Supporting Renewable Energy Sources
Together with Energy Efficiency, Renewable Energy Sources are the backbone of the Energy Transition. In this new publication, you will find out some of the most recent and remarkable projects FEDARENE’s member regions and energy agencies have been working in this field:

• Each year, the Mälardalen Energy Agency (SE) organises the Swedish Solar Expo, one of the largest exhibitions on cleantech in Sweden, gathering all stakeholders involved in solar power and energy storage technology;

• Sol i Väst (Solar in West) is a project developed by the regional energy agency of West Sweden with the purpose to educate and increase knowledge about photovoltaic electricity, to help initiatives for procurement and building photovoltaic parks;

• EVE (ES) has initiated a public-private initiative to create the biggest PV plant in the Basque Country. The investment is 24 million EUR and will produce electric energy equivalent to the annual consumption of 15.000 households;

• Thanks to ITC (ES), the Canary Island of El Hierro supplies its electrical energy from clean and renewable energy sources such and use their surplus wind energy to pump water from a lower reservoir at sea level;

• In 2019, the Île-de-France region (FR) set new climate and energy goals including 100% newable energy by 2050;

• Through the IMEAS EU project, KSSENA (SI) had developed integrated and multi-level energy models for the Alpine Space to overcome emerging barriers;

• MIEMA (MT) has been supporting local stakeholders in the introduction of renewable energy sources in buildings through the Renewable Energy Sources Advisory Platform;

• The Örebro Energy Agency (SE) facilitates a network within the real estate market where energy and environmental good practices in building and maintenance are promoted to encourage the use of renewables and energy efficiency;

• Severn Wye Energy Agency (UK) is providing free expert support and feasibility studies to 150 communities in Wales for the energy efficiency improvements of their communal buildings through the Sustainable Communities Wales programme.

All projects are featured in our 2020 Sustainable Regions in Action brochure published in January 2020.
A NATURAL PLATFORM FOR THE FUTURE OF SOLAR ENERGY SYSTEMS
MÄLARDALEN ENERGY AGENCY [SE]

The Swedish Solar Expo sees a steadily increasing number of visitors and exhibitors, each year. In October of 2019 the exhibition was organized for the sixth consecutive year, with a record-breaking number of attendants.

In total, The Swedish Solar Expo hosted more than 1 000 visitors and roughly 50 exhibitors from all over the world. It has become one of the largest exhibitions on cleantech in Sweden, making the city of Uppsala an important meeting place for businesses, property owners and decision makers looking for inspiration, innovation and knowledge exchange on solar power and energy storage technology. It is a platform for dialogue on the latest cutting-edge technology and projects, political trends and current challenges facing the field. A new addition to this year's exhibition was a parallel agenda showcasing green investments.

The possibilities to network and attend workshops and lectures ensure that there are many beneficial connections made between representatives from academia and the business sector as well as the public sector. This year over a third of the exhibitors travelled in from abroad, which is a good indicator of the maturity of the Swedish solar power market.

About the exhibition
The Swedish Solar Expo has been arranged on an annual basis since 2014 by the organizations Mälardalen Energy Agency and STUNS Energy. Initially the target group was energy and property industries, but today it creates value for those interested in sustainable energy technologies and systems.

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SOL I VÄST - ENERGIKONTOR VÄST [SE]

Sol i Väst (Solar in West) is a public funded three-years project (2017-2019) with the purpose to educate and increase knowledge about photovoltaic electricity, to help initiatives for procurement and building photovoltaic parks. During the project period the number of members and participating municipalities has increased and now it involves the majority of municipalities in the region Västra Götaland, which has 49 municipalities and 1,7 million inhabitants in total.

The project management, from Energikontor Väst and Innovatum AB, in Trollhättan Sweden, has developed tools and training material and has spread this publicly through meetings, webpages, seminars, conferences and newsletters. Feasibility studies, Profitability, Purchasing and Installation & Maintenance are some of the themes that has been explored as well as environmental impact, individual measurement and billing and, of course, electrical security. Project meetings have included lessons learned from participants, visits to reference facilities, keynote speakers, consultants and suppliers and the

The project is now wrapping up and for its finale, the management arranged a solar conference in October in Trollhättan. Over 90 persons attended and listened to a panel discussion about PV-volumes in electricity grids in national, regional and local perspectives and speakers in interesting parallel sessions.
During the evaluation of Sol i Väst, it is found that the project has achieved significant results. Participators have given the highest grade of well performance to the management, and to the relevance of the developed tools and information folders. This training material is still available on the project's web page and free to use. During the period, 14 500 m² solar panels have been installed which give 2,6 GWh annually in the region of west of Sweden. Even though Sol i Väst is ending in this December 2019, the management is looking into a continuation and development of the project for a further three years of period, now included with innovations and including a wider audience like enterprises.

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**EKIAN – THE BIGGEST PV PLANT IN THE BASQUE COUNTRY – EVE [ES]**

The biggest PV plant in the Basque Country will be fully operative by the end of 2019 in ARASUR industrial park, south of Araba Province. With more than 66,000 PV panels, 355 watts each, the plant is situated in an industrial use plot of 55 hectares. It will have a total installed power of 24 MW, which will double the current PV installed power in the region. The expected production will be 40,000 MWh per year, equivalent to the electric consumption of 15,000 families per year, and will mean a carbon reduction of around 14,600 tones.

The works started in April 2019, with a focus on the civil works and the implementation of the structure to host the PV panels. In July 2019, the installation of the first panels started and, in November 2019, the first trials have been carried out. By the end of 2019, the plant will be fully operative.

The project is an example of public-private partnership: on its first phase, it has been promoted by the Basque Energy Agency (EVE) and the engineering firm KREAN, creating a structure of 1 MW packages, and later a group of 20 private companies have joined buying these shares.

The total investment of this project is 24 million EUR, shared according the ownership rate of the 22 owners. The project is in line with the objectives of the Energy Strategy of the Basque Country – 3E2030, that has established the objective of increasing the renewable energy share by 115% in 2030. In the case of PV it is expected it will be 4,4% of the total renewable energy installed capacity (now just 1,4%), reaching a total installed power of 293 MW by 2030.

**EKIAN, the biggest PV Plant in the Basque Country, is a public-private initiative of EVE and KREAN and has 22 investors. The investment is 24 million EUR and will produce electric energy equivalent to the annual consumption of 15,000 households.**

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El Hierro is the second smallest island in the Canary Islands. Its geographical peculiarities, which allow within a few kilometres to pass from the coast levels to 1,500 meters of its highest peak, give it a determining wind and hydraulic potential.

The Canarias Island, declared a Biosphere Reserve in 2000, is home to the Wind-Pumped-Hydro Power Station, Gorona del Viento system, whose objective is to supply the island with electrical energy from clean and renewable energy sources such as wind, using reverse pumped-hydro as energy storage for grid balancing the island electrical system.

The surplus wind energy which is not consumed by the Island’s population is used to pump water from a lower reservoir at sea level, to a higher reservoir located at an altitude of 700 m. The potential energy stored in the water in the upper reservoir is used to produce electricity by means of a hydraulic jump at times when the wind power is inadequate.

The diesel-engine-powered power station that existed before the commissioning of the wind-pumped-hydro power station in 2014, still remains but only as a back-up, and comes into operation in exceptional circumstances when there is not sufficient wind or water stored to produce enough energy to meet demand.

Thanks to the Wind-Pumped Hydro Power Station, the Island is capable of supplying electricity with its own resources, reducing greenhouse gas emissions and the energy dependence on imported fossil fuels. The hydraulic infrastructures originally designed for energy storage, also guarantee access to water for human and agricultural consumption.

The current figures show a high renewable energy penetration of 56.5% in El Hierro; a totally isolated non-interconnected island. 2,300 hours at 100%; more than 20,000 tons per year of CO2 emissions avoided; and reduction of 7,000 tons of diesel consumption per year. This summer the island of El Hierro has beaten another world record in the use of renewable energies in isolated non-interconnected areas—by exceeding 24 consecutive days of electrical supply without any consumption of fossil fuel.

The wind-pumped-hydro power station of El Hierro is a perfect example of public-private partnership and a multilevel governance approach, for promoting RES in European island regions. The company Gorona del Viento, responsible for installing and operating the power plant, was initially created with the participation of the Island Authority of El Hierro representing the islands resident population (60%); the Regional Canary Islands Government through its technological centre ITC (10%); and the local Utility ENDESA-ENEL (30%). It received public support from the central Spanish Government through a capital subvention and by the implementation of a suitable retribution scheme allowing for a reasonable return on investment. The European Commission also supported the first phase, granting ITC financing in the 5th Framework Programme (FP) for the project “Implementation of 100% RES Project for El Hierro Island – Canary Islands” (DG TREN; Contract №: NNE5-2001-00950).

Gorona del Viento El Hierro is a sustainable natural living-lab, whose goal is to achieve full energy self-sufficiency and lead the technological advancement of the renewable energy sector in isolated territories.

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In 2019, the Île-de-France region set new climate and energy goals: by 2050, it should have 100% of its energy consumption covered by renewable energy sources, with a particular emphasis on:

- Solar energy: 10 million euros investment from 2020 to double the solar park in the Paris region within 2 years and bring solar energy to 1 million citizens,
- The biogas sector: 23.7 million euros already spent on 28 biogas plants,
- Hydrogen: an «Île-de-France Territory Hydrogen» charter has been signed with stakeholders of the field to improve the mobility of Île-de-France citizens, the air quality and to preserve the climate.

In relation to solar energy, AREC Île-de-France makes an active contribution to the development of the regional policy. It builds with other actors the solar atlas, a digital tool able to simulate solar production and produce solar radiation maps backed up by an advice service. It also supports the region in the management of calls for proposals. This should allow to double the solar park by 2021 and raise the regional energy production to 16% of renewable energy (RES) production.

AREC brings its expertise to the region for the biomass regional plan by participating in calls for proposals dedicated to biogas plants. Currently in Île-de-France, there are 25 running biogas plants, while 50 more are in the pipeline. The objective is to produce 5 TWh/y in 2030. AREC is also in charge of the future digital platform on this issue and of the management of the stakeholders' network. The objective is that biogas should represent 14% of RES regional production.

In addition, the Region aims to develop hydrogen as a solution for clean mobility, alongside electricity and bioGNV. Therefore, AREC will offer workshops for professionals and capacity-building activities for local authorities. It will also support the dissemination of information at regional level through site visits and publications.

NB: The year 2019 marked the rebranding of the regional energy agency of Île-de-France from IAU to AREC. This new structure, which is also the new energy and climate division of L'Institut Paris Region, was broadened in scope since it now covers various work areas such as energy and climate, but also biodiversity and waste.

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DEVELOPMENT OF LOCAL ENERGY CONCEPT FOR MUNICIPALITY OF CELJE, BASED ON EU PROJECT EXPERIENCE – KSSENA [SI]

The European project IMEAS, co-financed by the European Regional Development Fund through the Interreg Alpine Space programme, researches how territories can be supported to successfully implement low carbon energy transition strategies. The IMEAS silo approach1 develops integrated and multi-level energy models for the Alpine Space (AS) to overcome the barriers emerging from the disconnected silos at present2.

In different EU countries, different backgrounds result in conflicting mechanisms, incentives and reporting tools, which hinder the smooth and consistent implementation of EU energy policy at national, regional and local levels in all EU countries. IMEAS integrates different government entities and business sectors to support synergies in the Alpine region between policies, actions, common methodologies, and roadmaps for objectives beyond 2020.

IMEAS has identified several silos, namely governance, energy, building sector, active civil society, forestry, etc., which impact the energy transition process. To facilitate this pursued low-carbon transition, IMEAS aims at studying each silo and highlighting where the critical issues, barriers, or opportunities exist, to ensure integration in the long run. Experiences from some areas help to fill gaps in others through a cooperative and transnational approach.

In the example of Slovenia, project partners KSSENA and Municipality of Celje developed Local Energy Concept (LEK) for Celje for with the purpose of the IMEAS project so that they were able to point out major weaknesses and deficiencies in the energy planning process. Through the development of LEK – the most important strategic energy document on a local level in Slovenia – lack of data, capacity and alignment as well as poor information flow became apparent. The energy consumption data for Celje area had to be collected from several databases, while not all databases were publicly accessible and a lot of energy consumption data was missing, old or only approximate. More than 80 % of overall energy consumption in Celje is from private companies that the municipality does not have any influence over and are not obligated to make their energy management databases public or to implement any energy efficiency measures suggested by the local authorities.

There is also an open conflict of interest between the city municipality which would like to save money for energy and the energy supply companies that won’t sell more energy in order to make more profit. The local energy concept as a strategic document is dependant on other relevant documents, acts and actions plans, but as it turns out these documents are not harmonized with each other. And last but not least, the mechanisms that oversee the actual implementation of measures suggested in local energy concepts are practically non-existent in Slovenia. The municipalities have to report the progress of implementation to a national body once a year, but if the goals are not being achieved, there are no sanctions. Consequently, there is no real commitment from the municipalities to implement suggested measures.

IMEAS strives to horizontally and vertically link the unconnected silos. For that purpose, IMEAS provides an IMEAS Web Platform with an available toolset for a

1 IMEAS silo approach: Breaking the silo mindset and connecting different silos – break barriers, connect different silos in a vertical, horizontal and transversal way, take the best of each and create an integrated approach towards energy planning.

2 Current silo approach: a strictly vertical mindset obstructing information and innovation flow.
multilayer, horizontal and transversal low carbon energy planning. This toolset, consisting of practical guidelines and tools, provides planners and decision-makers on all governance levels with support and guidance to link energy plans vertically to other governance levels, horizontally to other authorities and transversally to other sectors, such as real estate or mobility.

For a holistic and successful carbon transition process, it is crucial that the energy policy of the EU level manifests at the local level, here in terms of local energy measures, and likewise that local energy policy initiatives have access to higher levels of institutions in a bottom-up kind of approach, which is possible only with a Multi-level Governance approach. Thus, the high permeability within the governance silo is expected to facilitate the low carbon energy transition processes. The IMEAS project is striving to tackle the obstacles that are present in energy planning in countries of the Alpine Region and focused on the creation of a more inclusive environmental framework that would support the multi-leveled approach.

RESAP LAUNCH: THE RENEWABLE ENERGY SOURCES ADVISORY PLATFORM - MIEMA [MT]

The Malta Intelligent Energy Management Agency (MIEMA) has been very active in supporting local stakeholders in the implementation of energy-related initiatives since its setting up in 2007. As part of its local activities, MIEMA is currently in the process of launching the RESAP platform (Renewable Energy Sources Advisory Platform) with the aim of supporting public administrations, SMEs and private citizens to develop targeted plans for the introduction of renewable energy sources in their buildings/facilities. In particular, through the platform, MIEMA will be able to support its stakeholders in the drafting, development and implementation of energy efficiency action plans (e.g. SECAPs) as well as small tailored interventions for the integration of RES in a facility.

The platform is addressed to 2 main types of users:
• Public authorities and local public entities: the advisory service intends to overcome the lack of energy managers in Maltese public entities, offering MIEMA’s technical expertise.
• SMEs and enterprises, both national and international: the platform is specially addressed to the island of Gozo, which lacks big enterprises that can take care of a complete retrofitting/refurbishment project and the lack of ESCOs which can assist in the financing of energy projects. Therefore the platform has a dedicated section which can be used to bring together SMEs and enterprises and promote the establishment of partnerships which can implement such projects.

Other than the virtual advisory office and the SMEs section, the platform also includes sections dedicated to RES technologies suitable for the Maltese archipelago and available financing instruments (both national and European) for energy efficiency, RES installation and retrofitting/refurbishment of buildings. This information section also contains news on training and conferences on EE and financing instruments that are held in Malta.

Finally, the platform contains a networking space where the users can discuss and exchange opinions, ideas and experiences: a forum which is divided into thematic sections and moderated by the platform webmaster shall be available.

The RESAP tools shall be made available to all stakeholders whereby users can register for free. The platform is being implemented as part of the local action plan elaborated through the ENERSELVES project (co-financed by the Interreg Europe Programme – ERDF). The platform is currently under development and will be launched in January 2020.

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Region Örebro County Energy Agency facilitates a network within the real estate market (fastighetsnätverket). Within this network, we promote energy and environmental good practices in building and maintenance of the real estate. One of the focus areas we have in the network is to spread information about how buildings can create solar electric energy, store it in batteries, and then supply the electrical grid with power when there are demand and high payout. The prediction is that the frequency in the electrical grid will become more and more unstable with the addition of solar and wind power sources. In Sweden, real estate owners with a battery supply of 100 kW or more can balance the frequency in the electrical grid and get a higher payment compared to selling the electricity in a more traditional manner.

Information on the systems and technology benefits are shared through workshops and field trips within the network. One highlighted example is Änglanda School in Örebro. This school has solar cells (PV) covering the roof, a battery central and a geothermal heat pump that stores and uses heat from beneath the football field. The batteries used are produced locally and were chosen based on having the smallest carbon footprint compared to other options. The school produces more electricity than is consumed and the payoff is shorter with all the systems working together compared to a setup with only PV and no batteries. The goal of promoting these systems is to create more resilient self-sufficient buildings, the use of more alternative energy sources, long-term positive economic results, and buildings that can help support the energy challenges of the future.

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Wales is a largely rural country in the United Kingdom, where it is difficult to make rural buildings energy efficient. Many communities are isolated and often do not have access to energy networks.

Sustainable Communities Wales (SCW) is an energy efficiency programme to encourage Welsh communities to make energy efficiency improvements to their communal buildings – community centres, churches, citizen-led enterprises, charities and social enterprises. Severn Wye is leading a consortium of energy efficiency specialists covering the whole country. This way, communities work with experts that understand their region, their local culture and the supply chains in the local economy – whether they are in a rural or urban area.

Each community is offered free expert support that consists of bills analysis, an energy survey of the community building and a report recommending the behaviours, replacements and retrofit options that will lead to the biggest improvements in energy savings. If they are interested in more complex retrofitting, such as installing on-site renewable energy generation or making big changes to their building – then SCW can offer free specialist support and feasibility studies. These feasibility studies have led to some clients receiving funding from their local authorities to install solar PV on their roofs.

Communities often find it difficult to take advantage of energy efficiency opportunities because it is difficult for groups of private individuals to raise the money required to make big changes. To address this, SCW's consortium includes a Community Finance company who offer participants an interest-free loan that takes their circumstances and income into account to make sure that the changes they make are affordable for the community. Even without these, a number of our clients are using the report and recommendations to apply for funding from other organisations – particularly where the improvements being made will save the communities money and help them get more use out of their communal buildings.

Sustainable Communities Wales will work with 150 communities across the country until March 2021, and aims to significantly influence the way communities think, act and relate to the energy they use. Severn Wye has been able to use funding from the National Lottery Community Fund Wales to help communities reduce the carbon footprint of their buildings.

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THANKS TO ALL OUR MEMBERS FOR THEIR CONTRIBUTION!

More information? Feel free to contact the concerned member directly by using the contact information provided in the article or contact us at fedarene@fedarene.org