THESIS REVIEWER'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Design of wind-diesel Off-Grid power supply system**
Author's name:	**Pavel Shvetsov**
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Economics, Management and Humanities
Thesis reviewer:	Ing. Pavel Pavlátka, Ph.D
Reviewer's department:	Department of Economics, Management and Humanities

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment **challenging**

How demanding was the assigned project?

The aim of the work was to design a hybrid power supply system based on combination of wind and diesel generator. Furthermore thesis consider economic evaluation from a financial point of view.

Fulfilment of assignment **fulfilled**

How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.

Thesis are structured into 4 key parts:

1) Introduction - describing technology of wind power installations. This chapter consider technology of wind power installation, its operations and output power control methods.
2) Chapter 2 - Consumer requirements and analysis of wind potential analyses consumer requirements (including average power consumption values of typical appliances) and wind energy potential in Soyanskoe rural settlement (average monthly and annual wind speeds over long periods of time).
3) Hybrid power supply system, power balance consider the technical specifics of hybrid power supply system based on wind and diesel power generator – describes structure and equipment of such a power plant. Furthermore chapter contains calculation of greenhouse gas emissions.
4) Evaluation and optimization the project from economic and financial point of view. This part describes economic evaluation methodology including general economic parameters and inputs for economic model. The final output are the calculation of economic model and sensitivity analysis.

Assigned task is correctly fulfilled in this thesis and primary goals were successfully achieved

Methodology **outstanding**

Comment on the correctness of the approach and/or the solution methods.

The method net present value (NPV) and internal rate of return (IRR) can be used for economic evaluation based on correct general input data. Approach of economic evaluation bases on the NPV,IRR is correctly applied. Sensitivity analysis are useful complement for result presentation and interpretation.

Technical level **A - excellent.**

Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?

Student by this thesis proved relevant expertise in the field of thesis problematic

Formal and language level, scope of thesis **A - excellent.**

Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?

Notations and formalisms were used properly and are organized in a logical way and presented in relevant structure.

Selection of sources, citation correctness	**A - excellent.**
Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?	
Selection of sources was relevant and bibliographic citations meet the required standards	

Additional commentary and evaluation (optional)
Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.
Considered topic of off-grid/hybrid solutions and its positive influence on energy self-sufficient principle is important and valuable for correct energy policy set up in order to fulfill specific level of the local energy production independence, ecological aspects of energy production and furthermore economical/price aspects of such a energy sources.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

Summarize your opinion on the thesis and explain your final grading. Pose questions that should be answered during the presentation and defense of the student's work.

Thesis

The grade that I award for the thesis is **A - excellent.**

Question:

1) **Please consider substitution of diesel generator by battery solution. What are the PROS/CONS of such a solution? Describe the technical difference and battery requirements for reliable operation.**
2) **How the increasing/decreasing energy and fuel market price could affect the investment decision?**

Date: **17.6.2022** Signature: Ing. Pavel Pavlátka, Ph.D.