SUMMARY OF MASTER'S DISSERTATION

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Title

Introduction of Clean Energy Vehicles in Poland

Abstract

Clean Energy Vehicles (CEV) are slowly getting worldwide attention due to its both economic and environmental benefits. It is becoming increasingly difficult to ignore the energy problems that are appearing all over the world. Over the past century there has been a dramatic increase in usage of energy, especially in transportation sector.

First chapter reviews the literature concerning future portfolio of Clean Energy Vehicles worldwide and describes aim, methodology and originality of the study. The purpose of this study is to analyze the development of Clean Energy Vehicles (CEV) market in Poland while considering economic and energy security issues. Therefore, to investigate and analyze automotive industry and energy sector in Poland in order to create a future scenario of car portfolio in 2030 that will sustain energy security.

Chapter 2 and 3 present qualitative analysis of automotive industry and energy sectors. Automotive is of great importance to the Polish economy, however the sector has been on a decline in recent years, which causes cuts in working force and locating foreign direct investment in other countries. Poland is the biggest hard coal producer in the EU and nearly all of its generated electricity comes from coal-fired power plants. Nevertheless, Poland imports 96.8% of crude oil consumption and 69.4% of Poland's natural gas consumption, which causes a threat to energy security of the country.

Chapter 4 gives insight into optimization model. Explanations of constraints are provided with an outline of an optimization model, restriction goals are being set and the objective function of this research is presented. What is more various preconditions and result of calculation are described as well.

The last chapter provides deliverables of this research and future subject are also identified. One of the more significant findings to emerge from this study is that, Polish society will require a full portfolio of clean energy vehicles and fuel options to achieve both economic and energy security objectives. Those goals cannot be reached by introducing only one type of CEV alone. HEV might be treated as an intermediate step before introduction of e.g. EV. The results of this study indicate that CNG can enjoy a great popularity in Poland if the proper infrastructure is abundant. Furthermore, only strong governmental policy response can help key technologies to evolve truly competitive and world-widely used. What is more, investment in non-technological aspects like consumer-education is crucial since the results of the study show that Polish people have little knowledge of eco-issues and Clean Energy Vehicles.

Key Word (5 words)

CEV, policy, automotive, energy security, oil dependency