

Punyanuch Chaijaroenthada 2012: The Traveling Salesman Problem with Refueling Constraint. Master of Engineering (Industrial Engineering), Major Field: Industrial Engineering, Department of Industrial Engineering. Thesis Advisor: Associate Professor Anan Mungwattana, Ph.D. 72 pages.

This purpose of this research is to develop methods for solving the well-known traveling salesman problem. Typically, the traveling salesman problems assume that there is no limit on the fuel capacity of the vehicle. However, in real life, when CNG fuel is used for the vehicle, the distance which the vehicle can travel will be limited due to the fuel capacity. In addition, the number of CNG stations is also limited. Therefore, planning before each trip will be very crucial. In this case, planning involves not only the sequence of customers the salesman has to visit, but also the CNG stations he has to stop to fill up the fuel such that the total travel time is minimized. In this research, a mathematical model and six methods for dealing with such situation are developed. The effectiveness of these methods is also examined.

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Student's signature

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Thesis Advisor's signature