Airloom Energy: The Future of Wind Energy
Modular, Scalable Utility-Scale Wind Energy at a Fraction of the Cost

Airloom Energy has developed a revolutionary wind energy system that is different from conventional wind turbine technology in many significant ways. The Airloom is lower cost, higher efficiency, and more environmentally friendly than traditional wind turbines. In contrast to enormous conventional wind turbines with red flashing lights seen miles away, Airloom's profile is hardly visible from one mile and can eliminate the need for lighting altogether. In addition, Airloom produces more energy per square mile, enabling more efficient use of land. Airloom also uses minimal infrastructure (roads/heavy equipment), posing less disruption to natural surroundings.

Overall, the benefits to the Wyoming landscape, view-plane, and landfills are substantial. These combined factors will help to preserve sweeping Wyoming vistas and respect Wyoming's environmental resources and wildlife, while efficiently utilizing the state's plentiful wind resources to their fullest and generating wind energy-related revenue for the state.

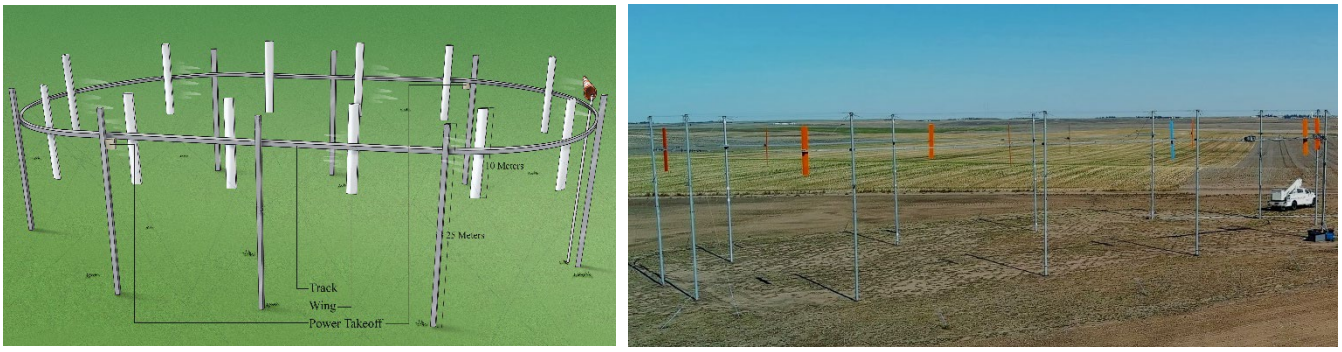

Figure 1: Airloom schematics (left); 5kW prototype in Pine Bluffs, WY

2 minute Airloom introductory video:
https://vimeo.com/manage/videos/395482065/0837474b23

Conventional horizontal axis wind turbines are big and getting bigger. The immense scale of these turbines is a barrier to innovation and mass manufacturing, and limits where utility-scale wind can be installed. Scaling up horizontal axis turbines has reached the point of diminishing returns. Worse, the cost of horizontal turbines has increased recently due to higher materials costs, higher interest rates, permitting, and "not in my backyard" challenges due to their large scale and visual impacts, and lack of offshore infrastructure in the US.

Fig. 2: Horizonal axis wind turbines require massive installation infrastructure, require flashing lights for towers over 200

Airloom's novel wind energy generation technology opens the door to increased efficiency and substantially lower LCOE (levelized cost of energy). Airloom is also much lower CAPEX (capital expense) which is due to: (1) lower transportation and installation costs; (2) smaller parts, which allow for lower cost, automated manufacturing and leveraging existing US-based manufacturing locations and facilities; and (3) less structure per swept area including simple, modular structure that is low cost and scalable. Compared to horizontal axis wind turbines, Airloom's transportation, installation and maintenance costs are an order of magnitude lower. This is because Airloom systems can be transported via standard shipping networks (e.g, standard tractor trailers and 40' containers), and installed with standard crews and industrial equipment (e.g., forklifts). In contrast, GE recently self-proclaimed spending $400M USD on developing the next generation 12MW wind turbine. This R&D expenditure is for a turbine that will likely only be produced in low volume (a few hundred turbines). Turbines for low-wind sites, or other scenarios, will require a new design.

Airloom recently developed a 5 kW-scale prototype in Pine Bluffs, WY with power production closely matching its modeling. Airloom respectfully seeks $7,500,000 in Wyoming Energy Matching Funds to design, build and test a meaningful scale 1MW device in Wyoming that validates the device's power curve (energy production at different wind speeds), and verifies its CAPEX. Airloom will also utilize funding towards environmental impact studies and developing a standards and certification plan.

The global market for new wind energy installations is $125B USD and growing. Airloom has significant cost, structural, and environmental advantages over conventional horizontal axis wind turbines and is well-positioned to capture market share in an expanding wind energy market.

Airloom Energy is proud and grateful for the opportunity to present this proposal plan to the Wyoming Energy Authority's Energy Matching Funds (EMF) Program. Airloom's low cost and siting advantages support the diverse Wyoming energy ecosystem. Airloom is uniquely positioned to utilize Wyoming's vast wind energy resource and be a key component in supporting a comprehensive, "all of the above" energy mix that positions Wyoming to remain a leader in US energy. With the help of Wyoming EMF, Airloom is poised to change the future of wind energy worldwide.