Thesis Project Portfolio

Low Rider

(Technical Report)

A Change in the Global Conditions of the Aerospace Industry

(STS Research Paper)

An Undergraduate Thesis

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Bachelor of Science, School of Engineering

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Sociotechnical Synthesis

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Sociotechnical Synthesis

The constant burning of fossil fuels have caused the global emissions to steadily grow. The environment has greatly suffered from these emissions causing phenomena such as global warming and rising water levels. One Industry that adds to the carbon footprint is the aerospace industry. To solve this issue there has been a push towards decreasing the carbon emission and an increased priority on considering environmental factors. One of the proposed solutions is the use of hybrid electric and full electric technology. The capstone research aims to create a conceptual regional hybrid electric turboprop that decreases fuel burn and emissions. Although the solution is technical in nature, there may be several potential social implications. As can be seen throughout history technology has a lasting impact society and can often define entire generations. Hence why it is important to consider the potential social implications of this technology.

To properly study the societal implications a few theories can be applied. First, it is important to understand that the needs of society are what created hybrid electric technology. Second, it is important to consider that over time hybrid electric technology will shape society. This theory is called technological momentum and it will assist with analyzing the solution. The solution will not only solve the technical problem but also aim to maximize the positive effect on society. Furthermore, the research will primarily be composed of literature that gives key insight into hybrid electric technology and the potential implications it will have on society. The research will establish some understanding of the technical aspect of hybrid electric technology which will then be used to establish the benefits and downsides. The research should also show how the current limitations of hybrid electric technology can have immense global societal

implications. When tying the capstone project and the STS research hybrid electric technology will have the intended effect of decreasing carbon emissions for the users. However, there may be many unintended consequences such as endangering developing nations and even the danger of potentially failing to decrease total global emissions.