

**EoI – Expression of Interest
PARTNER SEARCH**

**AREA OF INTEREST:
Answers expected before:**

GENERAL INFORMATION		
NAME OF ORGANISATION*: NATIONAL TECHNICAL UNIVERSITY OF UKRAINE “KYIV POLYTECHNIC INSTITUTE”, FACULTY OF ELECTRONICS		
TYPE OF ORGANISATION*: University		
<input checked="" type="checkbox"/> Public body (Research organization/university/lab)		
CONTACT PERSON		
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TYPE OF PARTNER SEARCH*:		
<input checked="" type="checkbox"/> FP7 /HORIZON 2020 SPECIFIC CALL		
CONSORTIUM*		POSITION WITHIN CONSORTIUM*
<input checked="" type="checkbox"/> Create a new consortium		<input checked="" type="checkbox"/> As a Partner
<input checked="" type="checkbox"/> Join an existing consortium		
IF FP7 RELEVANT CALL: AREA OF INTEREST		
COOPERATION	CAPACITIES	
<input checked="" type="checkbox"/> 3 – ICT	<input checked="" type="checkbox"/> Research infrastructures	
<input checked="" type="checkbox"/> 5 – Energy	<input checked="" type="checkbox"/> Research potential	
	<input checked="" type="checkbox"/> International cooperation	
PEOPLE	IDEAS	
<input checked="" type="checkbox"/> Initial Training networks Networks (ITN)	<input checked="" type="checkbox"/> Starting Independent research grant	
<input checked="" type="checkbox"/> EURATOM	<input checked="" type="checkbox"/> JRC	
CALL DETAILS		
CALL IDENTIFICATION (according to WP): N/A	DATE OF PUBLICATION: N/A	CLOSURE DATE: N/A
PROJECT INFORMATION		
ACRONYME & TITLE: Increasing of Intellectual Effectiveness of Electronics and Energy (IIEEE)		

SUMMARY*:	
<p>Development of coordinated control of inverters with increased intellectual effectiveness in the system of distributed energy generation with PV cells. Control system of inverters connected to PV cells provide the functioning of one inverter in the regime of voltage source, and others – in the regime of current sources controlled by load voltage. In the case if the system of distributed generation includes other main generator that works in the regime of voltage source (e.g. diesel or wind generator) all inverters of PV cells work in current source regime. Such approach allows to provide parallel and coordinated work of significant amount of inverters without previous tuning due to specialized software and realization of cloud calculations using microprocessor unit of each inverter as the node of calculation-controlling network of the whole energy supply system.</p> <p>Most effective use of electrical energy from PV generators is achieved by adjustment of external characteristics of the inverters to the tasks of external network according to outer factors and control influence. Energy efficiency of the system proposed is increased additionally at the expense of prediction of PV cell illumination levels. Work in the regime of maximum energy tracking is provided by using converting devices and special control algorithms for them.</p> <p>Intellectualization is provided by self-synchronization of inverters' control systems combined into common system that allows to increase intellectual efficiency.</p> <p>Implementation of new methods of self-synchronization of electrotechnical devices joined in common system, mathematical apparatus of spectral and wavelet transforms of the functions with modular arguments, methods of spectrum spreading, concurrent filters for coding and noise-protected data transmission results to maximum effectiveness for energy supply systems, Micro Grid and Smart Grid with renewable sources.</p>	
KEYWORDS:	
Energy supply system, MicroGrid, SmartGrid, PV cells, inverter, synchronization, spectral transform, wavelet, noise-protection, data transmission	
TYPE OF PROJECT Funding scheme:	
H2020 Research and innovation actions, H2020 Innovation actions H2020 Coordination and support actions	
PARTNERS ALREADY INVOLVED (Contact Name, Name of organization, e-mail address):	
<p>1. Eugeniusz Rosolowski, Wroclaw University of Technology, Institute of Electrical Power Engineering, eugeniusz.rosolowski@pwr.wroc.pl</p> <p>2. Leo Vincent, RMEI network – mediterranean network for engineering and management school, leo.vincent@rmei.info</p> <p>3. Maurice Le Van Soo, international company “Semiconductor Marketing”, mlvs1@orange.fr</p> <p>4. Ryszard Strzelecki, Gdynia Maritime University, r.strzelecki@iee.uz.zgora.pl</p>	
PARTNER SOUGHT	
COUNTRY (IES) (if relevant): N/A	
EXPERTISE REQUESTED*: electronics, electrical engineering, system design, microprocessor and microcontroller technique, programming	
ROLE: <input checked="" type="checkbox"/> Technology development <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Dissemination <input checked="" type="checkbox"/> Demonstration	
ORGANISATION TYPE:	
<input checked="" type="checkbox"/> Public body (Research organization/university/lab)	
HOW MANY PARTNERS ARE REQUIRED?	Three partners