



**Project name: Cost-effective rehabilitation of public buildings into smart and resilient nano-grids using storage**

**Project acronym: BERLIN**

**Project partners: University of Cyprus (Project Coordinator, Cyprus), The University of Western Macedonia (Greece), The Municipality of Eilat (Israel), University of Cagliari (Italy), Ben Gurion University in the Negev (Israel), Deloitte Limited (Cyprus), Hevel Eilat Regional Council (Israel)**

**Associate partners: Municipality of Kozani (Greece), Regione Autonoma della Sardegna (Italy), Municipality of Ussaramanna (Italy)**

**Project duration: 36 months**

**Funding agency: ENI CBC MED**

**Project funding amount: 2,868,267.46 €**

**BGU funding amount: 418,905.00 €**

**BGU PIs: Prof. Erez Gal, Prof. David Pearlmutter, Dr. Shabtai Isaac**

**Project Objectives:**

BERLIN aims to implement cross-border pilot measures to support innovative & cost-effective energy rehabilitations in public buildings based on the nanogrid concept, the building block for smart microgrids. The motivation is multi-fold: a) to address high energy consumption in building sector that is primarily fossil-fuel based, b) to support areas of weak grids, common in MENA region & rural areas, as high energy consumption in buildings can compromise electric service reliability, c) to achieve higher grid penetration of RES whilst ensuring grid stability and power quality. To this end BERLIN will focus on increasing PV grid penetration, combined with storage (ESS) and demand side management (DSM), along with enhancement of energy efficiency in buildings. Utilizing these 3 technologies in a cost-effective way, the goal is to reach high levels of self-resilience in public buildings, and to make them green(er), smart, innovative & sustainable.

BERLIN will implement 8 pilots, with an initial screening already made at proposal stage. The pilots include installation of new PV capacity, ESS & automation (smart plugs, EMS). Essentially, we aim to optimally integrate PV/ESS/DSM in an innovative way and transform each pilot into a self-sufficient nanogrid, as an energy rehabilitation solution in a range of climatic zones. To aid in that, BERLIN will develop 2 tools, targeting optimal design/operation of the solution and policy makers BERLIN foresees the creation of a special IUPVMED hub for related stakeholders to push forward the local consumption of PV energy. It will develop 8 case studies for each pilot highlighting good practices and lessons learnt, a joint case study focusing on replication, along with 4 formal procedures detailing steps to reach higher resilience based on cost-benefit analyses. Finally, through delivery of short trainings and hub's actions, BERLIN will pursue official approval of strategies advancing utilization of PV+ESS+DSM by 5 public authorities.