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Recent research in Energy-Efficient Train Control (EETC) and Energy-Efficient Train Timetabling (EETT) has uncovered various strategies that can be utilized to reduce railway energy consumption without placing additional demands on the capacity or compromising the robustness of operations. Several railway undertakings have already integrated aspects of these methodologies both in daily operations by the implementation of Driver Advisory Systems (DAS) and in the timetable design process. The major passenger railway operator in the Netherlands, Nederlandse Spoorwegen (NS), utilizes a tablet-based DAS that provides coasting advice to train drivers, while also displaying the route, timetable, temporary speed restrictions and blocks occupied by preceding traffic. Despite the implementation of this system, historical trajectory data from real world operations in the Netherlands indicate variances in the extent of energy-efficient train driving application. These variations could lessen the energy-savings of EETC and increase operational costs. Hence, the main aim of this poster is to evaluate the application of the EETC strategy in real world operations under varying environmental and operational conditions based on historical timetable and train trajectory data, while identifying the causes leading to the observed differences. Subsequently, a literature review of train trajectory optimization techniques is conducted to examine the extent to which these causes are addressed. Finally, the real world applicability of these methods is discussed and future research directions are provided.