Hawaii, One Breeze Closer to Energy Independence

Growing up in Hawaii, I've witnessed the energy situation of the islands. According to "Hawaii Energy", Hawaii imported 46.3 million barrels of petroleum the past year just to meet our energy needs. 46.3 million barrels of petroleum is $5.09 billion gone from Hawaii's economy. This problem must be addressed. The solution is simple, Hawaii can use its God-given resources, including the sun, wind, and waves, to supply our energy needs. Over the next 50 years, I can help Hawaii reach its 100% renewable energy goal by implementing a new and more advanced design of wind turbines.

I want to be a part of this huge step that Hawaii is making to become a 100% renewable energy location. I aspire to become an environmental engineer and help preserve Hawaii's unique environment. Although, I have yet to attend college, I have a new idea as to how wind energy turbines can be designed and implemented in Hawaii, using the natural island trade winds.

Wind turbines seem to be quite controversial. We currently have a twelve-turbine wind farm up on the North Shore of Oahu and another farm in Kaheawa, Maui. I've heard various reasons as to why many of the locals are not "pro-wind turbines". One reason is that they're an eyesore. These turbines are huge 300 foot tall pinwheels that can interfere with aesthetics. Another reason is that the blades of the turbines can harm islands animals. Animals may fly into them. The Kaheawa wind farm, for example, is said to have harmed the endangered Hawaiian goose (nēnē), Hawaiian hoary bat (ʻōpeʻapeʻa), Hawaiian petrel (ʻuaʻu), and Newell's shearwater (ʻaʻo).

To address these wind turbine issues, I've ideated a wind turbine design that's much more eye appealing and safer for wildlife. My design is a vertical axis turbine with four right-angled triangle (corners rounded) blades that are attached to the vertical axis. The blades are slightly curved inward, similar to the way that roof vent blades are shaped. This is in comparison to the traditional wind turbine with rotation of three long blades around a center point. My design allows more momentum, due to its centrifugal

force, for the device to keep turning from a trade wind breeze. These wind turbines could be made out of simple sheet metal and be about the size of a large coffee table. They would be small enough to put on building roof-tops instead of being put up in wind turbine farms. This design is much safer for wildlife because it is smaller and will not be implemented in their habitats.

50 years from now, I envision Hawaii to be even more beautiful than it is today. A Hawaii where its natural beauty is preserved and where we no longer import oil. Most of all, I'm excited to be a part of a future Hawaii that has 100% renewable energy, energy that's clean and safe for the islands.