I. IDENTIFICATION DATA

Thesis name:	**Co-Simulation of distributed flexibility coordination schemes**
Author's name:	**Herrn Markus Stroot**
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Control Engineering
Thesis reviewer:	Daniel Wagner, MSc.
Reviewer's department:	Department of Control Engineering

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**challenging**

Evaluation of thesis difficulty of assignment.

Linear programming in of itself is a straight-forward topic. However, virtualization and co-simulation for smart energy grids for homes is not so straight forward. I believe that the topic of this thesis in sufficient in its complexity.

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.

I believe the author has demonstrated his mastery of the topic worthy of an advanced degree. The main contribution was the development of co- simulation tools of smart grid entities. The main results are simply not achievable without the completion and implementation of these tools.

Method of conception	**outstanding**

Assess that student has chosen correct approach or solution methods.

The theoretical preliminaries to this thesis were well organized. Figures worked well in highlighting the novel features of Mosaik and simulation architecture. Even someone unfamiliar with the topic could come understand the main highlights after a reading.

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.

This thesis specializes in model predictive control and co-simulation of smart grid entities. With the introduction of smart-grids, the need for control schemes and simulation environment that describe the changes in the power grid throughout the day are becoming more prescient. The powerful tools provided within this thesis provide users with an easily

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

Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.

The author has demonstrated a mastery of the English language. The English in this document is perfect and the results are straight forward. The optimization problems and the notations used therein are well done and easy to read. The main results section, albeit compact, is well written and each graph is readable.

Selection of sources, citation correctness	**B - very good.**

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.

The sources used this thesis are equal parts immediate and relevant. This bibliography is well organized, but I feel like the amount of abbreviations can be reduced. The technical achievements of this author do not infringe on any sources contained therein.

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 language in this thesis presents a difficult topic (for example, mixed integer linear programming) in a straightforward way that enables someone who doesn't specialize in the topic to understand. Every sentence in this document has its unique merits. I commend the author for his mastery of grammar for elucidating the main results. On page 21 the figure goes slightly outside the page margin, but I found no other sissues.

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.

Here are some of my additional thoughts:

Is the noise for power usage truly Gaussian? If so, why 700 W and 1 kW?

Some additional remarks on localized control vs. coordinated control of a neighborhood may be useful.

I evaluate handed thesis with classification grade **A - excellent.**

Date: **18.8.2020**   Signature: