

## Review of diploma thesis

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

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The main task of an author of the diploma thesis should be the design of variant of using electric vehicles in certain small firm and the comparison of its with other variants of using of other standard cars from economic point of view.

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 he 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.

The formal aspect of the thesis is more problematic. I have the following comments and question to thesis:

1. Why You did not give Your excel file with calculation on CD? Calculation is not possible check for accuracy.
2. In my opinion, author should be counted with the increase of diesel car service costs, depending on the total number of mileage during the comparison period. 60,000 CZK on begin

of life time is too much but in last year is too little.

3. What is the exact value of the average annual growth of fuel prices on the basis of data from Table 6.6 on page 51?

4. How is value of loan in Tables 7.1.1.-7.1.3. when price is for example 900,000 CZK and prepayment is 270,000 CZK? From Your calculation it seems that only 360,000 CZK. Where is the rest  $630-360 = \mathbf{270 \text{ thousands CZK}}$  ?

5. Review of CF in Tables mean above would be appropriate to add the row with DCF.

The final assessment of the diploma work is

**– D satisfactorily –**

26. 5. 2015

Ing. Miroslav Vitek, CSc.