COMMERCE DEPARTMENT

Memo

Date: March 16, 2020

To: Will Seuffert – Minnesota Public Utilities Commission

From: Suzanne Steinhauer – Energy Environmental Review and Analysis

Subject: EERA Recommendations on Review of Solar and Wind Decommissioning Plans (Commission Docket Number E999/M-17-123)

Recommendations: Based on its review of existing decommissioning plans, and building on its earlier recommendations, Department of Commerce (Department) Energy Environmental Review and Analysis (EERA) staff offer additional recommendations to the Commission on the content and proposed review process for decommissioning plans. These recommendations include a proposed schedule for implementing a regular 5-year review of all decommissioning plans.

Background

Site permits for wind and solar facilities issued by the Minnesota Public Utilities Commission (Commission) require permittees to file decommissioning plans prior to commercial operation. The intent of the decommissioning plan is to ensure that the site is restored at the end of the energy facility's useful life, and that the restoration costs are borne by the permittee.

As authorized by the Commission, the Department convened a Solar and Wind Decommissioning Working Group (working group) to gather stakeholder input on best practices for decommissioning plans for solar and wind projects. The working group's report was issued on August 31, 2018. The Commission subsequently requested comments on the working group's report and on EERA's recommendations for implementing the guidance of the report.[1] Several agencies and organizations provided comments; EERA staff provided comments on a possible review process for decommissioning plans.[2]

Overview of Wind and Solar Projects

Subsequent to the close of the Commission's comment period, EERA staff reviewed decommissioning plans on file for the wind projects and solar projects permitted, or seeking permitting, from the Commission (or its predecessor the Minnesota Environmental Quality Board (MEQB)). A summary of Commission-permitted wind and solar facilities is provided in Attachment A.

[1] Notice of Comment Period on Department of Commerce Decommissioning Report and Recommendations, July 22, 2019, eDockets Number 20197-154548-01.

[2] Reply Comments on Decommissioning Report and Recommendations, Minnesota Department of Commerce, EERA, November 18, 2019, eDockets Number 201911-157639-01.

Table 1 provides an overview of the status of wind and solar projects permitted by (or seeking permitting from) the Commission. Seven wind projects have been or are in the process of repowering.[3]

Table 1 Wind and Solar Facilities by Permit Status

Facility Status		Wind Facilities	Total MW Wind	Solar Facilities	Total MW Solar
Permitted	Operating	35[4]	3,328	3	262
	Pre-construction	2	284	0	0
	Under Construction	2	450	0	0
	Total Permitted	39	4,062	3	262
Application Submitted	Active Review	3	724	2	180
	Review Suspended	2	322	0	0
	Total Under Review	5	1,046	2	180
Total Permitted or Under Review		43	5,108	5	442

Table 2 summarizes the number of projects by the year they began commercial operation. Seven of the wind projects have been in operation for 15 years or more. Of these seven, three are in the process of repowering.

Table 2 Facility Operation by Year

Year of Commercial Operation	Wind Facilities	Solar Facilities
1998-2000	4	0
2001-2005	3	0
2006-2010	11	0
2011-2015	10	0
2016 - present	7	3
Permitted – not yet constructed	4	0

The majority of the wind and solar projects permitted by the Commission sell their generation via a power purchase agreement (PPA) or directly into the MISO market. Fewer than 10 of the 42 projects are a utility-owned generation asset.

As a growing number of older wind facilities enter the final years under their PPAs, it is important to ensure that adequate funding is available to properly decommission these facilities. The working group recommended that financial assurance instruments be in place prior to the expiration of the PPA. Based on available data, three projects appear to have PPAs that will expire in, or prior to, 2020, and an

[3] Community Wind North, Fenton, Jeffers, Lake Benton I, Lake Benton II, and Trimont, have been approved to repower; Mower County Wind has a petition to repower currently before the Commission.
[4] The 10.2 Woodstock Hills facility in Lincoln County (Docket 13-589), permitted by the MEQB but repowered under the authority of Lincoln County in 2019, is not included in this count.

additional four appear to have PPAs that will expire in 2025. EERA staff was unable to locate information on the purchaser of power for three projects.

EERA Recommendations

Based on its review of existing decommissioning plans, and building on its earlier recommendations, EERA staff offers the following additional recommendations to the Commission on the content and proposed review process for decommissioning plans going forward. These recommendations include a proposed schedule for implementing a regular review of all decommissioning plans over a five-year rolling schedule.

EERA recommends that the Commission authorize EERA staff to initiate the review of wind and solar decommissioning plans in accordance with content and review process recommendations that follow here.

Decommissioning Plan Content

Minnesota Rule 7854.0500, subp. 13 requires applicants to provide information regarding decommissioning: the anticipated life of the project; estimated decommissioning costs in current dollars; the method and schedule for updating the costs; the method for ensuring funds will be available; and the anticipated manner in which the project will be decommissioned and the site will be restored.

After reviewing the 42 decommissioning plans filed with the Commission, EERA staff makes the following observations:

- All operating projects have a plan on file.
- Plans vary greatly in detail. Compared to earlier decommissioning plans, more recent submissions provide additional detail on the assumptions used, anticipated tasks, order of operations, and the anticipated costs.
- Even the more detailed plans are missing information relevant to decommissioning. EERA staff had to review several filings – notably site permits and annual production reports (many of which are filed as trade secret) to locate information on the commercial operation date, the size of the project, the location of the site, and expiration date of power purchase agreements.

EERA staff recommends decommissioning plans serve as stand-alone documents, containing sufficient information for any reader, including, but not limited to, local government representatives, to understand basic information about the generation facility and how it will be decommissioned. Although there should be flexibility in how a plan is organized, EERA staff recommends that future plans contain the following information:

- **Project Description**: a brief description of the project including size in MW, project ownership, location, commercial operation date, acreage, number and type of turbines, miles of access roads, and an anticipated date for decommissioning.
- **Use of the Generation Output**: a general statement of where the generation goes (e.g. sold under a PPA, part of a utility generation portfolio, sold directly into the MISO market). For any portion of the output sold through a PPA, this description should include the expiration date of any PPA(s).

- **Decommissioning Objective**: a clear statement of the objective of decommissioning. It is anticipated that the objective for most facilities will be to restore the site to its prior use as required in site permits. It is possible that in the future, restoration to a more neutral use (e.g. commercial or residential), may be sought as urban areas expand towards solar facilities on what had been exurban areas.
- **Notification**: a statement on how the permittee will notify landowners, local governments, and the Commission when decommissioning activities are to begin and when restoration is complete.
- **Decommissioning Tasks and Timing**: a description of the tasks involved in decommissioning, the types of equipment, whether site condition improvements will be required for decommissioning (e.g. new crane paths, access road improvements) including information on disposal and recycling.
- **Detailed Cost Estimate**: a detailed cost estimate prepared by a knowledgeable independent party. Cost estimates should include both total and net (total costs less the estimated salvage value) costs. Cost estimates should be broken down by task (e.g. turbine or solar array dismantling, foundation removal, access road removal, transportation off site, disposal fees, mobilization, project management). Estimated scrap or salvage value should also be broken down. This estimate should also include a description of cost assumptions (e.g. major equipment needs, what type of disposal sites are required for component disposal, depth of removal, scrap value).
- **Financial Surety**: Consistent with the working group's recommendation that financial assurances be implemented in a step-wise manner – the decommissioning plan should beginning with initial payments in approximately year 10 increasing over time to ensure full funding no later than the end of the power purchase agreement. For those projects that do not have a PPA, a somewhat shorter timeline, perhaps 15 to 20 years, may be appropriate. The plan should identify potential financial assurance mechanisms in its initial version and specific information by year 10 of operation. The plan should identify the beneficiary of the financial surety and the amount of the surety. Updating the plans every five years allows for adjustments in the amount of surety and beneficiary.

Although EERA staff has identified several older decommissioning plans filed under a trade secret designation, more recent plans are filed as public documents with detail on both the decommissioning tasks and cost estimates. EERA staff believes that decommissioning plans should be filed as public documents, as access to the above-noted information is in the public interest, particularly for those communities impacted by a wind or solar project.

Plan Review Procedures

Although specific language varies between permits, all permits stipulate the Commission[5] may at any time require the permittee to file information on how it is fulfilling its decommissioning obligation. Permits that are more recent specifically call for review at five-year intervals.

With the goal of reviewing all decommissioning plans on a rolling five (5) year schedule, EERA staff recommends the following approach depending upon where projects are in their lifespan.

[5] In some older permits, the authority to require these reports lies with the MEQB, the issuer of the permit.

Current Applications, not yet permitted

As noted in its November 18, 2019, comments, EERA staff is updating its application guidance to recommend that new applications and requests for repowering include a draft decommissioning plan. By including a draft version of the plan in the application, the plan is available for public review and comment to ensure that the project decommissioning plan can be considered at the time the Commission is making a final permit decision on the project.

Plan review mechanism: Plans are available for the public and agencies to comment on during permit development. EERA staff reviews decommissioning plans and makes recommendations on adequacy during the review process. The Commission may, at its own discretion, specifically address the appropriateness of the decommissioning plan in its permit order.

Facilities in pre-construction or construction

Four wind projects (Nobles II, Blazing Star I, Blazing Star II, and Freeborn Wind) that are either in the pre-construction or construction phase, have permits that require a decommissioning plan to be filed prior to the commercial operation date. All four of these projects are anticipated to have a commercial operation date in 2020.

Plan review mechanism: EERA reviews the plans as a compliance filing (similar to its review of site plans, or updates to avian and bat protection plans). EERA documents this evaluation in a letter to the Executive Director, identifying any outstanding issues (e.g. financial assurance instruments and timeframe) that may require additional review and action.

Facilities in operation

EERA staff considered a variety of factors in recommending the sequence in which decommissioning plans for currently operating projects are reviewed– initial operating date, age of the permit, age of the decommissioning plan, the expiration date of the PPA, whether the decommissioning plans have been filed as trade secret, and whether the plans have been updated to reflect changes in ownership structure. EERA staff has also requested that updated decommissioning plans be required of two recent repowering permit amendment requests.

With the goal of ensuring decommissioning plans are reviewed on a rolling five-year schedule, EERA staff proposes the schedule shown in Table 3.

Table 3 Proposed 5-year Review Cycle

Review Year	Count	Projects
2020[6]	18	Big Blue Wind, Blazing Star I Wind, Blazing Star II Wind, Chanarambie Wind, Community Wind North, Fenton Wind, Freeborn Wind, Grant County Wind, Jeffers Wind, Lake Benton I Wind, Lake Benton II Wind, Lakota Ridge Wind, MinnDakota Wind, Moraine Wind, Mower County Wind, Nobles 2 Wind, Shaokatan Hills Wind, Trimont Wind
2021	7	Elm Creek Wind I, Elm Creek Wind II, Moraine Wind II, Prairie Rose Wind, Prairie Star Wind, Ridgewood Wind, Taconite Ridge Wind
2022	5	Bent Tree Wind, Lakefield Wind, Lakeswind, Nobles Wind, Wapsipinicon Wind
2023	4	Community Wind South, Oak Glen Wind, Palmer's Creek Wind, Red Pine Wind
2024	8	Aurora Solar, Black Oak Wind, Getty Wind, Marshall Solar, North Star Solar, Odell Wind, Pleasant Valley Wind, Stoneray Wind,

Plan review mechanism: EERA files a request for an updated decommissioning plan from the permittee. Similar to review for projects under construction, once the updated plan is filed in eDockets, EERA reviews the plans as a compliance filing. EERA documents this review in a compliance filing review letter to the Executive Secretary, identifying any issues recommended for Commission review and action.

In addition to EERA compliance filings in individual dockets, EERA will file an annual summary of decommissioning activity in Docket E999-M-17-123. EERA anticipates this filing will include a summary of the status of decommissioning plans for Minnesota wind and solar projects as well as developments in decommissioning best practices.

[6] Projects proposed for review in 2020 include a mixture of plans for new or recently repowered projects and periodic review of older projects. The Blazing Star I, Blazing Star 2, Freeborn, and Nobles wind projects have been permitted and are assumed to be constructed in 2020 and are therefore included in the 2020 plans.

Attachment A. Proposed Decommissioning Plan Review Schedule

Plan Review Year	Project Info									Decommissioning Cost/turbine Cost/MW (solar)		Financial Assurance Mechanism
	Project Name	Docket	MW	County	Current Permit	Year of Permit*	Operating Year	Decom Plan Year	Decommissioning Plan	Gross	Net	
2020	**Big Blue Wind Farm**	10-1238	36	Faribault	20118-65487-01	2018	2012	2019	201912-158244-01	$497,000	$468,000	LOC - PUC Beneficiary
	Blazing Star I Wind	16-686	200	Lincoln	20194-151622-01	2019	2020	2020	20201-158891-01	$313,800	$266,000	Neg.net salvage rate used to calculate depreciation
	Blazing Star 2 Wind	17-700	200	Lincoln	20201-159012-01	2020			Required at pre-operation	N/A	N/A	
	Chanarambie Wind	13-11	79.5	Murray	201911-157878-01	2019	2003	2004	20138-90565-07	N/S	N/S	Salvage Value
	Community Wind North	08-1494	30	Lincoln	20199-156059-01	2019	2011	2020	20201-158757-01	$134,000	$85,000	Mutually agreeable instrument with county
	Fenton Wind	05-1707	205.5	Murray, Nobles	20193-150926-01	2019	2007	2007	20139-91286-04	N/S	N/S	Salvage Value
	Freeborn Wind	17-410	84	Freeborn	20195-152849-01	2019			Required at pre-operation	N/A	N/A	
	Grant County Wind	09-341	20	Grant	200910-42725-01	2009	2010	2014	20144-98352-01	$48,000	$(43,000)	Salvage Value
	Jeffers Wind	05-1220	60	Cottonwood	201910-156224-01	2019	2011	2020	20201-158756-01	$122,000	$74,000	Mutually agreeable instrument with county
	Lake Benton I Wind	13-294	107.25	Lincoln	20187-144609-01	2018	1998	2014	20146-100509-01	$87,000	$1,800	PPA with NSP requires a security agreement,
	Lake Benton II Wind	18-179	100.2	Pipestone	20195-153243-01	2019	1999	2019	20199-155814-01	$197,000	$147,000	Performance bond with county
	Lakota Ridge Wind Farm	13-256	11.25	Lincoln	20135-87347-01	1997	2000	2013	20139-91835-01	$76,000	$44,000	10% of estimated costs set aside annually
	MinnDakota Wind	06-157	150	Lincoln	173221	2006	2008	2013	(Trade Secret) 201310-92074-01	N/S	N/S	N/S
	Moraine Wind	13-142	49.9	Pipestone	201911-157877-01	2001	2003	2013	(Trade Secret) 201310-92861-02	N/S	N/S	N/S
	Mower Co Wind	06-091	98.9	Mower	171592	2006	2006	2019	201912-157979-04	$107,000	$ 85,000	N/S
	Nobles 2 Wind Project	17-597	250	Nobles	20191-149838-01	2019	2020		Required at pre-operation	N/A	N/A	N/A

Attachment A – Proposed Decommissioning Plan Review Schedule

Plan Review Year	Project Info									Decommissioning Cost/turbine Cost/MW (solar)		Financial Assurance Mechanism
	Project Name	Docket	MW	County	Current Permit	Year of Permit*	Operating Year	Decom Plan Year	Decommissioning Plan	Gross	Net	
	Shaokatan Hills Wind	13-243	11.4	Lincoln	20135-87350-02	1997	2000	2013	20139-91834-01	$68,000	$38,000	10% of estimated costs set aside annually
	Trimont Wind	13-258	107.2	Jackson, Martin	20186-143837-01	2018	2005	2013	(Trade Secret) 201310-92366-02	TS	TS	N/S
2021	**Elm Creek Wind II**	09-553	150	Jackson, Martin	20102-47467-01	2010	2010	2010	20105-50196-01	$91,000	$11,000	Salvage Value
	Elm Creek Wind I	07-388	100	Martin	4897796	2008	2008	2013	20131-82845-01	$110,000	($1,000)	Salvage Value
	Moraine Wind II	07-389	49.9	Pipestone, Murray	4738919	2007	2009	2013	(Trade Secret) 201310-92861-02	TS	TS	Salvage Value
	Prairie Rose Wind	10-425	200	Rock, Pipestone	20119-66430-01	2011	2012	2012	201211-81246-01	$119,000	$35,000	LOC or equivalent in year 15
	Prairie Star	06-1520	100.65	Mower	4057553	2007	2007	2007	4160002	N/S	$27,500	Unclear - may use corporate guaranty or escrow account
	Ridgewind	06-1327	25.3	Pipestone, Murray	3814952	2007	2011	2009	200911-44159-04	N/S	N/S	Funds set aside as a budget item; guarantee executed with administrator.
	Taconite Ridge Wind	07-676	25	St. Louis	4767987	2007	2008	2013	20137-88815-01	N/S	$30,000	Neg.net salvage rate used to calculate depreciation
2022	Bent Tree Wind	08-573	201.3	Freeborn	200910-43044-01	2009	2011	2011	20112-59118-01	N/S	N/S	N/S
	Lakefield Wind	09-1239	205	Jackson	201010-55591-01	2010	2011	2013	201311-93719-01	N/S	N/S	As required in easement agreements.
	Lakeswind	08-1449	50	Clay, Becker, Otter Tail	20119-65992-01	2011	2014	2014	20144-98127-01	$226,000	($15,000)	Salvage Value
	Nobles Wind	09-584	201	Nobles	20108-53838-01	2010	2010	2011	20112-59334-01	$445,000	N/S	Neg.net salvage rate used to calculate depreciation
	Wapsipinicon Wind	07-839	100.5	Mower	4897848	2008	2008	2013	20131-83300-01	$271,000	$209,000	Neg.net salvage rate used to calculate depreciation
2023	Community Wind South	11-863	30.75	Nobles	20125-74352-01	2012	2012	2012	201211-80701-01	$47,000	$3,000	LOC
	Oak Glen Wind	10-119	44	Steele	20108-53182-01	2010	2011	2011	201110-67137-01	$300,000	N/S	MMPA's reserve accounts and rate

Attachment A – Proposed Decommissioning Plan Review Schedule

Plan Review Year	Project Info									Decommissioning Cost/turbine Cost/MW (solar)		Financial Assurance Mechanism
	Project Name	Docket	MW	County	Current Permit	Year of Permit*	Operating Year	Decom Plan Year	Decommissioning Plan	Gross	Net	
												adjustments if necessary.
	Palmers Creek Wind	17-265	44.6	Chippewa	20186-143941-01	2018	2018	2018	201811-147734-01	$135,000	$79,500	LOC (or equivalent) in year 15
	Red Pine Wind	16-618	200.1	Lincoln	20176-133173-01	2017	2017	2017	201712-137847-01	$143,000	$76,000	As required in easement agreements.
2024	Aurora Distributed Solar	14-515	100	Various	20179-135809-01	2017	2017	2016	201610-125500-02	$185,000	$44,000	TBD in year 10
	Black Oak Wind Farm	10-1240	42	Stearns	20169-124653-01	2016	2016	2016	201610-125365-02	$144,000	$109,000	LOC (or equivalent) in year 15.
	Getty Wind Project	11-831	40	Stearns	20169-124653-02	2016	2016	2016	201610-125365-02	$144,000	$109,000	LOC (or equivalent) in year 15.
	Marshall Solar	14-1052	62.25	Lyon	20165-121073-01	2016	2017	2016	201611-126793-01	$134,000	$102,000	LOC (or equivalent) in year 20
	North Star Solar	15-33	100	Chisago	20162-118336-01	2016	2016	2016	201611-126455-04	$42,000	2$2,000	TBD in year 15
	Odell Wind Farm	13-843	150	Cottonwood, Jackson, Martin, Watonwan	20147-101580-01	2014	2016	2019	20191-149259-01	$134,000	$102,000	LOC (or equivalent) in year 20
	Pleasant Valley Wind	09-1197	200	Dodge, Mower	20142-96305-01	2014	2015	2015	201510-114900-01	$290,000	N/S	Depreciation calculated with negative net salvage rate.
	Stoneray Wind	13-216	101	Pipestone, Murray	20181-139392-01	2018	2019	2018	201811-148089-02	$208,000	$6,000	LOC with counties in year 10

Costs are expressed in current year $ of the year the plan was filed

* Year of most recent permit

N/S – Not Supplied

TS – Filed as Trade Secret

Operating Wind Facilities

Permitted Wind Facilities, not constructed

Operating Solar Facilities