Thesis Title	**Investigating Future Grid Needs to Support the Expansion of Electric Vehicles in Cyprus until 2030**
Programme of Studies	MSc in Energy Engineering
Course	MEE 540 MSc Thesis
Area of Study	Sustainable Transportation
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Short Description	The adoption of electric vehicles (EVs) gained significant momentum worldwide as countries strove to reduce their carbon footprint and meet climate goals. In Cyprus, the government had set ambitious targets to increase the share of renewable energy sources (RES) in electricity production and the number of EVs on the road by 2030. This Master Thesis aimed to investigate the future grid needs to support the expansion of EVs in Cyprus until 2030. The study explored various scenarios for the expansion of EV use in Cyprus, based on the Action Plan for Energy and Climate and the Resilience Plan of the Republic of Cyprus. Predictive models were developed to define the development of electricity needs to cover the new EV demand. The analysis focused on the EV fleet, defining typical models based on their consumption and use, enabling the calculation of extended electricity needs. The study then adapted the plan for the penetration of renewables of the Republic of Cyprus to these needs. The aim was to deliver indicators for the penetration of EVs versus photovoltaics (PVs) to secure the network's stability. The research also explored the possible impact of EV charging patterns on the grid's stability and suggested measures to mitigate these effects.
	Overall, this Master Thesis contributed to the knowledge base on the expansion of EVs in Cyprus and provided insights for policymakers, stakeholders, and industry players. The findings of this study were relevant to other countries pursuing similar goals of reducing greenhouse gas emissions and increasing the adoption of EVs.