

Master Thesis Brief Description

| | |
|------------------------------|--|
| Thesis Title | Renewable Energy System for Mesana Village |
| Programme of Studies | MSc in Energy Engineering |
| Course | MEE 540 - MSc Thesis |
| Area of Study | Sustainable Transport – Hydrogen Technologies |
| Student's Name | Foivos Sokratous |
| Students Reg. Number | 25570 |
| Supervisor | Dr.-Ing. Paris A. Fokaides, Associate Professor, Mechanical Engineering Department |
| Supervisory Committee | Dr George Karagiorgis, Professor, Mechanical Engineering Department Dr Byron Ioannou, Professor, Department of Architecture |
| Semester | Spring Semester 2025 |
| Short Description | <p>This MSc thesis examines the design and feasibility of a hybrid renewable energy system for Mesana Village, a small rural community in Cyprus. Using real electricity consumption data and local climatic conditions, the study evaluates the integration of solar photovoltaic panels, wind turbines, and battery storage to reduce grid dependency and carbon emissions. Technical and economic analyses are conducted using indicators such as renewable energy penetration, payback period, and CO₂ reduction. Results show that a solar-dominant system provides the most cost-effective solution, achieving approximately 85% renewable energy coverage and significant environmental benefits, while wind energy and storage enhance system resilience and reliability.</p> |