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In his ONISILOS fellowship research project, Andreas is developing a novel design and operation optimisation platform to investigate the integration of photovoltaic (PV) systems with state-of-the-art heat pumps and energy storage for the decarbonisation of electricity, heating and cooling consumption of buildings.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie Grant Agreement No 101034403

Dr. Andreas Olympios is an ONISILOS MSCA Postdoctoral Research Fellow at the FOSS Research Centre for Sustainable Energy at the University of Cyprus. He holds a PhD degree obtained from the Clean Energy Processes (CEP) Laboratory, Imperial College London. During his doctoral studies, Andreas' research primarily focused on conducting comprehensive techno-economic and whole-energy system analyses of innovative low-carbon heating systems. Prior to his PhD, Andreas completed his MEng degree in Mechanical Engineering at the University of Nottingham, where he received the IMechE Institution Best Student Award. Andreas has published and presented several papers in high-impact journals and international conferences and collaborated with recognised industrial partners (e.g., Mitsubishi Electric, National Grid, Sainsbury's).

Andreas is actively involved in the academic community and serves as an editor and reviewer for various international journals, while he has also been appointed as an assigned expert for the European Commission. His research interests encompass the techno-economic modelling of energy conversion and storage technologies, the identification of energy system implications of decarbonisation, smart control of distributed energy resources and demand-side response.

In his ONISILOS fellowship research project, Andreas is developing a novel design and operation optimisation platform to investigate the integration of photovoltaic (PV) systems with state-of-the-art heat pumps and energy storage for the decarbonisation of electricity, heating and cooling consumption of buildings. In detail, the project's aim is to identify: (i) high-performance heat-pump designs that minimise costs, carbon emissions and maximise system self-sufficiency; (ii) suitable electrochemical, thermomechanical and hydrogen energy storage systems to store excess electricity; and (iii) smart monitoring and operation strategies to improve the efficiency, reliability and economic feasibility of next-generation building-integrated systems comprising PVs, heat pumps and energy storage. The interdisciplinary project brings together a distinguished team of high-profile academics with different backgrounds, including George E. Georghiou (Professor of Electrical Engineering and Director of FOSS Research Centre for Sustainable Energy), Andreas Kyprianou (Professor of Mechanical Engineering and Manufacturing) and Panos Papanastasiou (Professor of Civil and Environmental Engineering). Additionally, the project benefits from direct support and collaboration with academic and industrial partners who are experts in technology design and innovation, including the CEP Laboratory of Imperial College London and Mitsubishi Electric R&D Centre Europe.

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