

Opponent review of the master thesis “Development of a government support for renewables in Russia”

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The topic of the diploma thesis discusses possible support for renewable energy sources in Russia. First, the various governmental support programs of renewable energy sources are described. The following is a description of the individual support schemes in selected countries. Afterwards, the introduction to the specific conditions of investing in renewable energy sources in Russia is presented. And finally, the proposal of new support schemes for renewables in Russia is introduced.

The division of individual chapters is in accordance with the assignment points. The text of the master thesis is elaborated to the adequate depth and knowledge gained during studying at university is applied. The text of the thesis is very good and technical terms are correct. Also the use of professional literature is extensive and correct.

However, an explanation of assumptions and important parameters used for calculations is sometimes missing. Also the overall clarity in the chapter 4 could be at a slightly higher level. On the other hand, using tables for presenting summaries and results is welcome.

The proposed support scheme for renewable energy sources is based on fuel savings in diesel power stations and using the funds for investing in renewables instead. The analysis shows that for example wind turbine can be economically viable in certain sites with suitable conditions.

In the proposed fixed feed-in tariff, the author performed a detailed calculation of support schemes of individual renewable energy technologies. Further, in the proposal of auction scheme, the author proposes to divide the considered auctions into large-scale and small-scale auctions which will allow the participation of smaller installations. Otherwise, smaller installations would be hardly competitive with large installations. So I appreciate this proposal.

Overall, I evaluate this work very positively, because it seeks to learn from the failures of support schemes in Russia or other countries and thus captures a number of aspects that may affect the success of renewable energy source support schemes.

Questions for the defense:

1. Concerning secluded villages in Russia with cold winters, are there any cases of existing wind or solar power plants? If not in Russia, is it in Alaska? Is the proposed technology including batteries suitable for extreme arctic conditions?
2. Could you explain the sizing of the batteries for polar program examples? And why just 2 hours of nominal power of the renewable installation?
3. In the solar case of polar program example, there are no invertors included in the cost table. What parameters are used in the considered electrical grid?

Final mark evaluation:

B – very good

Recommendation to the defense:

I recommend

Date: 1. 6. 2020

Signature: