I. IDENTIFICATION DATA

Thesis name:	**DEVELOPMENT OF A HYBRID POWER PLANT FOR THE POWER SUPPLY OF A RURAL AREA**
Author's name:	**Alena Pavlova**
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Economics, Management and Humanities
Thesis reviewer:	Ing. Mirza Karajica, Ph.D.
Reviewer's department:	External - ČEZ, Performance management of distribution sector

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**challenging**
Evaluation of thesis difficulty of assignment.	
Difficulty of the assignment fully corresponds to the expected difficulty of the master's thesis.	

Satisfaction of assignment	**fulfilled**
Assess that handed thesis meets assignment. Present points of assignment that fell short or were extended. Try to assess importance, impact or cause of each shortcoming.	
The thesis deals with tasks that are fully in accordance with the assignment.	

Method of conception	**correct**
Assess that student has chosen correct approach or solution methods.	
Author has chosen correct approach and solution methods. The shortcomings identified are listed in the section III. – questions for defense.	

Technical level	**B - very good.**
Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.	
The thesis doesn't come up with a completely new and revolutionary solution, but solves still current issues. The author used a sufficient number of expert literature sources.	

Formal and language level, scope of thesis	**B - very good.**
Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.	
The diploma thesis is fully in accordance with the formal and language level including the extent.	

Selection of sources, citation correctness	**A - excellent.**
Present your opinion to student's activity when obtaining and using study materials for thesis creation. Characterize selection of sources. Assess that student used all relevant sources. Verify that all used elements are correctly distinguished from own results and thoughts. Assess that citation ethics has not been breached and that all bibliographic citations are complete and in accordance with citation convention and standards.	
Author used the relevant sources to solve the assignment tasks. All used elements are correctly distinguished from own results and thoughts. Bibliographic citations are complete and in accordance with citation convention and standards.	

Additional commentary and evaluation	
Present your opinion to achieved primary goals of thesis, e.g. level of theoretical results, level and functionality of technical or software conception, publication performance, experimental dexterity etc.	
The thesis is fully balanced in terms of theory and practice. The results of the work are still interesting because of the variable parameters of renewable resources. The main goals of the thesis have been achieved but the results require corrections.	

III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

Summarize thesis aspects that swayed your final evaluation. Please present apt questions which student should answer during defense.

Obviously, the author studied a number of sources and approached work responsibly. I appreciate the achievements of her work. Here are some questions to clarify shortcomings and misunderstandings.

1. **Why did you choose the location of Nazino village in your practical part of thesis?**
2. **The first scenario should use 1005 PV panels (page 39), but you used 685 panels in the partial calculation of power generation for this scenario (page 34). What is the reason for the different number of panels used?**
3. **The output voltage of the designed PV panel set is 72 V, while the input voltage of the inverter and battery set is 48 V. Is this design of the PV panel set correct from a technical point of view?**
4. **On page 36 you state using battery power of 964.8 kW. What is the reason for using a battery of this power?**
5. **Have you considered creating a scenario involving PV panels and batteries without generators, assuming that the December energy production of PV panels would cover all December energy consumption? How many PV panels would be needed, how large should be their area and what would be the economic impact of the scenario compared to the third scenario? How would you deal with the excess of energy production in the summer months?**
6. **What is the project lifetime for which you calculate NPV of scenarios and how did you deal with the different lifetime of the devices?**
7. **Did you use the real or nominal discount rate in the NPV calculation? If you chose a nominal discount, then what was the inflation rate chosen? Explain the selected discount rate of 9.9%. Indicate the relationship between nominal and real discount rates, including the impact on NPV calculation.**
8. **Table 27 shows the total investment for the second scenario. You use a different investment value in the calculation of depreciation on page 62. Explain why.**
9. **Why don't you consider the tax shield in the calculation of CF on page 62?**

I evaluate handed thesis with classification grade **C - good.**

Date: **7.6.2019**   Signature: