

Socio-economic, environmental and technical conditions of electrical transport development and operation in Poland

Description for the general public

Public transport plays an important role in peoples' social life, especially in urbanized areas of spatially developed cities. At the same time, urban electrical communication systems along with the whole branch of electrical transport addresses the postulates of the transport policy adopted by the European Union, especially those connected with limiting the exhaust emissions. Deterioration of the natural environment and life quality in cities are significant issues addressed by politicians, researchers, social activists and ordinary people. A low level of social awareness in this scope has led to negligence affecting the everyday life in cities. Transport is an important sector of the economy which emits high levels of pollutants to the environment. During the last few years the European Union has strengthened its efforts to increase social awareness on protection of the environment and life quality as well as on decarbonisation of transport, including public transportation systems. In the light of the air pollution and energy policies adopted by the European Union, development of electric vehicles technology is a way in which the objectives and requirements of the above-mentioned policies can be met. The continuously growing interest in electrical transport has been observed in European cities since the beginning of the 21st century. The real renaissance of tram and trolley bus transport in France, Spain, Sweden, Great Britain and Italy seems to confirm this direction of development of urban transportation systems.

The core of the project is constituted by the willingness to find answers to the questions connected with validity of functioning and development of urban electrical transport understood as the most common means of this type of transportation which are tram, trolley bus and electric bus. Since 2004 when Poland accessed the European Union a possibility to modernize and develop collective transportation systems thanks to the structural funds. Large sums of money were assigned to transportation projects, but they did not often correspond with implementation of well-thought-out plans. In fact, local authorities were seeking for ways of quick spending the money they had obtained and they did not consider the impact of these plans on long-term operation of urban transportation systems, especially their operation costs. Among the projects assumptions there are multicriterial studies of current state and development perspectives for urban electrical transport, including a study of how people perceive particular means of transportation, a study of their economic effectiveness and the real influence they exert on their operation area as well as a research on how development of technology can affect the accessibility of electric vehicles.

In order to achieve the projects' assumptions, several research objectives have been formulated. The objectives are as follows: the analysis of citizens' perception of different means of UET, development of an economic efficiency model for all analysed means of transportation, measuring how electrical transport affects its operation area (development of a theoretical comparative model) and how development of the battery technology affects the possibility to make electrical transport more popular.

The authors are planning to implement different research methods in order to verify the formulated hypotheses. A group consisting both quantitative and qualitative methods will be used. Each research stage is to involve the following research methods: basic, data analysis, technical including surveys, calculating and empirical ones. However, the most important for achieving the projects' objectives are the Multi Criteria Decision Making methods (e.g. TOPSIS) which make it possible to develop the above-mentioned theoretical model.