Skoltech
Skolkovo Institute of Science and Technology

Jury Member Report – Doctor of Philosophy thesis.

Name of Candidate: Vladimir Frolov

PhD Program: Engineering Systems

Title of Thesis: Operational and uncertainty aware planning of power systems

Supervisor: Professor Michael Chertkov

Name of the Reviewer: Federico Ibanez

I confirm the absence of any conflict of interest (Alternatively, Reviewer can formulate a possible conflict)	**Date: 30-05-2021**

The purpose of this report is to obtain an independent review from the members of PhD defense Jury before the thesis defense. The members of PhD defense Jury are asked to submit signed copy of the report at least 30 days prior the thesis defense. The Reviewers are asked to bring a copy of the completed report to the thesis defense and to discuss the contents of each report with each other before the thesis defense.

If the reviewers have any queries about the thesis which they wish to raise in advance, please contact the Chair of the Jury.

Reviewer's Report

Reviewers report should contain the following items:

- Brief evaluation of the thesis quality and overall structure of the dissertation.
- The relevance of the topic of dissertation work to its actual content
- The relevance of the methods used in the dissertation
- The scientific significance of the results obtained and their compliance with the international level and current state of the art
- The relevance of the obtained results to applications (if applicable)
- The quality of publications

The summary of issues to be addressed before/during the thesis defense

I consider that the thesis has good contributions and it is validated with realistic simulations. The number of publications in prestigious conferences and journals is another validation of the scientific contribution.

However, the way of presenting the content is cumbersome and not didactic. I think that my comments might improve the quality of the thesis.

1) The introduction of the problem is poor I do not see clearly the structure of the thesis. I do not see enough references and not described at all.
2) The literature review is also poor and online partially mentioned in each chapter. I suggest to have a chapter with a good introduction/motivation of the problem and where the main previous works are presented, highlighting the need of your work.
3) As the idea is to add FACTS probably a brief descriptions of the devices that the author wants to introduce in the grid will be valuable.
4) The algorithms are presented partially in the appendix, I suggest as the algorithms are one of the contribution to include them in the main body of the thesis. In addition, to clarify how they work, a step by step simulation with small number of nodes will help a lot. Even without a comparison to others, just to understand the procedure.
5) Finally, I suggests to improve the writing. Please double check typo errors and try to avoid extremely long paragraphs where the readers get lost and do not get the idea of the paragraph.
6) Some Figures such as Fig. 2.2 are difficult to follow, text very small and it is not clear what the readers must observe on that.

Provisional Recommendation

☐ *I recommend that the candidate should defend the thesis by means of a formal thesis defense*

☒ *I recommend that the candidate should defend the thesis by means of a formal thesis defense only after appropriate changes would be introduced in candidate's thesis according to the recommendations of the present report*

☐ *The thesis is not acceptable and I recommend that the candidate be exempt from the formal thesis defense*