

Climate adaptation & Long-Term Planning



Achieving the EU's climate and energy targets for 2030 and 2050 will not be possible without sound, long-term energy planning at local and regional level. This is something FEDARENE members have long understood, encouraging them to support municipalities and work together with all stakeholders involved to slow down the effects of climate change but also prevent its future consequences. 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:

- AEGEA (GR) is developing "Kythnos Smart Island", the biggest research and development project ever implemented in the Greek islands, which aims to build a local economy that is diverse, circular and sustainable;
- AGIRE (IT) had conducted a test to evaluate how adaptive lighting system performs in urban environment and how the results have shaped the urban planning in Roma;
- The Abruzzo Region (IT) is working with regional institutions, citizens and stakeholders to implement the 17 goals of the 2030 Agenda (SDGs) for land resilience and economic, social, environmental development;
- AURA-EE (FR) has developed a free access web-tool to help municipalities plan and monitor their energy transition - «TerriSTORY» ;
- B. & S.U (DE) presents the European Climate Adaptation Award, a programme for all German municipalities that wish to implement climate adaptation measures;
- The Zlín Regional Energy Agency (CZ) has improved heat insulation and installed air recuperation in the secondary medical School of Kroměříž to increase energy efficiency;
- Thanks to EREN's (ES) contribution, Castilla y León expects a huge growth in electric renewables and Spain will be able to meet its 2020 European goals in renewables;
- The ISLEPACT project implemented on the Crete Island (GR) aims at accelerating the clean energy transition while meeting regional energy targets;
- The Agency AE3R Ploiesti-Prahova (RO) has elaborated Local Energy Action Plans for several public authorities in the Prahova County.

All projects are featured in our 2020 Sustainable Regions in Action brochure published in January 2020.

KYTHNOS SMART ISLAND - AEGEAN ENERGY AGENCY [GR]

“Kythnos Smart Island” is the biggest research and development project ever to be implemented in the Greek islands, and as such represents a lighthouse project both for Greece and the international community. With a budget of approximately 8 million euros, the project will help Kythnos embark on a local development paradigm that harnesses the unique natural and cultural capital of the island, that creates sustainable growth and offers high-quality of life to locals and visitors.

sectors; ultimately, building a local economy that is diverse, circular and sustainable.

Overall the project is set to have a significant positive impact on the Greek economy for three main reasons; first, Greek researchers and experts will be employed in the project, contributing to efforts of mitigating skilled migration and brain-drain; second, the project will offer solutions to lasting challenges related with infrastructure

management in Kythnos, challenges facing also (many) other Greek islands; third, the knowledge produced will be transferred to other islands and geographically remote areas, mountainous and rural, and scaled-up in cities, offering valuable insights to the rise of the future “smart city”.

The selection of Kythnos as test-bed for this landmark project is linked with the fact that Kythnos is close to Athens and well-connected with the two major ports of Piraeus and Lavrio; is not included in the interconnection plans and will hence remain non-interconnected with the mainland electrical system for the coming years; and has a long and successful track-record of hosting innovative technologies since the 80's.

KYTHNOS SMART ISLAND PROJECT

A vision for sustainable local development



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In the years to come, Kythnos will become a true “living lab” where innovative solutions for the efficient upgrade and smart management of local infrastructures, including energy, water, waste, transport and street lighting will be designed and deployed. These interventions will lay the foundation for the island to extend its tourism season beyond traditional peak periods and strengthen the interdependence of its primary, secondary and tertiary

The project is implemented by the Network of Sustainable Greek Islands – DAFNI / Aegean Energy and Environment Agency and the Institute of Communication and Computer Systems of the National Technical University of Athens. For more information, see <https://bit.ly/32LSRYL>.

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SMALL DEMONSTRATION SITE: FIRST ADAPTIVE LIGHTING TEST AGIRE [IT]



At end of 2018, 112 lights were equipped with Diademe technology for smart lighting in ROME, EUR district. These devices are collecting data about luminance, traffic flow, air quality, noise level, temperature, pressure and pole inclination, providing adaptive lighting to the streets involved in the project.

A 15 days Testing, along Via dell'Aeronautica, was accomplished to evaluate how adaptive lighting system performs in urban environment and particularly to demonstrate that adaptive system is able to regulate lighting level on the base of real time traffic detection and luminance level.

Adaptive lighting data were compared with two different conditions: full light and pre-programmed cycle regulation. Full light is the standard regulation for ROMA EUR lighting fixture. Furthermore, street lights were regulated measuring real time luminance and traffic flow, providing however correct luminance level as prescribed by UNI 11248.

The conclusion of the Test was very encouraging. Energy saving through the Adaptive Lighting System, if compared with pre-regulated cycle, was higher than project target: 53% instead of 30%, while the performance was 66% if compared with full light driving, the current standard for ROMA EUR lighting plants.

In August 2019 about 70% of the 1.000 total lighting points have been equipped with the Life-Diademe System, as foreseen by the project targets and, very soon, they will be able to provide unexpected results.

The technical improvements during the implementation phase and a reduction in size and costs, combined with the advantages in terms of energy savings and emissions reduction gained, allow to be particularly optimistic concerning the Life-DIADEME System and to suppose favourably a good and wide spread of the system once the project will be completed.

In Brief

City site: Rome, EUR district

Small Test Site: 112 lights equipped with Diademe technology for smart lighting (2018)

Large Test Site: 1,000 lights to be equipped with Diademe technology for smart lighting (70% already done in August 2019)

Data collection for adaptive lighting: luminance, traffic flow, air quality, noise level, temperature, pressure and pole inclination

Life-DIADEME system allows to ensure:

- remarkable energy saving (up to 66%)
- visual safety
- reduction of CO2 emissions
- reduction of maintenance costs

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THE INTERREGIONAL STRATEGY OF SUSTAINABLE DEVELOPMENT OF ABRUZZO REGION - ARAEN ABRUZZO [IT]



Cascata del Vitello d'Oro, Farindola (Italy) © ARAEN

In 2018, the Abruzzo Region has signed a protocol agreement with the Ministry of the Environment (MATTM) to develop a regional Strategy of Sustainable Development in the framework of the

National Strategy of Sustainable Development, with the aim to implement the 17 goals of the 2030 Agenda (SDGs) for land resilience and economic, social, environmental development.

In the framework of this commitment, Abruzzo is part of the Interregional Coordination Forum with other neighboring Italian regions to develop common activities related to resilience and sustainable reconstruction with respect to residential, infrastructure, socio-economic systems of the inner-city territories with high seismicity and also within the CReAMOPA project (modernization of the Public Administration in a sustainable framework). The strategy is implemented with the support of the Committee of Coordination of all Abruzzo Universities (CCUA), to ensure the scientific support and cooperation for the implementation of the strategy, and the 44 Regional Education Centres (as part of INFEA - Information, Training and Environmental Education

Italian network) spread throughout the regional territory, to better connect with all stakeholders and citizens and to disseminate and transfer new models, initiatives and actions.

The strategy of sustainable development of Abruzzo Region is interregional and interdisciplinary since it refers to the governance of the whole territory, environment and energy. In fact, it coordinates with the regional strategy of adaptation to climate change which is being developed through several tools, policies and instruments. Between them, it is worth to highlight the work that the Region is carrying out with all municipalities of the territory (305) to update the SEAP (Sustainable Energy Action Plan) developed within the Covenant of Mayors into SECAP (Sustainable Energy and Climate Action Plan) according to a district logic (climate homogenous area).

As a matter of fact, Abruzzo Region has established a permanent task force, made up by representatives of all regional departments, with the aim to harmonize and coordinate all plans and programs. Last but not least, the sustainable strategy involves directly citizens and stakeholders to define the interventions to be implemented (meetings, conferences and consultations with experts and policy-makers from the regional and local governments).

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A REFERENCE DECISION-MAKING WEB-TOOL FOR TERRITORIES IN TRANSITION - AURA-EE [FR]

The Auvergne Rhône-Alpes region counts more than 4 000 municipalities. AURA-EE, the regional energy and environment agency, developed a free access web-tool to help municipalities to plan and monitor their energy transition.

Thanks to a dynamic and interactive visual interface, TerriSTORY® enables local stakeholders to better grasp their territory, assess its potential and identify clues to prioritise development in support of their decision process and plans. It provides a set of functions to build, follow-up and assess the territories' trajectory and simulate scenarios to visualise their socio-economic



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(electric bill reductions, generated added value, maintained employment, local tax benefits) and environmental impacts (energy savings, prevention of GHG emissions).

or rather most necessary. A catalogue of measures gives guidance and suggestions for new measures. It includes measures from all relevant fields of actions ranging from regional and urban development planning to buildings, social infrastructure, energy and water supply, transport and civil protection up to industry and commerce, tourism, agriculture, forestry, nature conservation and human health.

3. Planning of activities: By means of the provided catalogue suitable measures are discussed with the responsible stakeholders on-site and combined in a climate change programme of activities. For each adaptation measure degree of implementation, time horizon, the required work steps, the responsibilities, priorities and the necessary resource input are defined.
4. Implementation of activities: The structured eca process guarantees a systematic and target-oriented implementation of measures as well as a steady improvement of the inter-divisionally cooperation. An accredited eca advisor supports the municipality throughout the whole process.
5. Auditing, certification and awarding: After usually four years the municipality can undergo an external audit concerning its climate adaptation efforts. It is conducted by an independent eca auditor and ensures an objective comparability between different



The more comprehensive the adaptation successes are, the better the certification.

The eca has been successfully tested with financial support of the Ministries of the Environment of the Federal State of North Rhine-Westphalia and the Free State of Saxony in a pilot project with 12 municipalities and is now available for municipalities throughout Germany.

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THERMAL RENOVATION AND INSTALLATION OF AIR RECUPERATION IN SECONDARY MEDICAL SCHOOL KROMĚŘÍŽ – EAZK [CZ]

As part of the EU project BOOSTE-CE, the Energy Agency of the Zlín Region aims to achieve a long-lasting positive impact on Energy Efficiency in public buildings through its activities in promoting energy efficiency, smart metering and energy management. In order to achieve such goal, the partnership created the OnePlace web platform, where the project results and outcomes are collected and presented to experts and to the general public in a clear and illustrative way.

It has supported several projects in their application and implementation of energy efficient improvements, many of which were approved and funded under the National Operational Programme Environment 2014-2020, including the project on Thermal renovation and installation of air recuperation in the secondary medical School Kroměříž.



The project

The goal of this project was to improve heat insulation and to install air recuperation in the whole school to reduce heating demand, and therefore, using energy more efficiently. To achieve this, the project focused on

the thermal reconstruction of the building envelope: improving the outer walls by 14 cm of EPS with $\lambda = 0,039$ W/(mK) and insulating the roof with 300 mm mineral wool with $\lambda = 0,037$ W/(mK). Furthermore, the existing windows were replaced by new plastic windows with a U-value of 0,9 W/(m²K) and the doors were improved with $U = 1,2$ W/m²K.

One of the most important parts of the project was upgrading the streetlight to LED technology, which means reducing energy consumption by 42 GJ per year. Additionally, because of the inadequate indoor environment, air recuperation for the whole school was projected with the overall power of 35 900 m³/h. Nowadays, the heating demand of the building is 102 kWh/(m².a), which means A-class for this type of building. The total investment value of the project is 2 373 680 €, and it was co-financed by the Operational Programme Environment of the Czech Republic with subsidy € 703 900; and by Zlín region.

Results

- The main project implementation benefits are an overall reconstruction of the school significantly reduced consumption of the natural gas and improved the indoor environment as well as the outer design of the building.
- The reduction of energy consumption and operational costs has a positive effect on a sustainable operation of the school for the next 40 years.
- Mechanical ventilation is necessary for suitable indoor climate. A visible benefit is also a comfortable place for teachers and students.

Furthermore, the Energy Agency of the Zlín Region is continuously monitoring the consumption of the natural gas, electricity and water consumption of the buildings related to this project.

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NEW BOOST TO ELECTRIC RENEWABLES IN CASTILLA Y LEÓN - EREN [ES]



With an installed capacity of 10.534 MW, Castilla y León's share in the Spanish electric renewables' capacity is 22%. As an average, electric renewables cover 149% of the electricity demand in the Region.

In the short and medium term, Castilla y León expects a huge growth in electric renewables, with an outlook of new 6.400 MW of installed capacity, fundamentally in PV and Wind.

Castilla y León's current installed capacity in electric renewables adds up to 10.534 MW: 5.591 MW wind, 4.401 MW hydro, 495 MW PV and 47 MW biomass. Electric renewables account for 78% of the total installed electric capacity in Castilla y León, and the Region's share in the Spanish electric renewables' capacity is 22% (26% share in hydro, 24% in wind, 11% in PV).

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149% of the electricity demand in Castilla y León (14.056 GWh) is covered by renewables, compared to 37% in Spain, as an average. Wind power covers 81% of the electricity demand, as an average, with peaks over 90%. In a year, installed capacity in the region will increase by 915 MW in wind and 300 MW in PV. But in the medium term, total new developments in Castilla y León are expected to add up to 2.100 MW in wind and 4.300 MW in PV.

These new developments in electric renewables capacity will more than offset the closure of the four regional coal-fired generation plants (2.457 MW), expected by mid-2020. By then, electricity generation in Castilla y León will only come from renewables and CHP (Combined Heat and Power). But a new 50 MW biomass plant will start operation in 2020 in the heart of the coal mining area, creating 50 new jobs in the plant and 400 new jobs in the logistics to supply the biomass to the plant.

In economic terms, the new wind developments in the Region, solely, will mean an investment of 842 M€, 2.640 jobs during construction and commissioning, 2,5 M€ in land rentals, 21 M€ in municipal licenses and 3,7 M€ per year in municipal taxes. There is no similar support to the economy of rural areas by any other sector of activity. Moreover, Spain will be able to meet its 2020 European goals in renewables thanks to the contribution from Castilla y León.

INSULAR MULTI LEVEL REGIONAL GOVERNANCE FOR THE CLEAN ENERGY TRANSITION OF THE CRETE ISLAND - CRETE REGIONAL ENERGY AGENCY [GR]



The Regional Development Fund of Crete implements a systematic procedure of multi participatory and structured dialogue and working plan for the establishment of a road map and an action plan for the clean energy transition of the island of Crete.

This procedure must combine:

- existing study for the Regional energy planning existing municipal SEAPs and the on-going ones national priorities – as are specified for the island of Crete
- climate action plan at the regional level
- RIS3 regional smart innovation strategies for sustainable energy and climate change
- Regional Operational – Community Support Framework
- scenarios for the electricity and gas interconnections to the mainland
- research and innovation sectoral capabilities and priorities
- interests of the investors
- energy cooperatives
- social interests
- others

The island figures:

- Permanent population: 680.000
- Annual tourists arrivals: 4.500.000
- Area: 8.336 km²
- Distance from the mainland: 339 km²
- Main economic activities: tourism, agriculture, trade
- Electrical system: Non-inter connected
- Res share in the electricity mix: 25%

The Regional Energy Agency of Crete is the regional coordinator of the Covenant of Mayors for the whole island of Crete and member of the Regional Innovation Council, capitalizing its multiannual experience in participatory energy and climate regional planning. The island of Crete is the biggest one among the 26 pilot islands chosen in 2019 by the secretariat for Clean Energy for EU islands. Therefore the exercise for the clean energy transition of such a big island is much more complex and time-consuming and the results will be of a particular interest. The structured and strategic dialogue between all relevant stakeholders are also combined with horizontal assessment for sectoral on-going works and implementations for energy efficiency in public and private buildings, for bioclimatic public places, for energy cooperatives, for public lighting, for virtual net metering in municipalities, for sustainable energy education in schools etc.

The main expected outcomes:

- Built-up a common vision and consensus for the energy transition.
- Combine Sustainable Energy and Climate Action Plan of the whole island (SECAP-I) with the 24 municipal SECAPS.
- Prioritize energy efficiency and energy saving in all activity sectors.
- Maximize the RES penetration in the energy system.
- Establish an efficient electricity management system combining the electricity interconnections and the local RES electricity production.
- Attract and support sustainable energy and energy efficiency investments.
- Combine the Smart Regional Specialization of the Crete Region with pilot and innovative energy projects.
- Design and implement a continuous and multi-faced communication – dissemination – promotion plan for the regional energy transition.

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LOCAL ENERGY PLANS FOR THE MUNICIPALITIES IN THE PRAHOVA COUNTY - AE3R PLOIESTI-PRAHOVA [RO]

The Energy Efficiency and Renewable Energy Agency «AE3R Ploiesti-Prahova» has contributed and also elaborated Local Energy Action Plans for some of the public authorities in the Prahova County. These actions come as a follow up to the diplomas obtained by Mr. Potlogia Bogdan and Mr. Sorokin Radu as energy managers for municipalities.

Having a baseline assessment of the local energy consumptions and subsequently a strategy is extremely important. Therefore, the AE3R team tried to reach out to as many municipalities as they could, but also to offer their help and assistance for elaborating their plans. In addition, they are the liaison between the municipalities, the energy supply companies, the companies which install renewable energy sources or offer energy efficiency services, and last but not least, the final consumers: the citizens.

Another objective is to improve existing local energy plans, as they require constant upgrading and a setting out a clear path to reach the set-out targets. Thus, the agency's experts performed analyzes of the Energy Efficiency Strategies in the municipalities of Mizil and Urlati, which generated a series of measures and recommendations, according to the new legislative changes and the emergence of new technologies on the market.



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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



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