From: Betsy Armstrong
To: Storm, Bill (COMM)
Subject: Docket Numbers: E-002/GS-21-191, TL-21-190, and TL-21-189
Date: Wednesday, September 15, 2021 3:42:02 PM

This is a comment to the proposed Becker solar panel farm.

I object to the solar panel farm proposed for the Becker, MN industrial park. As the recent Texas (cold) and California (wildfires) energy fiascos demonstrate, reliance on renewable energy sources is not dependable. Converting the existing coal plant to gas plant would be the most efficient, dependable, and cost effective. There are serious questions about the ultimate reliability and cost of solar panels and their effect on the environment.

The manufacture of solar panels is a dirty and energy-intensive process. First, raw materials have to be mined: quartz sand for silicon cells, metal ore for thin film cells. Next, these materials have to be treated, following different steps (in the case of silicon cells these are purification, crystallization and wafering). Finally, these upgraded materials have to be manufactured into solar cells, and assembled into modules. All these processes produce air pollution and heavy metal emissions, and they consume energy - which brings about more air pollution, heavy metal emissions and also greenhouse gases. Will this project "outsource" production to other countries to avoid U.S. OSHA and EPA regulations?

The ecological burden of energy use depends on the way electricity was generated. Which type of solar panel used affects the amount of greenhouses gasses emitted per kilowatt-hour of electricity delivered by one square meter of solar cells: multi-crystalline silicon (with an efficiency of 13%), mono-crystalline silicon (14%), ribbon silicon (11.5%), and thin-film cadmium telluride (9%).

Also of concern is solar insolation (the amount of sunlight that the cells receive) and lifetime expectancy. What scientific studies have been done regarding solar insolation specifically for the location of the proposed Becker solar farm? Solar cells degrade with time, what plans have been made for replacement, if any, and at what cost? What guarantees will be made to ensure the stated life expectancy? And if they fail within the stated lifetime, liquidated damages should be specified, perhaps an escrowed amount set aside to ensure that any party to the contract that fails to perform in the future does not leave the cost of performance on the citizens.

Obviously, a major drawback of solar is that it does not work at night. Plus it is weather dependent, little or no sun affects production, lessening efficiency. And solar energy storage is expensive.

Also, solar farms require a huge amount of land that could otherwise be available for industries employing greater numbers of employees. It appears that the proposed site will expand in the future, thereby continuing to keep employment numbers down in the area. The "death" of the area for sustained growth seems imminent.

Betsy Armstrong

--
“Nobody made a greater mistake than he who did nothing because he could do only a little.”
EDMUND BURKE