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A NEW EU UCY PROJECT AIMING TO DEVELOP SMART INNOVATIONS FOR MORE FLEXIBLE ENERGY SYSTEMS

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The KIOS Research and Innovation Center of Excellence (CoE) at the University of Cyprus is participating in a large Innovation Action project funded by the EU under the Horizon 2020 programme. This is a large project with a budget of over 17 million euros and with 28 partner organizations from 14 different countries of the European Union. The project, entitled FLEXITRANSTORE aims to develop a next generation Flexible Energy Grid, for smarter and more robust power systems.

More specifically, FLEXITRANSTORE will demonstrate new approaches to integrate renewable energy sources and storage technologies through large scale pilot installations, leading to increased flexibility of the transmission level of power systems and a significantly higher capability to accommodate renewable energy. Although, the share of renewables in the energy market is rapidly increasing (since they are contributing to energy system decarbonization, long-term energy security, and expansion of energy access), the integration of large shares of renewables is still limited due to the unpredictable and variable nature of their energy output. As a result, challenges of meeting real-time demands for energy are difficult to accommodate, while this also impacts negatively the energy market in terms of dynamic pricing and flexible trading among market participants.



The project responds to these important challenges faced by many energy providers in relation to the enhanced use of renewable energy sources, by developing innovative tools and services that will be integrated in the next generation of energy grids. The grid components and the digital market infrastructure developed in the project will be tested in six EU countries (Cyprus, Greece, Bulgaria, Slovenia, Belgium, and Spain), illustrating specific functions and serving real needs and existing challenges.



FLEXITRANSTORE will also address the capability of power systems to maintain a continuous service in cases of rapid and large swings in supply or demand, also taking into account the cross-border electricity flows across Europe. It is expected that the project's results will substantially contribute towards the ability to enhance renewable energy generation as well as manage more effectively the consumption of energy. This in

turn will also contribute to the improvement of the reliability, security, and resilience of the energy system. Multiple benefits to the society are also foreseen as the proposed system will reduce the cost of energy generation, as well as help to reduce CO₂ emissions.

In this endeavour, Cyprus is actively participating with the involvement of key, national energy authorities and agencies. More specifically, the Electricity Authority Cyprus, the Cyprus Transmission System Operator and the Cyprus Energy Regulatory Authority are valuable partners in the project. As stakeholders they will have a significant role to play in the development and testing of the project results. With four Cyprus based organizations involved in the project, the EU funding received by Cypriot organizations from this project is in excess of 1.3 million Euro.

The project is led by a dynamic consortium bringing together organizations with research expertise and stakeholders from the industry, who bring significant know-how in relation to the needs and requirements of the energy grid. The KIOS CoE research team at the University of Cyprus participating in the project FLEXITRANSTORE is led by Professor Elias Kyriakides.