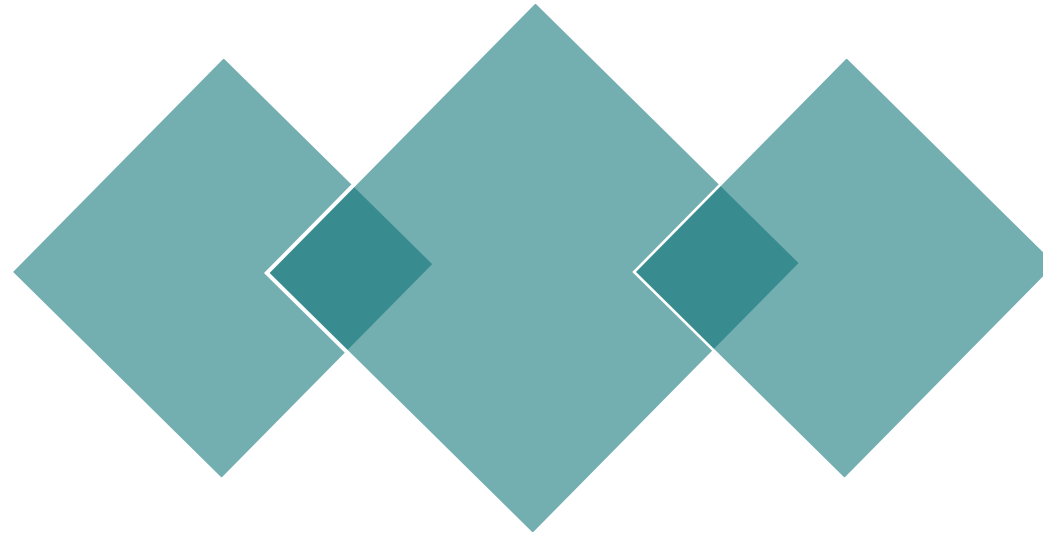


FLEX2ENERGY

**AUTOMATED MANUFACTURING
PRODUCTION LINE FOR IPVS**



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HORIZON EUROPE

Consortium Partners

Participant Organisation Name & Country		
1 (Cor)	Organic Electronic Technologies P.C.	GR
2	Nanotechnology Lab LTFN/AUTH	GR
3	Coatema Coating Machinery GmbH	DE
4	Mondragon Assembly	DE
5	Semilab Semiconductors Physics Laboratory Co. Ltd.	HU
6	Workshop Of Photonics	LT
7	Centro Riserche Fiat	IT
8	Alumil Aluminium Industry S.A.	GR
9	Hellenic Organic & Printed Electronics Association	GR
10	Pole Fibres-Energivie	FR
11	In-Core Systèmes	FR
12	Centre Technique Industriel de la Plasturgie et des.....	FR
13	Kiriakidis S.A.	GR
14	Municipality of Alba Iulia	RO
15	DEPIA Automations	GR



Overview of the Project

Title: Automated Manufacturing Production Line for Integrated Printed Organic Photovoltaics (**Flex2Energy**)

- **Type:** Innovation Action (IA)
- **Work Programme:** HORIZON-CL5 2022-D3-01-03
- **Project Number:** 101096803
- **Duration:** 48 Months (01/01/2023 – 31/12/2026)
- **Total Budget:** 21.116.625 €
- **EC Contribution:** 15.702.550 €



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Partner's Role & the 4 Main Groups

- R2R process for OPVs
- Integration/upgrade of tools/control systems & assessment
- Development of R2R AIP
- Real-time characterization & Process Optimization on Industrial scale
- IPV Demonstrators & Market Replication
- Project Coordination and Management



- Design & Construct a complete R2R printing machine and its equipment



- Design and Construct a complete automated assembly machine and its equipment



- OPV device architectures and materials selection, Fabrication & characterization of OPVs
- Methodologies for data analysis & modelling
- Assessment for compliance with standards



- Specification/ design of IPV's for integration on HEV
- Assessment of IPV's in real conditions with FCA standards
- Definition of standards & specifications in IPV's for Automotive



- Designing new BIPV systems and inventing technical solutions incorporating excellent design
- Installation of BIPVs on ALU Facilities Facade



- City Hall to install BIOPVs on Façades & Glass Surface of the Rooftop and PVs Installation



- Glass Encapsulation of OPVs according to the specifications and design requirements. Installation of glass encapsulated OPVs in Frames and in Demonstration Sites



- Design and integrate visual inspection camera systems to monitor the printing and laser manufacturing processes.
- Analyze the data using machine learning and AI algorithms and identify defect and process alignment.
- Create a close loop feedback through the DMCP with the manufacturing tools to adjust the process parameters.



- Production of three upgraded industrial laser process tools for the automated manufacturing IPV line



- Upgrade Imaging IPL, SE and REF, Integration of tools to R2R PPL at OET, AI
- analysis for metrology data and communication to DMCP



- Design and construct four complete automated 4-axis slot die coating stations and the Data Management and Control Platform for the R2R printing machine.



- LCA, LCC, Certification, regulation and standards



- Connection to Industrial Communities
- Networking Dissemination & Training
- Clustering; cooperation with projects (OIE, OITB), networks (e.g. EFFRA), DIHs.



- Digitization product design (BIM).
- Expectation, specifications of the construction sector organic BIPV.
- Promotion and adoption of products by the actors of the sector.



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