

Summary

Proposal for a Palestinian Standard for Safe Handling of Electric and Hybrid Vehicles in Maintenance Centers

With the rapid transition towards electromobility in Palestine, driven primarily by high fuel costs, the importation of Electric (EV) and Hybrid (HEV) vehicles has outpaced the development of local safety regulations. This regulatory gap exposes technicians in maintenance centers to life-threatening hazards, including high-voltage electrocution (up to 800V DC), arc flashes, and thermal runaway fires. This study aims to assess the readiness of the Palestinian automotive sector and draft a national safety standard to mitigate these risks.

The research adopts a mixed-method approach, combining a comparative analysis of international standards (NFPA 70E, ISO 6469-3) with a field survey of 100 technicians across major Palestinian governorates. The assessment reveals critical deficiencies in safety infrastructure and competency: 92% of workshops lack essential "Rescue Hooks," 82% do not have a designated outdoor "Quarantine Zone" for damaged batteries, and 58% of technicians rely on informal sources, such as YouTube, for safety training. Furthermore, 78% of respondents identified the high cost of equipment as the primary barrier to compliance.

Based on these findings, the study developed a comprehensive "Proposed Palestinian Standard (PPS)" that defines mandatory facility zoning, Personal Protective Equipment (PPE) requirements (specifically Class 0 gloves), and a strict "High Voltage De-energization Protocol." The research concludes with urgent recommendations for the Palestine Standards Institution (PSI) and the Ministry of Transport to adopt this proposal as a binding regulation for workshop licensing, alongside financial incentives to support facility upgrades.

Keywords: Electric and Hybrid Vehicles (EVs/HEVs); High Voltage Safety; Automotive Maintenance; Occupational Hazards; Personal Protective Equipment (PPE).