

Project information:

Project acronym	PVadapt
Title	Prefabrication, Recyclability and Modularity for cost reductions in Smart BIPV systems
Call	H2020-LC-SC3- RES-6- 2018
Grant agreement no	818342
Starting Date	1/10/2018
Duration	42 Months
EYDAP's PMs	47 Months
Project Budget	11,067,125 €

Project abstract:

The building integrated photovoltaics (BIPV) sector can benefit from innovations in construction and solar energy alike, even more so when the two are in sync. In the PVadapt project, combined innovations in modular construction and modular photovoltaics will lead to the creation of an adaptable and multifunctional BIPV system of substantially lower cost than conventional solutions. A flexible and low cost production of photovoltaics in automated processes will be employed to produce PV modules as well as elements with integrated heat pipe based heat recovery. These active energy components will be combined with passive and sustainable components with structural, mechanical, thermal and other functions to produce prefabricated BIPV modules. Prefabrication will be the key to achieving cost reductions, as well as guaranteeing quick installation with low disruption. The project will also employ a sustainable by design philosophy with all the parts of the system being recyclable/ reusable and waste based raw material supply chains will be established. A Smart Envelope System featuring grid connectivity, load prediction and shifting and intelligent energy management systems with predictive algorithms will be integrated in the PVadapt turnkey BIPV system. To convincingly demonstrate the PVadapt solutions, 7 buildings of various typologies (residential, commercial, 2 offices, and 3 service stations in Spain, Greece and Austria) will have the technology installed and one new 288m² floor space construction will be built in Portugal with a total of 464kW installed. The LCOE values will be below 2ct/kWh and the cost of the BIPV module will be below 200 euros per m² and payback below 10 years. In these sites, the PVadapt technologies will be installed in flat and pitched roofs, as wall replacements and facades and shaders, demonstrating the holistic approach to BIPVs, improving their entire life cycle.

Activities of EYDAP in the project:

- ➊ EYDAP will be responsible for the retrofitting and the implementation process of a demo installation of BIPV in the R&D department facilities. The proposed BIPV installation will consist of 95m² of roof and 50m² of S-facing façade in the building or auxiliary adjacent locations. A 32kWp system will be installed, yielding 29MWh/y of electricity and 31MWh/y of heat.
- ➋ The installation of PVadapt building integrated photovoltaics will act complementary to the department's sustainability venture demonstrating resource efficient and sustainable solutions to be adopted by other buildings and facilities of the Company.
- ➌ EYDAP will perform an overall evaluation of the improvements on economy, energy efficiency and sustainability as well as the waste heat valorization potential of the BIPV system. Additionally EYDAP will investigate the extended demo actions for early adoption to other Company's facilities to achieve energy autonomy, where possible, at the numerous monitoring and pumping stations of the Company.

Benefits of EYDAP from the project:

The immediate benefits of EYDAP from the project is that the PVadapt tech will provide 43.02% of electricity and 100% of heating requirements of the R&D facilities whereas an additional 7.5MWh/y of low grade heat will also be available and can be distributed to the laboratory facilities and test sites featured in the close vicinity, or it can be stored or upgraded through the use of heat pumps.

Additionally the installation of PVadapt building integrated photovoltaics will act complementary to the department's sustainability venture demonstrating resource efficient and sustainable solutions to be adopted by other buildings and facilities of the Company.

At the same time, through the project, EYDAP will develop strong partnerships and exchange know-how with prominent stakeholders in the water industry.

List of Participants:

No	Name	Short name	Country
1	Merit Consulting House SPRL	MERIT	BE
2	BRUNEL UNIVERSITY LONDON	BUL	UK
3	National Technical University of Athens	NTUA	EL
4	Tyndall National Institute	TNI-UCC	IE
5	University of Applied Sciences Burgenland	UASB	AT
6	Sintef AS	SINTEF	NO
7	LKS Engineering	LKS	ES
8	Alchemia Nova GmbH	ALCN	AT
9	Flint Engineering Ltd	FLINT	UK
10	Architect Reinberg	GWR	AT
11	Unismart	USMART	IT
12	Cool Haven	COOLH	PT
13	EMTECH GmbH	EMTECH	DE
14	CORE Innovation	CORE	EL
15	Apollon Solar s.a.s.	APOLLON	FR
16	OAL VIVIENDAS MUNICIPALES DE BILBAO – BILBOKO UDAL EXTEBIZITZAK TEA	VVMM	ES
17	Etaireia Ydreyses Kai Apochetefseos Proteyoysis - EYDAP	EYDAP	EL
18	CONKAT S.A.	CONKAT	EL