

A HYBRID APPROACH OF ANALYTIC HIERARCHY PROCESS-TOPSIS AND GOAL PROGRAMMING FOR ELECTRIC AUTOMOBILE SELECTION

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In this paper, we consider the problem of automobile selection for transportation in inner city using a hybrid multicriteria decision making approach. The electric automobiles that are a relatively new concept in the world of the automotive industry, are widely viewed as attractive among its alternatives day by day. Fuel-vehicles produce a lot of carbon emissions that are ejected into our natural atmosphere, leaving us vulnerable to things like pollution and greenhouse gases. So, Electric vehicle and automobiles are a great step forward to help positively the environment. Many companies focus on electric vehicle production with the development of electric vehicle technology. Therefore, the selection process emerges among the various electric automobile technologies for the users. The selection process includes several conflicting factors which are such as economic, technical and technological factors. In the present study, we propose a hybrid approach for electric automobile selection that combines analytic hierarchy process (AHP), TOPSIS and goal programming is used to determine the weights to assign to the factors that go into these selection decisions and TOPSIS method is used for preference ranking. These weights founded by AHP are inputted into a goal programming (GP) model to determine the best alternative among the electric automobiles. Finally, it used to three methods as AHP, AHP-TOPSIS and AHP-GP in this study and these methods result are compared and evaluated. The most suitable electric automobile is selected among their alternatives by using analytic methods and goal programming.