Skoltech
Skolkovo Institute of Science and Technology

Jury Member Report – Doctor of Philosophy thesis.

Name of Candidate: Mile Mitrovic

PhD Program: Engineering Systems

Title of Thesis: Data-driven stochastic AC-OPF using Gaussian processes

Supervisor: Assistant Professor Elena Gryazina
Co-supervisor: Assistant Professor Petr Vorobev

Name of the Reviewer: Federico Ibanez

I confirm the absence of any conflict of interest (Alternatively, Reviewer can formulate a possible conflict)	**Date: 10-10-2023**

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

The thesis is well structure. I like that it is didactic and easy to follow, particularly the first part. The second part is also well structure. I think that having real data will really improve the quality of the thesis, however, it is in good shape.

Same comments might improve the quality of the thesis:

1. When the power is introduced, it is not clear if it is talking about the instantaneous power i.v or the average power V.I* if so, I guess the conjugate is missing.
2. As the author mention there are many ways of improving the OPF, why the author is only focused in machine learning Gaussian Processes, it will be good to compare with other type of ML
3. There are typos when you copy text from your own articules, like "this paper…" and some missing references in p. 67-68.
4. The technique is much faster for than for CC-OPF. My question is, which is the type of OPF used now in the real applications. What will be the benefits of using yours? Is it interesting to have the OPF once per minute?
5. Is it possible to run a IEEE-9 in the lab? What would be the benefits?

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*