

**Name:** Susannah Smith

**Year in Course:** 2rd (Junior)

**Topic:** Wind Energy, wind turbines efficiency, OpenFAST

**Mentor:** Mr. Sam Roach, UMass Amherst, Dr. Brenda Haven, Embry Riddle Aeronautical University

**Title:** Improving Wind Turbine efficiency using Modelling and Analysis Software

**Biography:**

Susannah Smith is a junior at Pawling High School and a member of the school’s Science Research program. She plays Varsity Field Hockey in the fall, Varsity Track in the winter, and dances competitively year-round at SSSPA. She is enrolled in Honors courses and 4 AP courses this school year. Susannah participates in Peer Leadership, honor societies, and Interact Club to stay involved in her community. Even through her busy schedule, she finds time to further her knowledge in engineering, architecture, and renewable energy through summer pre-colleges and self- taught classes. After high school, Susannah wants to go to college and work in architecture and sustainability.

Her scientific interests lie in airborne wind energy (AWE), offshore wind energy, renewable power, and the design process of turbines and energy harvesting machines. She is currently beginning a project using the software OpenFAST, where she will explore ways in which individual turbines and wind farms could be improved to be more efficient. In the future, she hopes to apply some of the principles of wind energy to building sustainable structures and housing.

Susannah’s research entitled “Reduction of Turbine Blade Core Shift during the Casting Process” was her first topic of interest that she wanted to research. In her sophomore year, Susannah competed at the annual Somer’s Science Fair, where she was awarded third place in engineering. She plans on entering more competitions next year to present the research she is currently working on.