I. IDENTIFICATION DATA

Thesis title:	**Machine learning in energy markets**
Author's name:	**Bc. Nikola Sokolová.**
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Computer Science
Thesis reviewer:	Ing. Matej Uhrín
Reviewer's department:	Dpt. of CS / IDA

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment   **ordinarily challenging**
How demanding was the assigned project?

The project does include topics not usually covered during the studies. I rate the assignment as ordinarily challenging, especially for a graduate student.

Fulfilment of assignment   **fulfilled with minor objections**
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.

The thesis fulfills all of the specified sub-tasks. With that being said, the previous focus on the actual energy markets has been lost both in the text and in the solutions provided in the sub-tasks. (Background: The assignment has been modified during the semester due to a better dataset becoming available). Hence, questions such as the following are not discussed or evaluated at all:

- With what probability is the hydro power plant able to provide at least such and such amount of energy at a specified hourly timestep?

While being only one of the sub-tasks, the confidence intervals of predictive methods are in fact the central requirement for successful use of these models in practice. As such, the confidence intervals are discussed only briefly.

Activity and independence when creating final thesis   **B - very good**
Assess whether the student had a positive approach, whether the time limits were met, whether the conception was regularly consulted and whether the student was well prepared for the consultations. Assess the student's ability to work independently.

The author worked independently and made appropriate progress throughout the semester. However, there was a noticeable scarcity of consultations, and when they did occur, they often lacked thorough preparation.

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

The thesis is technically sound. As discussed previously, it lacks a technical discussion on what is required to use such predictive methods for trading purposes. The intention of the thesis was to somewhat focus on trading the predicted profile of the hydro power plant. Hence, the error metrics used for evaluation, RMSE etc., do not truly capture the "usefulness" of the predictive methods in the intended trading task.

Formal level 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?

The thesis is organized well, starting with a good introduction into hydro power plants and finally ending with an experimental section and discussion of results. English is satisfactory.

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?

The author extensively references earlier works on related topics and clearly distinguishes his own work and ideas in the following chapters. The citations used meet the 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.

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

On the whole, the thesis exhibits solid effort. The introductory sections give a good understanding of the problem, the methods selected make sense and are well compared and evaluated. What the thesis lacks is an overall better discussion of how to use the proposed solutions for trading.

The grade that I award for the thesis is **B - very good.**

Date: June 16, 2023   Signature: