

Thesis Portfolio

WIND TURBINE BLADES: MODIFICATIONS TO REDUCE AERODYNAMIC NOISE
(Technical Report)

Effects of Clean Energy on Appalachia
(STS Research Paper)

An Undergraduate Thesis

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Bachelor of Science, School of Engineering

Caleb A Owen
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Department of Mechanical and Aerospace Engineering

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Sociotechnical Synthesis

The topic of the STS paper, Effects of Clean Energy on Appalachia, dives into how the Appalachian people have been negatively impacted by conversion from coal to cleaner energy sources like wind energy. This effect is viewed through the STS framework of SCOT, social construction of technology, where society chooses the best technology, out of the almost infinite technological possibilities, by standards it thinks as a collective are best. The “best” technology is not purely monetary but can be driven by social, religious, or cultural factors. In the past 50 years, the coal industry has collapsed as other society views it as no longer the best and has been replaced by newer technologies such as wind, solar, and natural gas.

The topic of Effects of Clean Energy on Appalachia, is almost completely uncoupled from associated technical projects, but whose exploration is not widely discussed and needs more light shed on it. For the former coal miners of Appalachia, who for all intents and purposes can be treated as an ethnic group, the societal drive to change to cleaner fuel sources has not had purely positive results. Widespread unemployment, poverty, and depressed hopelessness have replaced their positive economic output and purpose. Those who champion cleaner energy sources tend to treat the subject as a win-win situation and are either uninformed or uncaring to the plight of those left behind by society's desires. It is the intent of the associated STS paper to remind people to consider the unintended consequences of changing the definition of what they want in a technology.