffs, navigate soaring prices, and avail of national support, since local actors often lack the capacity to undergo complex funding procedures.

How are you planning to build long-term resilience to energy insecurity and price volatility?

We are in an emergency now, but the energy crisis may continue for years to come. We will keep promoting RECs and working with public entities to support their green transition. On top of that, we aim to extend our support beyond public authorities to also include local SMEs and their associations as much as possible. Our experience tells us that these private entities are having a hard time building resilience to energy insecurity and price volatility; they need the guidance of energy agencies as much as public authorities.

What is the biggest lesson IRE Liguria has learned in recent months? What would you share with other agencies in Europe?

The main lesson: energy is too important and must stay a priority. Energy is crucial to the wellbeing of citizens and the EU economy. It has always been a scarce resource and the low prices of bygone decades were unlikely to last forever, regardless of pandemic or war (though they accelerated the process). As energy agencies, we can play a crucial role, supporting our territories in the energy transition and convincing them that energy efficiency investments and the promotion of renewable energy sources are the only way forward.

A collaborative guide to help companies reduce their use of energy in five steps

Mälardalen Energy Agency - Mälardalen, Sweden

Sweden faces a winter with a very real risk of energy shortages. The electricity prices are soaring to levels that may cause smaller companies to fold, and many are looking for ways to reduce their use of energy. Their question, is this: how do we become more energy efficient without compromising on safety and health? To meet the demand for guidance, The Mälardalen Energy Agency (MEA) has co-developed The Energy Staircase – and paid visits to 110 companies.


© Energikontoret i Mälardalen (Hanna Maxstad)

MEA developed The Energy Staircase in collaboration with The Energy Evolution Centre and the municipal energy and climate guidance service in Eskilstuna. The guide consists of five steps, ranging from "motivation" and "goals" to "collaboration", and it is free to use.

"When using our guide, there's no need for guesswork to become more energy efficient. As companies climb the steps, they get access to useful information, check lists and other helpful tools," says Jesper Sundling, Project Leader at MEA.

MEA connects companies with energy and climate guidance services

Putting companies in contact with the energy and climate guidance service supplied, free of charge, by Swedish municipalities is an important step of The Energy Staircase.

"Many companies are expressing concern about their financial situation and say they feel at a loss when it comes to energy efficiency. We are helping them reduce their energy use in every step of the way," says Baljot Singh, Energy and Climate Advisor in the municipalities of Arboga, Fagersta, Kungsör and Köping.

"They ask the right questions to help companies"

In 2022, MEA team members paid visits to **110 companies** to share their expertise on how to reduce the use of energy. The visits were performed within the scope of three ongoing energy transition projects, in addition to MEA's government-appointed task of developing and putting companies in contact with municipal energy and climate guidance services.

"I could not recommend The Mälardalen Energy Agency more. They are very knowledgeable, and they ask the right questions to help companies run their business in more energy and cost-effective ways, which makes them better prepared to handle the coming instability in electricity prices," says Linda Uddman, Business Developer in Hallstahammar Municipality.

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Innovation for the energy transition: International Clean Energy Hackathon in Linz/Upper Austria

OÖ Energiesparverband - Upper Austria

At the International Clean Energy Hackathon held on 14-15 November in Linz, Upper Austria, 31 teams from 10 countries "hacked" challenges and developed new products for the energy transition.

Organised by the OÖ Energiesparverband (ESV), the energy agency of Upper Austria, the event brought together start-ups and companies from the Cleantech-Cluster Energy (the ESV's network of sustainable energy companies in Upper Austria). At the end of the event, the teams pitched their ideas to a high-level jury. In the next phase, about 10 of the teams will receive €9,500 from the EU Urbantech project to further develop their innovative solutions – and thus contribute to climate neutrality and the energy transition!

In the preparation phase, over 30 challenges were set by leading energy transition companies and the ESV. The companies were mostly looking for innovative software and hardware solutions for solar energy, batteries, e-mobility charging, energy sharing, energy communities, energy management or smart and sustainable buildings. Fields of interest for the solutions included artificial intelligence, robotics, advanced sensors, big data, forecasting, predictive maintenance and drones.

In an open call, over 70 start-ups from 20 countries submitted their ideas for specific digital solutions. The highest quality applications were invited to the 2-day hackathon in Linz.

At the event, the companies from the cluster provided coaching and guidance to the teams. This tight collaboration enabled participants to create opportunities for collaboration beyond the boundaries of the hackathon.

On the second day, after hours of intense brainpower, the teams pitched their innovative ideas to a high-level jury including the Energy Commissioner of Upper Austria, company CEOs and more.

> **So much brainpower! It was fantastic to see start-ups bring their know-how and creativity – from advanced digital solutions and artificial intelligence to big data and robotics – to the energy transition and climate neutrality.**

Christiane Egger - OÖ ESV Deputy Manager and FEDARENE Vice-President for Climate Neutrality

In the next phase, about 10 of the teams will receive "first level funding" of €9,500 from the EU-funded project Urbantech to continue developing their solution. Further steps (e.g., incubation, piloting and market discovery) will follow for selected start-ups with funding of up to €54,000. Through this event and the Urbantech project, innovative start-ups are contributing to energy security and climate neutrality!

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The County Energy Transition Offices Network

ICAEN - Catalonia, Spain

The energy transition is an ambitious challenge: achieving a decarbonised energy model requires a huge effort on energy efficiency and renewable generation everywhere. The County Energy Transition Offices Network will be a key tool to deliver that transition throughout Catalonia.


© ICAEN

The government of Catalonia has completed an energy assessment in view of the 2050 climate neutrality goal. This work showed that to reach a decarbonised energy model, Catalonia needs to be much more efficient in its energy use; in particular, Catalonia has to decrease energy intensity by 57% and will have to increase renewable generation to 62GW - multiplying current renewable deployment by a factor of 18.

Maximum utilisation of building roofs will generate about a quarter of the required renewable energy. It will also be necessary to build renewables on the ground in small to medium-sized power plants managed by local agents, as well as large renewable generation power plants. This will mean the use of 2.5% of the territory of Catalonia.
The development of renewable energy throughout the territory leads to a social debate on where plants should be constructed and on how the territory hosting them can avail of these investments to generate wealth and jobs.

In this sense, the Catalan government is developing the Sectoral Territorial Plan for the implementation of renewable energies (PLATER), coordinated by the Catalan Energy Institute. The Plan (currently in the development phase) will set the global criteria for the implementation of renewable energies in Catalonia, making energy generation compatible with environmental, agricultural, cultural, planning, and landscape considerations.

Within the framework of this Plan, the government of Catalonia has supported local authorities through a grant call to create the Network of County Energy Transition Offices. This network is composed of 41 regional offices throughout Catalonia, headquartered in the county councils.

The offices have technical managers with two core purposes: one, to support the development of PLATER and to specify the local criteria for the implementation of renewable energies in each county; two, to promote (with the help of the Catalan Energy Institute) energy transition projects in the areas of efficiency and renewable generation. This includes the development of energy communities in each territory.

The Network has already started its operation; the Catalan Energy Institute provides training and technical support to those responsible for the Offices.

The energy transition can only be achieved if it is a global action, which includes the urban as well as rural areas of Catalonia. The Network of Regional Energy Transition Offices will significantly contribute to achieving this goal.

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Accelerating the Energy Transformation: Scaling up Projects and Energy Financing

by Serge Nocodie, FEDARENE Vice-President for Climate Action

2022 was a year of significant turmoil for the energy sector in Europe, with energy security, energy independence, and climate objectives being at the top of the political agenda. The energy transformation is becoming increasingly vital for many public and private local actors, who also had to deal with a series of devastating climate change-fueled events. On the legislative hand, the European Commission and Member states are putting in place new frameworks to accelerate the transition.

Local authorities and stakeholders' operating budgets are often heavily impacted by high energy prices. Yet, they are key actors to achieve the massification of sustainable energy solutions by reducing energy consumption while accelerating the deployment of renewable energy solutions. In some cases, this change of scale requires dealing with new challenges such as addressing labour or materials shortages (e.g.: bio-sourced insulation materials), modifying energy consumption patterns (e.g.: in lighting, heating of buildings), addressing the fast-increasing energy vulnerability of citizens and SMEs, and last but not least dealing with uncertainties in financing.

In this context of urgency and uncertainty, the local support models and services often provided by energy agencies must be continuously adapted to best fit these large-scale deployment objectives. Innovative tools and services for decision-making, pooling of resources and projects, innovative financing (e.g. smart EPCs, joint intracting, citizen finance), are becoming essential instruments for accelerating the energy transition and providing advanced support to municipalities and local stakeholders. They can be supported by key EC initiatives (e.g. Covenant of Mayors - Europe, ManagEnergy, Buildup, Energy Communities Repository, Investment forum, etc.). These new support models will enable energy agencies and local structures to continue to innovate and deploy


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assistance services, facilitating the scaling-up of local projects. New organisational models will be required, providing advanced and best-suited assistance to municipalities (as implemented for instance in the BAPAURA EU project providing a multi-level support scheme to public authorities - from regional to local one stops shops - for the massive renovation of public buildings through the pooling of projects with high-performance guarantee).

Energy agencies are at the forefront of the energy transformation. They are committed to innovating and providing advanced support services, addressing uncertainties and opportunities at the local level to accelerate the transition.

It takes an orchestra to play a climate tune - a prototype from Denmark

Samsø Energy Academy - Samsø, Denmark

> **It's quite different from how I would normally go about climate. A new perspective for me is the connection to citizens, local communities and partnerships. The possibility I see to gather people with a common interest in addressing these issues and simply discuss with them makes me much more optimistic! Meeting people where they are, accepting what they have done until now, and starting to make change is the way forward.**

Feedback from the course on climate planning that Samsø Energy Academy delivers to the municipalities of the Central Denmark Region is encouraging. The course aims to create, in the administrations' mindsets, an opening for change that can activate their climate plans in practice.

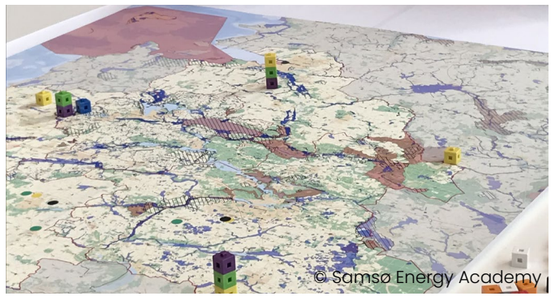
Municipal employees in Denmark are confronted with a new challenge that has landed on their desks as an emergency: to carry out climate plans that deliver on the national climate goals. To do so, they must approach climate from different angles, navigate complex emission accounts that include agriculture and land use, bring the society on board and support politicians in informed decision making. This basically calls for rethinking of their own roles in this new uncharted landscape.

If the climate plan is the tune, how can we put an orchestra together?

Funded by the European Union through DG REFORM's Technical Support Instrument (TSI), the course builds on the expertise of the island of Samsø, Denmark in transforming climate policy into implementation in practice. It aims to strengthen local capacity and build new technical competences and social skills within Central Denmark Region to enable municipal administrations translate the national climate ambition into a local narrative for climate action that speaks to their communities, stakeholders and citizens.

Through an innovative learning process with workshops, interviews, group exercises, social innovation and local public meetings, which signals 'be prepared to be surprised' Samsø Energy Academy attempts to introduce to municipal climate coordinators a new thinking.

Recognising the high EU added value, the European Commission will activate the Technical Assistance Information & Exchange Instrument (TAIEX) towards the end of 2023 to invite public authorities and stakeholders from EU Member-States in a knowledge transfer process from Denmark. The aim is to share good practices of citizen driven green transition, social innovation, innovative engagement processes and local ownership models in view of the continent's climate neutrality pledge.



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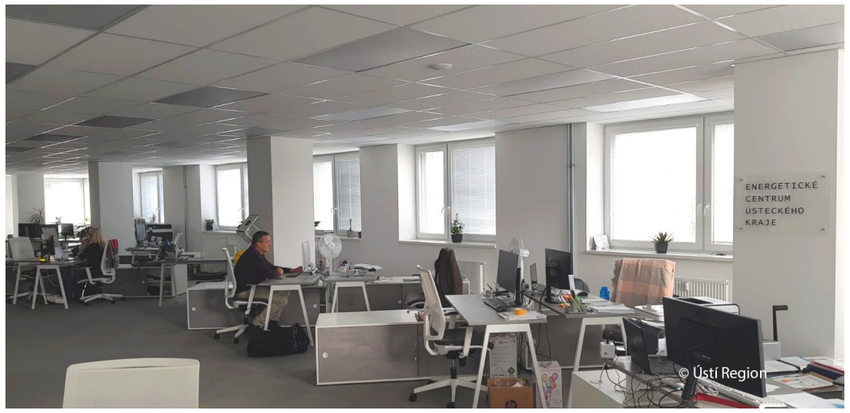
Establishment of the Energy Centre of the Ústí Region

Ústí Region - Czech Republic



The Energy Centre of the Ústí Region (ECUK), a state-funded institution, was established in August 2022 to implement regional energy policies stipulated in the Energy Plan of the region. ECUK activities are focused on the energy performance optimisation of all assets owned by the Ústí Region and increasing energy production from renewable sources.

Furthermore, with respect to the strategic project called the Transformation Centre of the Ústi Region, ECUK will offer its services within the region, primarily to the public administration with a particular focus on municipalities and cities.

A key tool for the energy system administration is the Regional Energy Management (KEM). Its scope covers activities from energy and water consumption monitoring to data collection and subsequent analysis. KEM's objective is not only to integrate data on the energy consumption of all objects owned by the Ústí Region, but also available documents, such as project documentation, EPCs and more.

As a result, ECUK would have comprehensive data for every energy consumer at its disposal and concentrated in one place. The Regional Energy Management would be also offered to the cities and municipalities in the Ústí Region. ECUK is looking into opportunities for the implementation of the Regional Energy Management System (EnMS) in line with the CSN EN ISO 50001 standard. This includes its following certification for all organisations established by the Ústí Region including the Regional Office. EnMS implementation would be the next logical step for putting the Regional Energy Management System into practice.

ECUK intends to become an active member of the Union for Community Energy (UKEN). UKEN membership would provide the Ústí Region with access to detailed information about the preparation of legislative standards in the field of energy communities and simultaneously access to basic data required for the energy communities' development. An advantage of the membership is also a best practice-sharing network across Europe. Last but not least, our objective is to initiate an establishment of the Energy Community Platform of the Ústí Region, on whose basis we would like to practically contribute to the development of community energy in the Ústí Region.

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INTERVIEW

The mayor leading an Energy & Climate Agency

A conversation with Vlasta Krmelj, FEDARENE Vice-President for Financing and Investments

ENERGAP moved from an Energy Agency to an Energy & Climate Agency. What does this evolution signify?

We all know that fossil fuels are belligerents of climate change. Established in 2006, ENERGAP began in the field of sustainable energy; since 2012, we also specialise in financing energy projects. Now, the rapid progression of climate change in our region means an organisational understanding of climate change and adaptation at ENERGAP. Our municipality, Maribor (Slovenia's second largest), has recognised the necessity of climate neutrality projects. Therefore, a new task was assigned to the agency and our name consequently changed in March 2022.

Already a reputable energy agency, I am sure that with new skills on climate, we will remain valuable to our municipality. Mitigation and adaptation action plans are vital for a brighter future. If energy efficiency, renewables and adaptation measures combine, the positive impact multiply and projects will cost less.

You are uniquely both a mayor & an energy agency director. How do these roles converge?

We Mayors are representatives of the people. They understand the needs, challenges and opportunities of the entire community. Though climate change issues are the most pressing for the global planet, a mayor is not always able to see this clearly because of their local responsibilities. As Director, I am convinced that the only path to sustainability is to act decisively on climate challenges. As a leader, I try to make all decisions from a mitigation or adaptation perspective, whether it's social, healthcare, or any other issue. I am first an activist for a sustainable future, and only thereafter a mayor.

Public authorities used to be confronted by a lack of funding for energy transition projects.

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Today, much more support is available, yet some barriers remain. What is your advice to those looking for funding?

There are many funding programmes and financial mechanisms available at EU and national level. As an individual, I am stubbornly optimistic: I believe there is a lot of money for good projects. If a project is not carried out, it is not for a lack of money but issues like poor technical details and administration. My advice to all project developers: work hard on these aspects; prepare various economic projections; take into account all (sometimes hidden) costs, possible benefits, and losses. With good data and solid forecasts, financial professionals will find the right mechanisms to implement. New EU regulations on sustainable finance mean that the cost of capital and insurance will be higher for unsustainable projects, and investors are definitely looking for environmentally-friendly investments; after all, the costs of not implementing the green transition will be much higher.

School of Bioclimatic Design for Adaptation and Mitigation

AESS - Emilia-Romagna, Italy

The School of Bioclimatic Design for Adaptation and Mitigation (SBAM) is an initiative created by ANCI Emilia-Romagna (the Regional Association of National Italian Municipalities) and AESS (the Agency for Energy and Sustainable Development). To respond to the need of local authorities to develop new skills concerning urban climate adaptation, the project invites public officers and technicians to a training course focused on resilience, also as part of Covenant of Mayors activities.

The idea is that a conscious design of public spaces using nature-based solutions (NbS) and sustainable urban development allows for widespread climate change adaptation actions that can significantly improve the comfort of urban areas: mitigating the heat island effect, avoiding local flooding, improving air quality, and stimulating social inclusion.

The Emilia-Romagna municipalities with more than 60,000 inhabitants could participate in an experimental program launched by the Ministry of Transition Ecology that enabled the creation of SBAM, using an innovative approach based on collective funding.

The main topics of the training course are urban design and regeneration of public spaces. Climate adaptation entails increased quality and social function by rethinking the use of greenery, stormwater management, using permeable materials, and integrating soft mobility infrastructures.

These topics are explored with an operational and participatory approach, based on the analysis of real case studies, ongoing pilot actions, as well as regional, national or international best practices, site visits, and a series of workshop activities where to simulate an NbS design approach.

SBAM is also an outreach and training opportunity aimed at creating a network of competent professionals ready to implement adaptation strategies. For example, study visits in Rimini featured in-situ presentations by the municipality's technicians who worked on the implementation of a specific intervention; this resulted in a technical interchange with participants that became a learning stimulus for the entire group.

SBAM has seen a lasting social network develop among public servants, thanks to various meetings that naturally activated an exchange of experiences and best practices.

The numbers of the first edition (Autumn 2022):

- 50 participants in attendance
- 280 people connected online to webinars
- 4 speakers
- 5 frontal lessons + group activities at the end of the lesson
- 2 study visits to Rimini and Medicina to visit realised projects and NbS construction sites
- 3 days of intensive workshops
- 10 microclimatic analyses with the Envimet software (one per municipality)

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EDITORIAL

Delivering the energy transition through investing in the resilience and recovery of islands

by Savvas Vlachos, FEDARENE Vice-President for Smart and Sustainable Islands

In the midst of a tumultuous period for Europe beset by social, environmental, and economic challenges brought on by the COVID-19 pandemic and the war in Ukraine, investing in the energy transition and the resilience of our continent is critical. This is particularly the case for islands, with their own distinct challenges related to their geographic isolation and size resulting in both a dependence on energy imports and higher energy prices, as well as a greater vulnerability to natural disasters.

As the fallout of our current challenges becomes clear (e.g. the cost of living crisis entailing increasing levels of energy poverty), the idea of a 'Just Transition' has never been more prescient. Whilst the European Union implements policies and programmes to steer us toward a more resilient future, including the Green Deal, the Resilience and Recovery Facility, and REPower EU, these must be implemented in a 'Just' way - encompassing the needs of all vulnerable sectors, groups, and communities.

Island communities must not be left behind, and to ensure this, they need tailored support. Support to capitalise on the gains that they have made in the past decades, which are the result of strong local commitment and action on energy and environmental issues, and support to replicate successful initiatives across all islands.

Energy agencies are vital in helping islands navigate the energy transition, and the Cyprus Energy Agency (CEA), member of FEDARENE, offers an example of how. CEA has teamed up with the central government to deliver the Recovery and Resilience Plan and is involved in the:

- Development of Sustainable Energy and Climate Action Plans (SECAPs) across all rural communities in Cyprus, in collaboration with the Cyprus Union of Communities
- Design and development of the first grant scheme for the promotion of climate change adaptation and sustainable mobility across rural communities
- Provision of technical assistance to the government's Energy Service, through the provision of support to energy poor households with disability and rural communities so that they can take up energy saving and renewable energy measures
- Provision of technical assistance to the government in the installation of 1000 publicly accessible EV charging stations through a dedicated grant scheme.

In my role as FEDARENE Vice-President for Smart and Sustainable Islands, I commit to coordinating action on the energy transition and resilience of our islands, through advocacy and the replication of successful policies and measures across all islands; ensuring no island is left behind.

The transition to electric transport in the heart of the Cyclades islands

Aegean Energy & Environment Agency - Greece

The NESOI funded project "Transport Electrification on Sea and Land in Antiparos" (TESLA) aims to electrify sea transportation between 2 Cycladic islands: Antiparos and Paros. The two islands are only 1 nautical mile and a 7-minute ferry ride apart. A local ferry company does frequent daily crossings serving both local and touristic needs throughout the year.

Run by the Municipality of Antiparos and the Paros-Antiparos Ferry Cooperative, and with the support of the technical consultants (AEGEA, Hydrus Engineering S.A., and the DAFNI Network), TESLA explores the possibility of electrifying one of the four passenger ferries operating the route, as well as the municipal vehicle fleet. This would entail the installation of EV charging stations distributed at suitable points around the island. The planned interventions will have a notable impact on reducing emissions both on land and at sea, since a dedicated PV station will cover the total new electricity demand and the energy needs of four municipal buildings.

A technical study analysed possible solutions for the electrification of the ferry, from which sizing and charging specifications were derived. The study also included the analysis and selection of vehicles suitable for electrification of Antiparos' municipal fleet, as well as the pre-study of the necessary EV chargers. Based on the electricity demand assessment deriving from the loads described above, the proposed PV station has been sized to a 550kWp capacity. Subsequently, a cost benefit analysis (CBA) was carried out for the entire project, examining different forms of financing.

The combined participation scheme of the Municipality and the Paros-Antiparos Shipping Cooperative (where the Cooperative takes over the capital expenditure of the ferry and the Municipality the other interventions) emerged as the best form of financing for the profitability of each member (IRR=12%, PBP<12yrs). This innovative business model will pave the way for sustainable projects highlighting the effective cooperation of a local authority with a local private entity.

The foreseen infrastructural developments of the project promise to turn Antiparos into a flagship for other islands with similar characteristics across Greece and EU, and could inspire further research to scale up the proposed solutions.

The completed project is estimated to result in avoided emissions of 250.1t CO2eq per year due to the electrification of transport and the installed PV station. The completed project is expected to enhance the profile of the island as an eco-friendly destination, leading to increased touristic activity, simultaneously creating new job opportunities for the operation and maintenance of the new infrastructure.

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PRISMI PLUS: Transferring a toolkit for RES Integration in Smart Mediterranean Islands and rural area

REA Kvarner - Primorje Gorski Kotar, Croatia

The Regional Energy Agency Kvarner was one of the partners behind the Interreg-MED project PRISMI PLUS, which was finalised at the end of June 2022. The project lasted sixteen months, during which a number of educational activities were carried out.

The aim of these activities was to introduce the representatives of selected local authorities to a **specific set of software tools** that can facilitate the creation of energy transition plans. In order to demonstrate the effectiveness of these tools, four such plans were created by the end of the project. In Italy, Greece, and Bosnia and Herzegovina, they were developed for the municipalities of Ventotene, Nisyros, and for the City of Čapljina.

In Croatia, the REA Kvarner included two local authorities, the City of Cres and the Municipality of Mrkopalj, as associated partners that closely cooperated with the consortium in the project implementation. They were regularly involved in software demonstration sessions, and, along with several other local authorities that partook occasionally, they learned how to adopt the project-promoted methodology that will ultimately assist public authorities in their energy transition planning.

Since the project was particularly focused on islands, as well as rural areas that are often quite isolated in terms of energy connectivity, additional attention was given to the Municipality of Mrkopalj which is situated in the Croatian mountainous region, Gorski Kotar. A Sustainable Energy and Climate Action Plan (SECAP) for the municipality was thus created during the project as Croatia's example of an energy transition plan developed thanks to PRISMI PLUS tools and methods.

As in other areas involved in Italy, Greece, and Bosnia and Herzegovina, the project results opened a new, valuable perspective for Croatian local authorities that changed their approach to energy transition planning, and they unanimously declared their intention to keep using the promoted software toolkit in the future. This support will facilitate more (and more accurate) SECAPs throughout the rest of the region.

The PRISMI PLUS project was carried out from March 2021 to June 2022 by an international partnership led by the Sapienza University of Rome. As an Interreg-MED project, it was co-funded by the European Regional Development Fund. All project activities in Croatia were implemented through the cooperation of two domestic partner organisations: the Faculty of Mechanical Engineering and Naval Architecture at the University of Zagreb and the institution Regional Energy Agency Kvarner.

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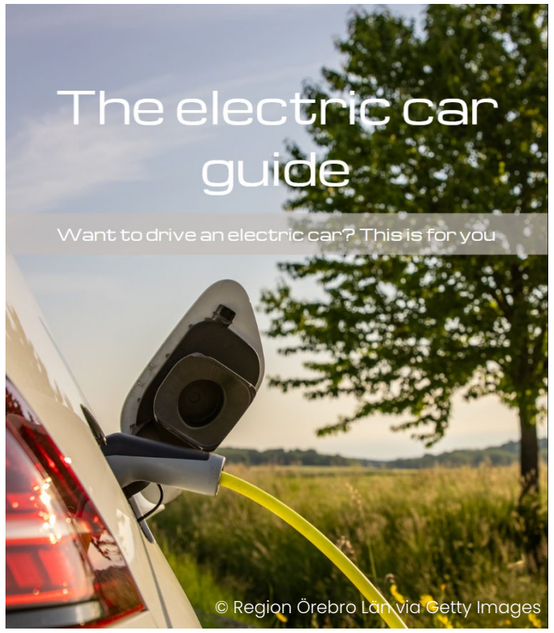
Making it easier to buy an electric car: the electric car guide

Örebro Energy Agency - Örebro County, Sweden

The electrification of passenger cars has increased dramatically, but electric cars still only account for 8% of all passenger vehicles in Sweden. In dialogue with the public, it emerged that the threshold for switching to an electric car is thought to be very high – in other words, an uneasy choice for consumers. For that reason, the EU project "Fossilfritt 2030- fordon och drivmedel" (Fossil-free 2030 - vehicles and fuels) produced a guide that answers the most frequently asked questions about electric cars.



The guide is a mix between stated facts about the electric car and reports about how electric car owners perceive their lives as users of an electric car. Facts about the electric car are often considered long and incomprehensible; this guide is concise, with short and simple factual paragraphs containing keywords for easy further research.

Through forums with electric car owners on Facebook, 450 electric car drivers answered a survey about their opinions. The drivers were asked how life with the electric car works in practice and answering questions that recur across various online forums. In addition, the respondents described their experiences with vehicular range, charging, and if the electric car meets their needs both as far as everyday life and during longer travels.

"When asked: "What is the best thing about the electric car?", the top four answers revealed that it is cheaper, more environmental friendly, easier to charge electronically than refuelling, and that the car is quieter," says Hanna Piscator, responsible for producing the guide.

To answer additional common questions from internets forums, the guide contains information about the sustainability of electric cars and batteries. Information about the future of electric cars compared to cars with internal combustion engines, as well as information about safety and charging at different power levels were also included.

"Charging times and tips on how to plan a trip when you need to recharge are also presented in the guide. And, two thirds of the participants in the questionnaire answered that charging works 'very well' in everyday life," says Hanna Piscator.

The guide was developed for use as part of the project, but has been distributed to energy and climate advisors across Sweden.

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EDITORIAL

Biomass: the forgotten piece of the puzzle

by Göran Gustavsson from Energikontor Syd, which holds the FEDARENE Vice-Presidency for Mobility and Transport


© Energy Agency Southern Sweden

The energy issue quickly came into focus last summer and autumn. Energikontor Syd (Energy Agency Southern Sweden) takes part in proposals on how energy availability can be increased and costs reduced, but bioenergy is rarely mentioned in these contexts. This, despite the fact that bioenergy is the most common energy source in parts of Europe - in Sweden for instance.

Leaving the forests unused with the aim of increasing carbon dioxide storage in the short-term, is precisely short-term. A managed forest can provide increased standing wood volume, and products that replace fossil materials at the same time. Forestry also provides by-products and harvesting residues, which, together with the final step in the value chain for bio-based products, provide valuable energy.

The total volume of wood in Europe stores large amounts of carbon, and a simple conclusion is that we should let the forest stand to increase carbon storage even more. But it's not that simple. Trees do not absorb carbon dioxide forever, which means that the measure is short-term. With sustainable forest use, on the other hand, the standing volume can increase while the wood is also used for other purposes. The issue is complex, and it is easy to end up with a conclusion based on a single perspective without the ability to see the full picture.

Forest growth thus offers an opportunity to increase carbon storage. Another possibility is to replace the material content of manufactured products so that biomass remains in the cycle for a long time. This can mean replacing materials in packaging, clothing, or building materials - the longer the biomass is in the cycle before it is burned for energy production, the better.

The regional Energy Agencies of Southern Sweden and Northern Småland are now running a project together with the regional Linnaeus University to extend the time that biomass is in the product phase, until combustion. With the help of good examples of cascade use of biomass, the project will inspire different actors to create innovative ways to replace other materials. The initiative creates better regional conditions to reduce carbon dioxide in the atmosphere.

With managed forestry, we can grow timber in Europe, and by substituting other materials, the carbon storage of European forests can increase further. Together with logging residues in the forest (which would otherwise only give off carbon dioxide in their decay), the products can be burned in their final stage to ultimately act as an important source of energy. The issue of forest management is too complex to be governed by individual directives. Here, a holistic approach is needed to manage the potential that Europe's collective timber supply offers.

A regional agreement for biogas

Energikontor Norra Småland – North Småland, Sweden


© Energy Agency Southern Sweden

Ten years ago, the municipally-owned biogas plant outside the city of Jönköping was bleeding money and public opinion was hostile to continued production of biomethane for the city's buses. "Local biomethane production is a nice idea, but the economic calculation does not add up" was the common understanding. Furthermore, knowledge of biomethane and biofertilizer as part of a circular economy was lacking, with little recognition of the impact on food production or organic farming. Renewable fuels were also often pitted against each other. All these factors created a landscape where progress on biogas became stagnant.

In addition to low market appetite, there was no regional coordination or support, and opportunities for investment did not arise as in other regions in Sweden.

To change this situation, a group of individuals from public organisations within Jönköping County joined forces with the aim of altering the narrative. Energikontor Norra Småland leads this work.

It began with learning from others in regional and national networks. The group imparted their new knowledge to politicians, to the county's Climate Council, and wherever they could get an audience. They also contributed to a national symbol for biogas, which became distributed across decals on vehicles, signs, trash bins and so on. Notably, there was even a placard picturing Vladimir Putin and a local farmer patting a cow with the question: "Who would you rather give your money to?". While edgy back then, today we can say that it aged well; the symbol created conversations that spread awareness of biogas solutions.

Meanwhile, two important decisions laboured: what Jönköping municipality would do with its biogas plant, and how the county's upcoming public transport procurement would be designed.

Energikontor Norra Småland was commissioned to explore how the public sector could create conditions for organisations to want to invest in biogas, which would in turn provide incentives for increased production. A political steering group oversaw the work and chose the proposal for an agreement between all 13 Jönköping municipalities and the region itself. The agreement includes seven commitments including public procurement demands, guidelines for organic waste management, and both production and market targets.

Now, four years after the biogas agreement was approved, both the production and market targets have been achieved by a great margin. Eight additional filling stations have been built, there are far more heavy vehicles, and a new privately-owned biogas plant has replaced the old one outside the city. This year, we celebrate that Jönköping County had the largest percentage increase in biogas production in all of Sweden (41%). The calculation adds up.

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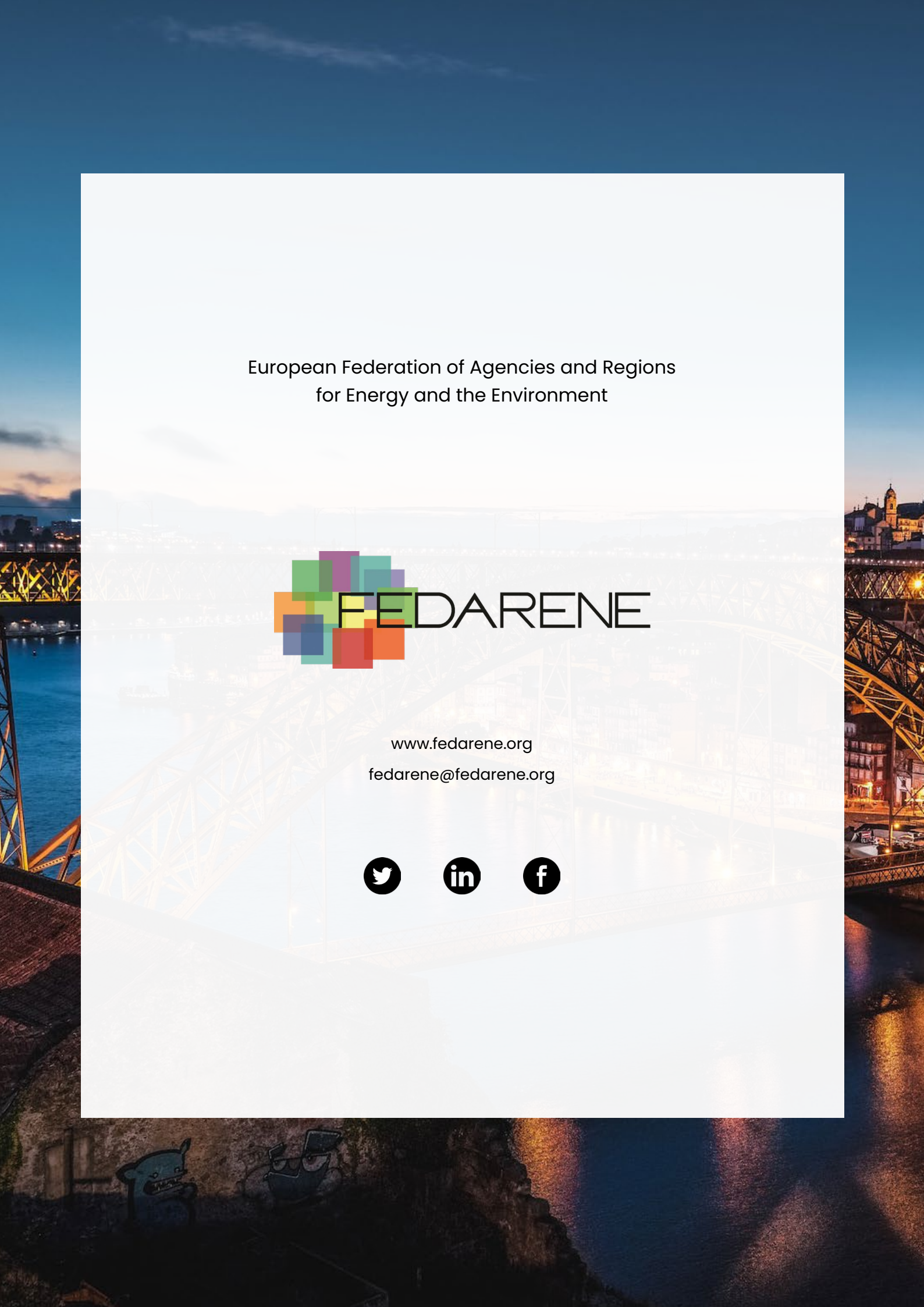
Thank you to all members for their contribution

Souvenir from the 2022 General Assembly in León, Spain



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