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| **WRITTEN REPORT FOR A HIGHER DEGREE BY THESIS** | |
| **Candidate’s Name:** | **Maximilian Zangs** |
| **Student Number:** | **18001377** |
| The examiners were in agreement in their preliminary reports that the thesis contained a substantial body or work on an interesting and timely topic. Proposal have been made to improve the operation of battery energy storage in support of electricity distribution networks that are advances over the prior art and are evidence of an inventive and enquiring mind. Supporting evidence in the form of case studies and simulations have been provided to show the efficacy of the proposals. There is clearly sufficient originality in the work and advancement of the previous state of the art to warrant award of a PhD.  Overall the thesis is well-presented. Some minor errors in text and equations will be notified to the candidate for correction.  During the viva the candidate proved able to discuss the wider context for his work, its motivation and its relation to practice in the energy industry. He also discussed the objectives and performance metrics in the light of various actors in an electricity system.  During detailed examination of the thesis the candidate clearly demonstrated that he was the originator of key ideas and analysis. He defended his ideas well but also recognised instances where his explanations or descriptions could be improved and the need to resolve a small number of discrepancies between text and figures. A list of such items will be supplied to the candidate.  The examiners recommend that the candidate revises the conclusions chapter to include broader recommendations to the industry and the research community on the applicability and value of the ideas across the four major chapters. This in addition to the existing conclusions arising from individual chapters. Similarly, the suggestions for further work should be revised to include recommendations to both industrial deployment and further research, the latter being a chance to pick up discussion held during the viva. The abstract will require some very minor changes to reflect the changes elsewhere.  We make no recommendation on preparing further publications because this is already in hand and entirely appropriate.  The examiners are delighted to recommend award of the degree subject to the minor corrections. | |