

Review of diploma thesis

Title: Implementation of electric vehicles as an example of clean mobility in the case of Business Company

Name of student: Bc. Evgeny Rytov

Diploma work is focused on the study and valuation the possibility of replacing the vehicle fleet of Czech business company vehicles using gasoline to electric cars. Main objective is determining investment and operational costs for this kind of replacement in perspective of future, assessing the effectiveness of this kind of investment for the company and determine the technical and economic feasibility of such kind of replacement.

The first part of diploma thesis contains a description of electric vehicles, their advantages and disadvantages compared to cars with internal combustion engines mainly from ecological point of view. Special attention is paid to hybrid cars. The following information are about the types of usable batteries compared with fuel cells. Attention is also focused to the electromobility level in Europe compared with the Czech Republic with related issue of charging batteries and territorial density of charging stations for public.

In the practical part of thesis the author characterizes the firm First telephone company Ltd., for which **designs three variants of vehicle fleet recovery:**

- 1) Purchase and operation of diesel cars (Škoda Roomster)
- 2) Purchase and operation of hybrid cars (Toyota Yaris Hybrid)
- 3) Purchase and operation of electric cars (Škoda EVC R3),

and three variants of financing:

- a) own capital for purchase,
- b) combination with loan from GM,
- c) combination with loan from CS.

Author after finding capital and operating expenditures of variants calculated NPV as the basis for recommendations to investor. The important role for decision has the NPV

sensitivity analysis on an annual mileage. When the mileage will more than 25,000 km per year is more profitable than diesel car hybrid and for more than 50 thousand km it pays off the electric vehicle with purchase by cash. The calculation of loan is more problematic from calculation accuracy point of view.

I have the following comments and question:

1. I find English language used in the DT on very good level.
2. Calculation is not possible check for accuracy – student did not presented any tables (for example in Excel..).
3. Chapter 6.8. – Residual value of cars – You informed that “such information for Skoda EVC R3 does not exists” and You are taking into account the same value 60% - as for Toyota Hybrid... (simplification). I miss discussion about possibly other residual value of such different types of cars.
4. Tables 7.1.1.-7.1.3 are not clear, how is value of loan?
5. Review of cash – flow (Tables) is obviously presented together with discounted CF (DCF) – this row is missing.

Final conclusions of review:

- a) General topic and needs were achieved.
- b) Self-reliance and initiative – Mr. Rytov worked relatively individually and his activity was on average level.
- c) References usage – Diploma work is based on a large spectrum of reference, which were not used optimally.
- d) Professional level of the Diploma Theses – DT was totally re-constructed, successfully. All objectives and goals were achieved.

The final assessment of the diploma thesis is :

C - good

27. 5. 2015 Ing. Erik Geuss, Ph.D.