



A Touchstone Energy® Cooperative 

Genoa Off-site Project

Frequently Asked Questions

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Environmental Regulations and Project Need

Why is Dairyland putting in a “scrubber?”

Dairyland Power Cooperative *is reducing air emissions* (gases released from the combustion processes in the power plant) from our largest existing Genoa and Alma coal power plants. These facilities reliably provide the majority of power for more than a half million people served by the Dairyland system of cooperatives.

Current air emission control technologies, such as the sulfur dioxide scrubber that Dairyland is installing at Genoa, will improve the air quality in the communities where we serve and live. Additionally, these controls are environmentally-responsible solutions necessary for compliance with state and federal air quality regulations such as the Wisconsin Acid Rain Law and the U.S. Environmental Protection Agency (EPA) Clean Air Interstate Rule (CAIR).

Why is Dairyland installing a dry scrubber instead of a wet scrubber?

Dairyland studied both technologies in detail prior to selecting the dry scrubbing technology for our Genoa #3 facility in 2003. At that time, a preliminary decision was made internally for a dry scrubber. In 2006, Dairyland’s air quality team thoroughly reviewed and reconsidered the technology choice again to be sure that changes since that time in technology, etc., would not alter the preliminary decision. Sargent & Lundy, an engineering firm from Chicago, Ill., assisted Dairyland with the studies, which thoroughly evaluated technical considerations for each option. Since there was no regulatory mandate to use a specific design, Dairyland’s decision was made based on the application, performance and economics of our specific plant location and our unique system attributes.

During the investigation, numerous technical concerns were identified regarding the installation of a wet scrubbing process at Genoa #3. Because of the process temperatures and chemical makeup of flue stream, moisture from a wet scrubber can condense on the existing steel chimney liner, causing corrosion. This corrosion would require that either the existing liner be replaced with stainless steel—which is impractical due to the extended plant outage that would be required to install it—or a new chimney would need to be installed. This new chimney would come at a very high cost and the new structure at the constrained Genoa Site would be very difficult to implement without substantial and challenging ducting changes.

The wet scrubber process requires more wastewater treatment facilities, including treatment lagoons, which there is no room for at the Genoa Site. In addition, the wastewater issue raises a new set of permitting and control concerns that are not inherent to the dry process. In winter months there is considerable potential for fogging and icing conditions resulting from the condensing water vapor plume emitted from a wet scrubber stack. Under certain meteorological conditions, the water vapor plume could impair visibility on the highway and create icing on the highway surface. Given the Genoa Site’s close proximity to Hwy. 35, we felt this was a significant public safety issue.

Since the Wisconsin Acid Rain Law was enacted, the Genoa facility has not burned coal with medium to high sulfur content. It is common within the electric utility industry to install wet scrubbers on facilities that burn medium to high sulfur coals; dry scrubbers are typically installed at facilities that burn lower sulfur coals, as Dairyland does at the Genoa #3 facility. Additionally, the Best Available Control Technology (BACT) analysis that Dairyland did for the Genoa #3 sulfur dioxide scrubber construction permitting identified the dry scrubber technology as BACT since it is the most effective condensable particulate matter control option. Particulate matter impacts visibility, making the dry scrubber the most responsible equipment choice.

In addition to technical issues, capital costs for a wet scrubber were expected to be two to three times higher than those of a dry scrubber. It was anticipated that it would require two times more electrical energy to operate a wet scrubber and it would take more staff to operate and maintain the equipment. From an energy conservation standpoint, this is also less advantageous.

One of the arguments for a wet scrubber is that the byproduct can be beneficially reused in the gypsum market. While this is true, the analysis concluded that much of the byproduct would be landfilled because: 1) the plant is not proximate to existing markets for gypsum production and sale, and 2) because there is not enough of the material to entice a gypsum manufacturer to locate near the plant.

Dairyland's long experience as a recycler of fly ash also suggests that even though beneficial reuse in the gypsum market is possible, it is unlikely that 100 percent of the product would be technically acceptable for the application due to operational and other anomalies. Therefore, a landfill would be required for some of the product.

Dairyland has a long history of finding and maximizing beneficial reuses for our coal combustion byproducts. We believe, based on past and current research, that a beneficial reuse of dry scrubbing materials is just as likely as it is with the wet process in the long run. To that end, Dairyland staff is dedicating much time and effort to investigating all possible recycling options for the dry scrubber.

If Dairyland already removes 80 percent of the sulfur with existing technology, why are scrubbers being added for only another 10 percent more removal of sulfur?

It is not correct to say that Dairyland is currently removing 80 percent of the sulfur with existing technology. Currently, there is no "technology" or equipment installed on any of Dairyland's coal-fired boilers to remove sulfur from the coal or sulfur dioxide from the boiler exhaust gases. Since the early 1970s to the early 2000s, the annual sulfur dioxide emissions from all of Dairyland's coal-fired electric generating units declined by 80 percent. Dairyland decreased the annual sulfur dioxide emissions over this period by making strategic purchases of lower sulfur content fuels, not from any technology or equipment installed at Dairyland's coal-fired electric generating units.

It is also not correct to suggest that the scrubbers will only remove another 10 percent of the sulfur. The scrubber currently under construction at the Genoa generating station is designed to reduce the sulfur dioxide in the flue gas by 90 to 95 percent as compared to untreated flue gas. Emission controls this effective will be required to meet emission

limits of the new federal Clean Air Interstate Rule (CAIR). We believe the installation of a scrubber to remove sulfur dioxide is the environmentally responsible approach to managing our air emissions. By capturing the sulfur dioxide before it is emitted to the air, we can recycle or dispose of this material in a way that is more protective of human health and the environment.

Alternatives

What alternatives to siting a new landfill in Vernon County were examined and why were they not chosen?

Dairyland hired RMT, a Wisconsin-based consulting firm that specializes in waste management engineering, to seek and evaluate options for disposal of the byproduct from our Genoa facility. RMT reviewed several possibilities, including existing third party disposal facilities. Existing third party landfills, including the Vernon County landfill and the La Crosse County landfill were not designed or permitted to accept the large volume of coal combustion byproducts that will be produced by Dairyland's scrubber system.

Utilizing Dairyland's current off-site disposal facility near Alma was also considered. Trucking this material over 80 miles one way is not cost effective and not consistent with good environmental stewardship. In addition, landfill capacity at the Alma Off-site must be preserved for when the scrubber at Dairyland's John P. Madgett plant comes online in 2012. None of the options evaluated presented a long-term viable solution. Dairyland will continue to evaluate other alternatives; however, since siting and permitting a landfill takes several years, it is important that we also move forward with that process. As alternative opportunities present themselves, they will be carefully considered.

Did you consider government land?

Government lands have been specifically set aside for the public's use and enjoyment because of their unique characteristics (many include waterways, shore lands and wetlands). Wisconsin Department of Natural Resources (DNR) landfill siting criteria prohibits siting a landfill within 1,000 feet of the boundary of any public park or state natural area, unless the landfill is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway, park or natural area. Because of the DNR siting criteria, Dairyland's consultant did not evaluate government lands as potential landfill sites.

Why can't you recycle this material?

Dairyland has been recycling over 80 percent of the fly ash from the Genoa plant and we intend to pursue opportunities to recycle as much as possible. We plan to continue to recycle as much bottom ash as possible and the majority of the fly ash captured in our precipitator. However, once the scrubber is installed to significantly reduce sulfur dioxide emissions, we may only be able to recycle a fraction of the ash we do today.

Regarding recycling, if you look at Dairyland's history of recycling over 80 percent of the fly ash—and nearly all of the bottom ash—from the coal plants, you can see that this is an option we have chosen in our operations. Nationally, about 30 percent of the fly ash from power plants such as the Genoa plant is recycled, as compared to our 80 percent.

With the changes in ash composition that will be brought on by the environmental projects, we have searched for a viable recycling option to continue that commitment. Unfortunately, viable beneficial reuse options are not available to us right now. For instance, in Wisconsin and other neighboring states it is not permitted to land-apply this byproduct for agricultural use.

We will continue to evaluate our options, including possible future recycling of the ash, as technologies develop and situations (such as reuse restrictions) may change. We also support financially the research and development into these technologies, and it is our sincere hope that additional options will become viable.

If you find beneficial reuse options, would you still need the landfill?

We are currently reusing/recycling more than 80 percent of our coal combustion byproducts. The remainder is disposed of in our Alma Off-site. Our experience with beneficial reuse has indicated that rarely are we able to find reuse options for 100 percent of our byproduct. The beneficial reuse options are typically inconsistent and dependant on several factors including available markets and demand, environmental regulations, seasonal usage, and feasibility of technologies.

Given the uncertainties associated with beneficial reuse of such a large volume of scrubber material, we must prepare for the long-term management and disposal of this material. We hope that over time beneficial reuse options for the scrubber material will be developed, but if not, we will need the disposal option available to ensure reliable power generation for our member cooperatives.

There is also the potential of mining material out of the landfill for beneficial reuse in the future given a viable market demand. However, the landfill would still need to be constructed for storage until such a market is found.

Why can't Dairyland return the ash to the coal mine for disposal on the rail cars that deliver the coal?

Although, this is being done in some states, USEPA and various state regulatory agencies are re-evaluating this disposal process. There are concerns about the potential environmental impacts of this process, in particular the potential for adverse impacts to groundwater. Many coal mines are in direct contact with the groundwater table. Disposal of coal combustion byproducts (CCBs) in unlined mines may allow direct contact between groundwater and the CCBs, and thus enable metals to leach from the CCBs into the groundwater. We believe there is the potential for future substantial legal risk should this occur. Our interest is in meeting the highest environmental standards possible to deal with our waste product. Finally, coal is not delivered by rail at the Genoa plant, and there is no room for construction of a rail facility. Therefore, at this time Dairyland has decided that it is not a feasible strategy to dispose of CCBs in mines.

Since sulfur and lime are by-products of the ash – why doesn't Dairyland process these such that they can be used by farmers on their lands?

It is correct that scrubber material is largely made up of sulfur compounds and lime. In a few states, limited land application is occurring. The reuse of this material for agricultural uses is an area of extensive study. The US Department of Agriculture and

the Electric Power Research Institute are leading this effort in the US. DPC is a sponsor of this research. While there have been promising results from many of the early tests, the practice is currently not accepted by regulatory agencies in Wisconsin, Minnesota or Iowa. We remain hopeful that in the future agriculture application may become a significant reuse option. Additional information on reuse options can be found on our web site (http://www.dairynet.com/energy_resources/bene_reuse.php).

Landowner Communication and Public Information

Why did you contact landowners before holding a public meeting?

We believe it is important that potentially impacted landowners be contacted prior to any public forum regarding a project that could involve their personal property. Our policy is to make sure that landowners and public officials are among the first to know, and that they have a chance to ask questions in person with Dairyland representatives early in the project process. A letter was sent to landowners outside the testing area as the next step to give general background about the project and to inform them of Dairyland's planned public meeting (held in October 2007). Our intent is to work with everyone involved to make sure they have the information they need through personal and public meetings.

Why didn't Dairyland inform the public earlier?

Dairyland began informing landowners and the public very early in what will be a multiyear, state-regulated siting and permitting process outlined by the DNR, which is the permitting agency. The DNR will have final say as to whether the proposed sites meet their stringent landfill siting criteria. DNR regulations for siting, design and operation of landfills have been created specifically to protect the environment. We believe in communicating about the need and impact of projects as soon as we reasonably can, and did so regarding the Genoa Off-site. However, it is important that we have the proper information to communicate.

RMT, the consulting firm based in Madison, just performed the siting study for Dairyland this year, submitting the results to us at the end of June 2007. After reviewing the results of the study internally, Dairyland's Board of Directors approved moving forward with the project on August 17, 2007. We set up a schedule to meet with cooperative members, Dairyland employees, landowners, public officials, media and scheduled a public meeting. All of this occurred in a very tight timeline. Additionally, we delayed some of those communications by a week or so because of the serious flooding and storm damage that occurred in the area in late August 2007.

Are you condemning landowners' property?

We are not seeking to acquire property at this time. Dairyland's first contact with landowners was to generally describe the project and to discuss permission to access the land for testing purposes (test wells and soil borings) and not to discuss acquisition of their property for the landfill itself. There is a possibility that testing would prove the sites to be unacceptable and eliminate them from consideration.

The visits included the delivery of information as required by the State of Wisconsin whenever Dairyland or any other entity with the ability to acquire land rights using

eminent domain is in the process of acquiring land rights. Since an agreement that authorizes testing and soil borings would involve land rights, Dairyland was required to deliver a pamphlet published by the state of Wisconsin Department of Commerce titled “The Rights of Landowners Under Wisconsin Eminent Domain Law” (pursuant to chapter 32.26 (6), Wisconsin Statutes). This is required for any property that Dairyland acquires, including easements for power lines, substations and other facilities.

Facility Operation and Safety

How much truck traffic would this operation require?

It is certainly in the best interest of both area residents and Dairyland to minimize transportation impacts and costs associated with hauling material to a Genoa Off-site facility.

Based on the current estimate of 165,000 cubic yards of material to be disposed of per year, we calculated that approximately 12 pneumatic tankers (37 cubic yard capacity) per day, seven days a week, would carry the dry material from the Genoa power plant to the Genoa Off-site disposal site.

One of the main factors that could impact transportation is the type of coal that is burned. A number of factors could impact trucking, so we have been using a preliminary range of eight to 20 trucks per day, seven days per week. Since we do not have long-term coal contracts in place, our preliminary range was based on a slightly higher sulfur coal blend than we are using today.

Different coal types have differing levels of sulfur would affect the number of trucks. Plus, new opportunities for beneficial reuse and recycling of this material could reduce the amount of trucking in the future.

Do I need to worry about this facility’s operation? (Lights, dust, etc.)

The disposal facility would be operated in compliance with all state and federal environmental regulations. This includes management of dust through operational controls such as road watering, crusting agents and compaction. Dairyland is committed to minimizing impacts to land owners adjacent to Highway 56 and the proposed disposal facility through prudent, considerate management of the trucking schedule and hours of operation at the facility.

Aren’t you just moving the pollution from the air to the ground?

The new air quality controls will improve the air quality by removing more sulfur dioxide, nitrogen oxides and mercury from the emissions from the G-3 plant. By removing more of these contaminants from the stack emissions we can control these materials. Rather than being released to the air, the removed materials along with the fly ash (coal combustion byproducts) will be either beneficially reused or disposed of in a landfill.

Both beneficial reuse and landfill disposal are controlled and regulated to prevent release of these contaminants to the environment. The disposal facility will be constructed with a state-of-the-art composite liner system to provide three layers of groundwater

protection. Additionally, a leachate collection system would be installed. All precipitation and water that comes into contact with the material would be collected and treated.

The site would also have a groundwater monitoring well network that would be sampled and monitored for the life of the facility, plus a minimum of 40 years of post-closure care. All necessary and appropriate controls will be followed so that beneficial reuse or landfill operations are safe to human health and the environment.

Will my well or aquifer be contaminated by the proposed landfill?

The landfill has several safeguards to protect groundwater quality, including a leachate collection system designed to collect water within the landfill liner that has contacted the material. As long as the water (leachate) is collected, it can't pass through the liner system and affect groundwater quality. In addition, the landfill will be constructed with a state-of-the-art composite liner system to provide three layers of groundwater protection. This system would consist of two to four feet of clay or low permeability material, overlain with a geosynthetic clay liner and a geomembrane liner. Thus, nearby well water should not be adversely affected.

Would the landfill be designed to be able to contain material in the event of a severe flood, such as the one in August 2007?

Sites 1 and 2 were specifically chosen as the sites having the best potential for landfill development specifically because of their geographic location and topography. Sites 1 and 2 are both literally bowls on top of the ridge. They were chosen because precipitation and stormwater from the surrounding area would naturally flow around and away from the sites, not through them.

In the state of Wisconsin, landfills are required to be designed to withstand a 25 year, six-hour storm event. The material within the landfill is compacted and totally contained within the walls of the lined disposal facility and would not be able to move beyond the limits of the cell walls. Precipitation and stormwater are routed around the facility, via ditches designed to control flow and minimize erosion. Prior to discharge, stormwater passes through sedimentation basins that are designed to improve water quality and reduce flow rates. Dairyland's Alma Off-site disposal facility received unusually high amounts of rainfall this summer and early fall. Excessive erosion or slope failures at that facility did not occur.

Coal Combustion Byproduct and Landfilled Materials

Some say this is toxic waste. Others say it is caustic. What exactly is this material and is it hazardous?

After the installation of the scrubber, the G-3 unit will be generating coal combustion byproducts that are a combination of scrubber material and fly ash. The scrubber material will be primarily calcium sulfite with lesser amounts of calcium sulfate, calcium hydroxide (lime) and calcium carbonate. Fly ash is primarily iron oxides, aluminum oxides, calcium oxide and silica. This byproduct also contains oxidized forms of other naturally occurring elements found in coal, such as arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium and zinc.

The toxicity of a substance is its ability to cause harmful effects. All chemicals can cause harm. When only a very large amount of the substance can cause damage, the substance is considered to be relatively non-toxic. When a small amount can be harmful, the chemical is considered toxic.

Hazardous is not the same as toxic. The toxicity of a substance is the potential of that substance to cause harm, and is only one factor in determining whether a hazard exists. The hazard of a chemical is the practical likelihood that the chemical will cause harm. This material is not listed by the U.S. Environmental Protection Agency (USEPA) as a hazardous waste. A non-listed solid waste is determined to be hazardous by USEPA only if it is characterized as ignitable, corrosive, reactive or toxic.

Available information on scrubber material that has been tested indicates that it does not exhibit these characteristics. Therefore, it is a non-hazardous waste. In fact fly ash, bottom ash, slag, and flue gas emission control waste, generated primarily from the combustion of coal are specifically identified by USEPA as non-hazardous wastes.

Dairyland's testing of G-3 fly ash has consistently indicated that the fly ash is not hazardous. Recent studies indicate that scrubber material, minus the fly ash, has trace metal content less than fly ash and comparable to that of soil. It is expected that the byproducts generated at G-3 in the future (after the scrubber is installed) will have lower concentrations of trace metals than the current fly ash and thus will also not have toxic characteristics. Dairyland has and will continue to test and characterize its byproducts.

Caustic is a term that is given to any material capable of burning, corroding, dissolving, or eating away by chemical action. USEPA defines corrosive (caustic) as having a pH of less than 2 or greater than 12.5. Our current information on G-3 fly ash and scrubber material from other facilities indicate that byproducts have a pH in the 12.2 to 12.3 range. (For comparison, barn lime has a pH of 12.5 and dishwasher detergent has a pH of 11.) Since characteristics can vary, Dairyland will conduct further pH testing of byproducts after the scrubber is installed to ensure this material meets USEPA standards for non-hazardous wastes.

Is the coal combustion byproduct radioactive?

Radioactivity is present everywhere in North America. Naturally occurring radioactive material (NORM) is found in cities, in the mountains and everywhere. The levels of naturally occurring radioactivity will vary in different parts of the country. Some western states have higher levels of NORM than are found in eastern areas.

The United States Geological Survey (USGS) has published a fact sheet on radioactivity in coal ash [“Radioactive Elements in Coal and Fly Ash: Abundance, Forms, and Environmental Significance”](#) (PDF). Trace elements in coal include uranium, thorium and the numerous decay products, including radium and radon. However, this USGS pamphlet concludes the “Radioactive elements in coal and fly ash should not be sources of alarm. The vast majority of coal and the majority of fly ash are not significantly enriched with radioactive elements, or in associated radioactivity, compared to common soils or rocks.” Furthermore, “Limited measurements of dissolved uranium and radium in water leachates of fly ash and in natural water from some ash disposal sites indicate that

dissolved concentrations of these radioactive elements are below levels of human health concern.”

Your current Alma landfill allows disposal of asbestos. Will you dispose of asbestos in the Genoa Off-site?

Dairyland has permitted our Alma Off-site landfills with the DNR to allow for safe disposal of asbestos. This authorized disposal of asbestos has been conducted in full compliance with DNR regulations. The Genoa landfill will be for coal combustion byproducts only. No asbestos will be placed in the landfill, nor will we seek any approval at a later date to do so.

Tax Impacts and Zoning Requirements

I’ve heard Dairyland is tax-exempt.

Does this mean that 600 acres will be taken off the tax rolls?

The property would still be taxed, but a portion of it would be in the form of a gross receipts tax. Dairyland, like all utilities in Wisconsin, pays a 1.59 percent gross receipts tax on income in lieu of paying property taxes on our utility property. Counties and municipalities receive shared revenue payments from the state for utility property located in their jurisdiction which is intended to roughly substitute for property taxes. In the case of a landfill, the operating cells and facilities would be subject to state shared revenue payments to the Town of Harmony and Vernon County. Dairyland would continue to pay property taxes indefinitely on the portion of the project which is nonoperating, including all buffer areas.

What happens if the Town of Harmony denies the necessary zoning permits and approvals for the Genoa Off-site facility?

Dairyland is committed to working with the public and local officials to obtain all applicable zoning permits and approvals for the facility. The acquisition of zoning and other local approvals is governed by Wisconsin’s landfill siting law. The law provides a process for Dairyland to engage in negotiations with a local committee representing the Town and any other affected municipality to address economic, social and land use impacts of the facility. If the parties are unable to reach an agreement, there is a procedure for submitting issues to binding arbitration. The process is overseen by the Wisconsin Waste Facility Siting Board, an impartial body of the Wisconsin Department of Administration.

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