Joint Application of Wisconsin Electric Power, Madison Gas and Electric Company, and WPPI Energy for a Certificate of Authority to Construct a New Wastewater Treatment System at the Elm Road Generating Station, Milwaukee County, Wisconsin

FINAL DECISION

On February 16, 2021, pursuant to Wis. Stat. § 196.49 and Wis. Admin. Code ch. PSC 112, Wisconsin Electric Power Company (WEPCO), Madison Gas and Electric Company (MGE), and WPPI Energy (WPPI) (together, applicants) filed an application with the Commission for authority to construct a new wastewater treatment system at the Elm Road Generating Station (ERGS), located in Milwaukee County, Wisconsin. (PSC REF#: 404953 confidential, PSC REF#: 404954 public.) The applicants propose to construct the facilities to comply with the U.S. Environmental Protection Agency’s (EPA) Effluent Limitation Guidelines and Standards for the Steam Electric Power Generating Point Source Category (ELG Rule). The estimated cost of the project is $89.5 million, excluding allowance for funds used during construction (AFUDC).

The application is GRANTED, subject to conditions.

Introduction

On September 30, 2021 the Commission issued a Notice of Investigation opening this docket. (PSC REF#: 421802.) The notice stated that the Commission intended to conduct its investigation without a hearing. No hearing was requested or held. The Commission issued a Draft Final Decision for Comment with a comment period of 12 days. Comments were received
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from Clean Wisconsin (PSC REF#: 427221), the Citizens Utility Board (PSC REF#: 427225), and the applicants (PSC REF#: 427230). Pursuant to Wis. Stat. § 196.49(5r)(b), the Commission is required to take final action on the application within 90 days after the Commission issues a notice opening the docket, unless an extension of time is granted.

**Findings of Fact**

1. The applicants are public utilities, as defined in Wis. Stat. § 196.01(5)(a), that provide electric service to customers in Wisconsin. The applicants’ proposed project consists of installing additional wastewater treatment equipment at the existing ERGS, at an estimated cost of $89.5 million.

2. No unusual circumstances suggesting the likelihood of significant environmental consequences are associated with the proposed project.

3. Alternatives to the proposed project have been considered, but no other reasonable alternatives to the project exist that could provide adequate service in a more reliable, timely, cost-effective, and environmentally responsible manner.

4. Energy conservation, renewable resources, or other energy priorities listed in Wis. Stat. §§ 1.12 and 196.025, or their combination, are not cost-effective, technically feasible, or environmentally-sound alternatives to the proposed project.

5. The general public interest and public convenience and necessity require completion of the proposed project.

6. Completion of the proposed project at the estimated cost will not substantially impair the efficiency of the applicants’ service, will not provide facilities unreasonably in excess of probable future requirements, and when placed in operation, will not add to the cost of service
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without proportionately increasing the value or available quantity thereof. Wis. Stat.
§ 196.49(3)(b).

7. Critical proposed facilities that could be damaged by flooding are not located in
the 100-year flood plain. Consequently, there is no flood risk to the project per 1985 Executive
Order 73 (Order 73).

Conclusions of Law

1. The applicants are public utilities as defined in Wis. Stat. § 196.01(5)(a).

2. The Commission has jurisdiction under Wis. Stat. §§ 1.11, 1.12, 196.02, 196.025,
196.395, 196.49, and 196.85 and Wis. Admin. Code chs. PSC 4 and 112, to issue a Certificate
and Order authorizing the applicants, as electric public utilities, to construct and place in
operation the facilities described in this Final Decision, subject to the conditions stated in this
Final Decision.

3. The Commission has authority under Wis. Stat. § 15.02(4) to delegate to the
Administrator of the Division of Energy Regulation and Analysis those functions vested by law
as enumerated above. It has delegated the authority to the Administrator of the Division of
Energy Regulation and Analysis to issue a Certificate of Authority for the proposed project.

4. The estimated gross cost of this project exceeds the minimum threshold of utility
projects requiring Commission review and approval under Wis. Stat. § 196.49 and Wis. Admin.
Code § PSC 112.05.

5. The Commission may impose any term, condition, or requirement necessary to
protect the public interest pursuant to Wis. Stat. §§ 196.02, 196.395, and 196.49.
This is a Type III action under Wis. Admin. Code § PSC 4.10(3), and requires neither an environmental impact statement (EIS) under Wis. Stat. § 1.11 nor an environmental assessment (EA).

Opinion

WEPCO is an investor-owned, Class A, electric public utility, as defined in Wis. Stat. § 196.01(5)(a), engaged in rendering electric service to portions of Wisconsin.

MGE is an investor-owned public utility, as defined in Wis. Stat. § 196.01(5), that is engaged in the generation and distribution of electricity to approximately 153,000 customers in Dane County, and in the purchase, transportation, and distribution of natural gas to customers in Columbia, Crawford, Dane, Iowa, Juneau, Monroe, and Vernon Counties. MGE is a wholly-owned subsidiary of MGE Energy, Inc., which is a holding company as defined in Wis. Stat. § 196.795(1)(h).

WPPI is a municipal electric company formed pursuant to Wis. Stat. § 66.0825. It currently supplies all of the electric power requirements of its 51 municipal members, which operate electric utilities serving a combined population of more than 200,000 customers in their respective cities and villages in Wisconsin, Upper Michigan, and Iowa. Forty-one of WPPI’s municipal members are located in Wisconsin.

ERGS and the proposed project are located at 10800 South Chicago Road, Oak Creek, Milwaukee County, Wisconsin. ERGS is comprised of two fossil-fueled generating units, each with a pulverized-coal-fired boiler and steam turbine generator. Both Units 1 and 2 are 615-megawatt plants, with Unit 1 placed into operation in 2010 and Unit 2 placed into operation in 2011. The two units have an advanced air quality control system consisting of selective
catalytic reduction equipment and wet flue gas desulfurization (FGD) controls to reduce emissions of nitrogen oxides and sulfur dioxides, respectively. Additionally, particulate emissions are controlled in ERGS’ units with baghouse filters to remove fly ash. Bottom ash is removed by a submerged conveyor system. One 550-foot chimney supports both generating units.

The applicants propose to install additional wastewater treatment equipment at the existing ERGS in Oak Creek, Wisconsin, to comply with the EPA’s ELG Rule. The ELG Rule requirements are incorporated into ERGS’ Wisconsin Pollutant Discharge Elimination System (WPDES) permit issued by the Wisconsin Department of Natural Resources (DNR). The WPDES permit requires new wastewater treatment equipment to be in service to meet the ELG Rule requirements by December 14, 2023. The equipment will be used to further treat FGD wastewater from ERGS Units 1 and 2 prior to discharge to Lake Michigan. ERGS currently treats FGD wastewater; however, further treatment of wastewater is required to meet the additional ELG discharge requirements.

The applicants are required to obtain from the Commission construction authority for the project under Wis. Stat. § 196.49 and Wis. Admin. Code ch. PSC 112, as the cost of the project exceeds the construction cost filing threshold listed in Wis. Stat. § 196.49(5g) and Wis. Admin. Code § PSC 112.05(3).

**Project Description and Purpose**

The proposed project includes installation of a new biological and ultrafiltration wastewater treatment system to reduce certain trace metals from FGD wastewater to levels at or below ELG Rule requirements prior to discharge; modifications to the existing wastewater
treatment system to segregate FGD wastewater and site wastewater into separate trains to meet the new discharge limitations in the most cost-effective manner; addition of biological treatment systems that use microorganisms to consume nutrients, and reduce and precipitate low-solubility material; and testing prior to commercial operation to verify that FGD wastewater treatment system and site wastewater treatment system performance meet ELG requirements.

The microorganisms used in the biological treatment systems will digest the organic matter in the wastewater, which creates a sludge that can be dewatered by a filter press and disposed of in a landfill or other waste site. The treated wastewater will be pumped to discharge. These systems will consist of numerous tanks, pumps, chemicals, and other systems (air, water, etc.) to function properly.

The equipment that will be impacted by the new systems and modifications to the existing system include tanks, sumps, pumps, bioreactors, ultrafilters, sand filters, heat exchangers, and chemical systems. Foundations, structural steel, access, instrumentation, controls, power, heat trace, building system components, and other balance of plant systems will also be required to support these systems’ proper operation. Additionally, most of the project will be constructed within the footprint of an existing storm water detention pond at ERGS.

The applicants’ estimated cost of the proposed project is $89.5 million. The estimated costs are based on year-of-occurrence dollars, with construction taking place in 2022 and 2023, and do not include AFUDC.

**Project Need**

The applicants propose to install these wastewater control technologies at ERGS to meet environmental compliance requirements related to the ELG Rule at a reasonable cost. The EPA
published the ELG Rule in the Federal Register on November 3, 2015, and it took effect in January 2016. In 2017, the EPA began reevaluating portions of the ELG Rule, including the wet FGD wastewater requirements. In September 2017, the EPA issued a final rule (Postponement Rule) to postpone the earliest compliance date to November 1, 2020, while it reevaluated the wet FGD limits and other requirements. The Postponement Rule left unchanged the latest ELG Rule compliance date of December 31, 2023, and the DNR reflected that compliance date in ERGS’ WPDES permit. In August 2020, the EPA Administrator signed the ELG Reconsideration Rule to revise the treatment technology requirements related to wet FGD wastewater at existing facilities. The EPA published this final rule in the Federal Register on October 13, 2020, and it became effective on December 14, 2020. ERGS’ WPDES permit established an applicability date of December 31, 2023, for the ELG Rule wet FGD wastewater discharge limits, or 36 months after the effective date of the rule, whichever is earlier. Therefore, this project must be in service and meeting the new permit requirements by December 14, 2023.

In general, the ELG Rule establishes effluent limitations for discharges resulting from the operation of a steam-powered electric generating unit utilizing any type of fossil or nuclear fuel. The requirements of the ELG Rule apply to discharges of wastewater associated with the following processes and byproducts, among others:

- FGD Wastewater
- Fly Ash Transport Water
- Bottom Ash Transport Water
- Combustion Residuals Leachate
- Flue Gas Mercury Control Wastewater
The wastewater treatment equipment system at ERGS needs to be upgraded to meet the recently-issued revised final ELG Rule that establishes discharge limitations for FGD wastewater based on the best achievable technology.

The Commission may authorize the construction of the project if it satisfies the requirements under Wis. Stat. § 196.49, Wis. Admin. Code ch. PSC 112, and other applicable regulations as described below. Wisconsin Stat. § 196.49(2) states:

[n]o public utility may begin the construction, installation or operation of any new plant, equipment, property or facility, nor the construction or installation of any extension, improvement or addition to its existing plant, equipment, property, apparatus or facilities unless the public utility has complied with any applicable rule or order of the commission.

The Commission may require by rule or special order that no addition to a plant “may proceed until the commission has certified that public convenience and necessity require the project.” Wis. Stat. § 196.49(3).

Wisconsin. Stat. § 196.49(3)(b) states:

[t]he Commission may refuse to certify a project if it appears that the completion of the project will do any of the following:
1. Substantially impair the efficiency of the service of the public utility.
2. Provide facilities unreasonably in excess of the probable future requirements.
3. When placed in operation, add to the cost of service without proportionately increasing the value or available quantity of service unless the public utility waives consideration by the commission, in the fixation of rates, of such consequent increase of cost of service.

Commission staff’s investigation of the project indicated that the proposed project would not likely result in any of the outcomes listed in Wis. Stat. § 196.49(3)(b).
Therefore, the Commission finds that the proposed project is not likely to result in any of the outcomes listed in Wis. Stat. § 196.49(3)(b), and therefore is reasonable and in the public interest.

Alternatives

System Alternatives

The applicants considered several system alternatives to assess their relative benefits compared to the proposed project. These alternatives included:

1. Constructing evaporation ponds;
2. Constructing a waste heat cooling tower;
3. Installing a slip stream spray dryer;
4. Installing a gas-fired spray dryer; and
5. Installing a traditional evaporator and a crystallizer.

The applicants evaluated each of these options based on the following objectives:

1. Pursuing demonstrated technologies with a high certainty of meeting ELG Rule numeric effluent limitation requirements for FGD wastewater;
2. Utilizing technologies proven and implemented to meet the ELG Rule requirements for an FGD wastewater flowrate of at least 300 gallons per minute; and
3. Minimizing the overall cost of ELG Rule compliance.

Evaporation ponds were determined to be relatively easy to operate. However, they may be affected by the weather and typically require significant footprint to provide sufficient area for
seasonal equalization and water evaporation. Since annual precipitation and annual evaporation rates are nearly the same at ERGS, an evaporation pond was deemed to not be feasible.

A waste heat cooling tower would require a significant amount of waste heat to evaporate the required FGD wastewater. Further, even if a source of waste heat were identified, the waste heat cooling tower would need to be composed of exotic alloys at significant cost and regularly shut down to remove and clean the system, and the resulting cooling tower drift could be an ELG Rule compliance issue. Finally, waste heat cooling towers have not been proven for FGD wastewater in power plants.

A slip stream spray dryer was determined to be a demonstrated technology for ELG Rule compliance. However, the impact to unit efficiency due to bypassing increasing portions of the flue gas around the air heater tends to exceed the capital cost savings at high flow rates. The specific flow rate where this occurs would be dependent on economizer outlet rate air heater efficiency and is not economically feasible at ERGS at 300 gallons per minute.

A gas-fired spray dryer could achieve compliance with the ELG Rule. However, the technology is not a proven or implemented technology for FGD wastewater treatment.

The key advantages to a traditional evaporator are that these systems produce a high-quality water byproduct that could be reused within the existing facility, result in a zero-liquid discharge from the FGD wastewater treatment stream, and are proven technologies for FGD wastewater treatment. The main disadvantages are that they typically require exotic alloys for materials of construction and result in a brine stream that requires further treatment or encapsulation to comply with the ELG Rule. The key advantages to a crystallizer are that the brine stream produced from a traditional evaporator is further concentrated into a solid that can
be disposed of at a landfill, which results in a zero-liquid discharge; and that it is a proven
technology in FGD treatment applications. However, this equipment comes with high capital
costs since it is comprised primarily of exotic alloy material. When paired with a traditional
evaporator, installing a crystallizer was found to achieve the evaluation’s objectives, so capital
and operating costs were calculated.

Biological treatment systems are proven technologies for ELG Rule compliance to
achieve the reduction of nitrogen compounds and selenium. A significant advantage to
biological treatment systems is that they are proven and cost-competitive in FGD wastewater
treatment applications. The key disadvantage to biological treatment systems is that they are
limited to influent water quality characteristics.

Due to the lower capital and operating cost and the technology meeting the evaluation
objectives, the biological treatment system was determined to be the most cost-effective
technology to comply with the ELG Rule.

For the purposes of this investigation, the Commission deems reasonable the applicants’
consideration of system alternatives. The Commission further finds that the applicants’ basis for
choosing the proposed project over other system alternatives is reasonable.

**Energy Efficiency, Conservation, and Alternative Sources of Electric Supply**

The primary reason to install the proposed project is to comply with the EPA’s ELG Rule,
with an applicability deadline of December 14, 2023. Energy efficiency, conservation, and
alternative sources of supply, or their combination, are unlikely to resolve this issue and meet the
amount of capacity that is currently provided by ERGS in this timeframe. No special
circumstances exist that would lead a decision-maker to conclude that additional conservation
activities, renewable resources, or any other energy priorities listed in Wis. Stat. §§ 1.12 and 196.025 would be a cost-effective alternative to this project.

The Commission finds that energy efficiency, conservation, and other sources of electric supply are not technically feasible, cost-effective alternatives to the project.

Environmental Review

The proposed wastewater treatment system project was reviewed by the Commission for environmental impacts. The environmental review focused particularly on impacts to archeological resources, endangered and sensitive species, and wetlands and waterways.

Archeological and Historic Resource Review

A search of the Wisconsin Historical Society’s Wisconsin Historic Preservation database revealed no known archaeological or historic resources near the proposed project. No known cemeteries or burial sites are located in the project vicinity. The construction of the proposed facilities is not expected to affect any historic properties under Wis. Stat. § 44.40.

The project was reviewed for the possible occurrence of archaeological resources. The review has identified no archaeological, cemetery, or burial sites within the project area. In addition, the proposed project will not have adverse effect on architectural/historic properties in the area.

Sensitive Species

No state- or federally-listed species were detected during the environmental review of the project; thus, no impacts to these species are anticipated.
Flood Hazard Review

The proposed project was reviewed for potential flood hazard exposure per Order 73. As no flood-sensitive facilities are to be located in or near any designated flood plain or flood-prone areas, there is no significant flood risk to the proposed project.

Wetlands and Waterways

No wetlands or waterways are known to occur within the project; thus no impact to these resources is anticipated.

Federal, State, and Local Permits

The applicants state that they will obtain all necessary federal, state, and local permits prior to commencing construction of the proposed project. For a full listing of required permits and authorizations, refer to Section IX of the Application for this project. (PSC REF#: 404953 confidential, PSC REF#: 404954 public.)

Compliance with the Wisconsin Environmental Policy Act

This is a Type III action under Wis. Admin. Code § PSC 4.10(3). No unusual circumstances suggesting the likelihood of significant environmental effects on the human environment have come to the Commission’s attention. Preparation of an EIS under Wis. Stat. § 1.11 or an EA is not required.

Project Cost and Construction Schedule

Construction of the proposed project as authorized is estimated to cost $89.5 million. The estimated costs are based on year-of-occurrence dollars, with construction taking place in 2022 and 2023, and do not include AFUDC. Project cost will be allocated to WEPCO, MGE,
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and WPPI in accordance with their ownership interest in ERGS. Construction is expected to begin in March 2022 with completion by June 2023.

Certificate

The applicants are granted a Certificate of Authority authorizing the applicants to install additional wastewater treatment equipment at ERGS, as described in their application and as modified by this Final Decision, at an estimated total cost of $89.5 million. The Commission grants the applicants a Certificate pursuant to Wis. Stat. § 196.49(3)(b) and Wis. Admin. Code PSC § 112.07(1) to proceed with the project.

Order

1. The applicants are granted authority to install additional wastewater treatment equipment at ERGS, as described in their application and as modified by this Final Decision.

2. The estimated cost of the proposed project is $89.5 million.

3. If it is discovered or identified that the project cost, including force majeure costs, may exceed the estimated cost by more than 10 percent, the applicants shall promptly notify the Commission within 30 days of discovery of the possible change or cost increase.

4. The applicants shall notify and obtain approval from the Commission before proceeding with any substantial change in the scope, design, size, or location of the approved project.

5. The applicants shall obtain all necessary federal, state, and local permits prior to commencement of construction.

6. The applicants shall submit to the Commission the final actual costs, segregated by major accounts, within one year after the in-service date. For those accounts or categories
where actual costs deviate significantly from those authorized, applicants shall itemize and explain the reasons for such deviations in the final cost report.

7. Beginning with the quarter ending March 31, 2022, and within 30 days of the end of each quarter thereafter and continuing until the authorized facilities are fully operational, the applicants shall submit quarterly progress reports to the Commission that include all of the following:
   a. The date that construction commences;
   b. Major construction and environmental milestones, including permits obtained, by agency, subject, and date;
   c. Summaries of the status of construction, the anticipated in-service date, and the overall percent of physical completion;
   d. Actual project costs to-date segregated by line item as reflected in the cost breakdown listed in this Final Decision;
   e. Once each year, a revised total cost estimate for the project; and
   f. The date that the facilities are placed in service.

8. Beginning with the year ending December 31, 2022, and within 30 days of the end of each year thereafter and continuing until the year ending December 31, 2035, the applicants shall submit annual progress reports to the Commission that include any needed investments for purposes of co-firing ERGS units with both coal and natural gas, or ultimately fuel those units exclusively with natural gas.
9. If the applicants do not begin on-site physical construction of the authorized project within one year of the effective date of this Final Decision, the Certificate authorizing the approved project for which construction has not commenced shall become void unless they:
   a. File a written request for an extension of time with the Commission before the effective date on which the Certificate becomes void; and
   b. Are granted an extension by the Commission.

10. If the applicants have not begun on-site physical construction of the authorized project and have not filed a written request for an extension before the date that this Certificate becomes void, the applicants shall inform the Commission of those facts within 20 days after the date on which the Certificate becomes void.

11. This Final Decision takes effect one day after the date of service.

12. Jurisdiction is retained.

Dated at Madison, Wisconsin, December 14, 2021

For the Commission:

[Signature]

Martin R. Day
Administrator
Division of Energy Regulation and Analysis


See attached Notice of Rights
NOTICE OF RIGHTS FOR REHEARING OR JUDICIAL REVIEW, THE TIMES ALLOWED FOR EACH, AND THE IDENTIFICATION OF THE PARTY TO BE NAMED AS RESPONDENT

The following notice is served on you as part of the Commission’s written decision. This general notice is for the purpose of ensuring compliance with Wis. Stat. § 227.48(2), and does not constitute a conclusion or admission that any particular party or person is necessarily aggrieved or that any particular decision or order is final or judicially reviewable.

PETITION FOR REHEARING
If this decision is an order following a contested case proceeding as defined in Wis. Stat. § 227.01(3), a person aggrieved by the decision has a right to petition the Commission for rehearing within 20 days of the date of service of this decision, as provided in Wis. Stat. § 227.49. The date of service is shown on the first page. If there is no date on the first page, the date of service is shown immediately above the signature line. The petition for rehearing must be filed with the Public Service Commission of Wisconsin and served on the parties. An appeal of this decision may also be taken directly to circuit court through the filing of a petition for judicial review. It is not necessary to first petition for rehearing.

PETITION FOR JUDICIAL REVIEW
A person aggrieved by this decision has a right to petition for judicial review as provided in Wis. Stat. § 227.53. In a contested case, the petition must be filed in circuit court and served upon the Public Service Commission of Wisconsin within 30 days of the date of service of this decision if there has been no petition for rehearing. If a timely petition for rehearing has been filed, the petition for judicial review must be filed within 30 days of the date of service of the order finally disposing of the petition for rehearing, or within 30 days after the final disposition of the petition for rehearing by operation of law pursuant to Wis. Stat. § 227.49(5), whichever is sooner. If an untimely petition for rehearing is filed, the 30-day period to petition for judicial review commences the date the Commission serves its original decision.1 The Public Service Commission of Wisconsin must be named as respondent in the petition for judicial review.

If this decision is an order denying rehearing, a person aggrieved who wishes to appeal must seek judicial review rather than rehearing. A second petition for rehearing is not permitted.

Revised: March 27, 2013

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1 See Currier v. Wisconsin Dep’t of Revenue, 2006 WI App 12, 288 Wis. 2d 693, 709 N.W.2d 520.