

Energy Infrastructure poster

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Significant effort has been and is being spent cleaning up soil and groundwater contamination in the U.S. with the purpose of reducing negative impacts to human health and the environment. However, relatively little thought has been given to the potential negative impacts associated with the fossil fuel-based generation of the electricity used to power the remediation systems. One of the first applications to use a renewable energy system to power a full scale groundwater remediation system was the installation of a 10 kW wind turbine at the former Nebraska Ordnance Plant Superfund site. The wind turbine was initially operated in a utility interconnection configuration to reduce the operating costs of a groundwater circulation well. As additional funding was procured, the system was converted to an off-grid configuration using batteries to store energy which was subsequently used to power a three phase submersible groundwater pump. The project has resulted in several publications including those dealing with energy use/conservation, cost benefits including greenhouse gas mitigation, and the use of non site-specific wind velocity data to predict small wind turbine performance. The project was featured in the U.S. Environmental Protection Agency's first primer on green remediation which was published in early 2008, the project is featured on the EPA's Technology Innovation Program website, and it has been the subject of several presentations at national meetings of EPA project managers and technical conferences.