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Coastal Resilience: Localized Wind Power for Coastal Delaware

Abstract: Coastal regions worldwide are under a series of unique environmental threats such as sea level rise and ocean acidification. The response to these problems, as well as other localized problems such as emissions from the Indian River Power Plant, need to be both global action and local adaptation and mitigation. Coastal Delaware can build coastal resilience and help mitigate these complex problems by increasing their local renewable energy sources, the most economically competitive of these likely being wind power. There are several examples of small scale utility projects which are owned by the community in the Eastern US, such as Fox Islands and Hull. This study considers the benefits of small scale 'community' wind power in Southern Delaware and seeks to answer where such a turbine could be located. Southern Delaware may be a prime location for community wind because of high coastal resource, relatively high electricity prices partially due to transmission congestion, and a growing year-round population with a high penetration of electric heating. While there are nine municipally owned electric utilities in Delaware only one, Lewes, lies along the coast; however thanks to Senate Bill 267 and 'community' net metering it would be possible to site a turbine anywhere within Delaware Electric Cooperative or Delmarva Power and Light service territory. It is important to consider that wind turbines are mechanical instruments which produce sound and alter landscapes so a buffer of about 1 mile should be respected from residences.