COMMUNITY ENERGY SOLAR

PERMIT COMPLIANCE FILING

PERMITTEE:	**North Star Solar PV LLC**
PERMIT TYPE:	**Solar Energy Generating System Site Permit**
PROJECT LOCATION:	**Chisago County**
PUC DOCKET NUMBER:	**IP-6943/GS-15-33**
PERMIT SECTION:	**Site Permit Condition 5.2 – REVISED Vegetation Management Plan**
DATE OF SUBMISSION:	**April 13, 2016**

North Star Solar PV LLC ("North Star") respectfully submits this revised filing in compliance with the modifications to the Site Permit as set forth in the Commission's Order dated April 6, 2016.

"The Permittee shall develop a Vegetation Management Plan in consultation with the DNR to the benefit of pollinators and other wildlife and to enhance soil water retention and reduce storm water runoff and erosion. The Vegetation Management Plan shall be filed in this docket at least 14 days prior to the pre-construction meeting."

The applicable requirements of Sections 4.2.11 – 4.2.14 of the Site Permit will be incorporated into the Vegetation Management Plan and adhered to by the Project as a whole.

North Star received the attached comments from the DNR dated February 22, 2016. North Star has incorporated many of these recommendations into the Vegetation Management Plan.

Vegetation Management Plan

The North Star Solar Project ("Project") is a 100MW-AC solar project that will reside on approximately 1,112 acres of agricultural land located in Chisago County, Minnesota. The Project will occupy approximately 800 acres of land once completed. The Project's primary components include photovoltaic ("PV") modules mounted on a linear axis tracking system, solar inverters and a project substation. The racking system foundations will utilize driven piers and are generally not anticipated to require concrete, although some concrete foundations may be required. Compacted dirt roads, typically 12 to 20 feet wide, will be constructed within the Project boundary. Roads will be located between some arrays and around the Project perimeter to provide access to the solar equipment and accommodate ongoing maintenance of the Project components.

The soils at the Project are predominately fine and loamy fine sands suited for existing agricultural production. Most of the site is on level to nearly-level topography, which is consistent with the current agricultural production. North Star has fully coordinated with the U.S. Army Corps of Engineers ("USACE") and local government units ("LGUs") under the Minnesota Wetland Conservation Act ("WCA"). North Star has received all necessary federal, state and WCA permits for the anticipated wetland impacts associated with the construction and operation of the Project.

No active MN DNR or USFWS conservation easements are located at the Project.

Construction Preparation

Preparation for construction of the Project will require some amount of vegetation removal and grading. As established in the Site Permit, North Star will minimize the number of trees to be removed, and to the maximum extent practicable, maintain existing windbreaks, shelterbelts, living snow fences and vegetation.

To the extent practicable, North Star will make the removed trees and vegetation available to commercial uses, including biomass fueled power applications. Wetland impacts will be minimized and be kept in accordance with WCA and USACE limitations.

Re-vegetation

Following construction, all waste, construction materials and debris will be removed from the Project. All areas within the Project boundary identified in the attached design exhibit will be re-vegetated with the applicable seed mix. Ground preparation and seeding will occur as soon as construction activities have progressed enough to prevent any further soil disturbance within sections of the Project. It is anticipated that some seeding will commence as early as June 2016, while other areas will only be ready in the fall of 2016. Seeding will be appropriately timed in consideration of winter dormancy and plant survival. The soil will be raked and/or disked as necessary prior to planting to allow for seed penetration and anchoring.

North Star has coordinated with the MN DNR and Minnesota Native Landscapes – a highly recognized purveyor of native plant species to develop a diverse and appropriate seed mix for the Project. The North Star seed mixes are identified in the attached exhibit. These seed mixes are subject to availability at the time of purchase and substitution may occur if necessary. North Star will consult with the MN DNR if one or more substitutions are required. New species substituted into the mix will meet the same general criteria as those removed – native to the region, low-growing, local-origin, pollinator friendly and if applicable, the same blooming category.

The attached exhibit lists two distinct seed mixes for the Project – the Array Mix and the Pollinator Mix. The Array Mix is made up of native grasses and will be planted under, around and adjacent to the solar array. The Array Mix will make up the majority of the site – approximately 700 acres. The Pollinator Mix is made up of both native grasses and beneficial forbs. The Pollinator Mix will be located along the array aisles that transect the solar array and between the solar array and the Project property boundaries. The Pollinator Mix will cover approximately 100 acres of land that is now actively farmed as row crops. It is the intent of North Star to locate the Pollinator Mix in the large and contiguous areas around the Project to maximize its ecological value and add to the vegetative buffer between the Project and adjacent properties. To the extent practicable, North Star will retain a buffer between the Pollinator Mix and adjacent cropped fields to limit the overspray of insecticide and herbicide into the mix. North Star will also add the Project to the local "DO NOT SPRAY" list to avoid inadvertent aerial spraying at the site.

The Array Mix will be drill or broadcast seeded based on site conditions and timing of seeding to uniformly distribute the mix under and around the constructed solar array. If a seed drill is used, seed will be sown at a depth of no more than 0.25 inches. The Array Mix will be sown with oats or winter

wheat as a cover crop to limit erosion, suppress weed growth, and provide a micro-climate for the native plants as they establish themselves.

The Pollinator Mix will be drill or broadcast seeded based upon site conditions and timing of seeding to uniformly distribute the mix. If a seed drill is used, seed will be sown at a depth of no more than 0.25 inches. The Pollinator Mix will also be sown with oats or winter wheat as a cover crop to limit erosion, suppress weed growth, and provide a micro-climate for the native plants as they establish themselves.

Hydroseeding will be used as necessary at locations where standard broadcast or drilling will not be sufficient.

Standards for Seed and Seed Mixes

Seed and Seed Mixes will be native to the Chisago County region of Minnesota and regionally sourced and purchased on a Pure Live Seed ("PLS") basis. Associated seed tags will identify purity, germination, date tested, total weight and PLS weight, weed seed content and supplier's information.
Seed will be used within 12 months of testing as required by applicable MN State rules and regulations. The seed tags will certify that the seed is "noxious weed free". Seeding rates will be based on the PLS rate and number of pure live seeds per square foot.

Vegetation Maintenance and Management

The Array Mix is purposely made up of native short grass species that will present little interference with the safe and reliable operation of the Project. The Pollinator Mix will include mixed height species and will not be located immediately adjacent to the solar modules and therefore should not present an operational hazard or require frequent maintenance.

Haying and/or mowing of the Array Mix and Pollinator Mix will be conducted as infrequently as possible to maintain the safe and reliable operation of the Project and to ensure proper establishment of the native plant community. It is expected to take approximately 3 years for the plants to become established and capable of withstanding haying and/or mowing operations. After establishment, haying and/or mowing will occur approximately every 2-3 years.

Intermittent haying and/or mowing will be conducted with a minimum blade height of 5 inches. Haying and/or mowing will be generally targeted for late spring and early fall to avoid impacts to ground nesting species. If conducted in the fall, haying and/or mowing operations will provide adequate time for the plants to recover prior to winter dormancy. Vegetation that is mowed will be bagged, removed or appropriately spread to prevent smothering of the vegetation. Haying and mowing equipment will be inspected prior to use at the site to prevent the spread of non-native and invasive species.

In an effort to minimize disturbance to the plantings, haying and/or mowing will be staged across the site. Unless operational considerations require it, no more than 1/3 of the site will be hayed or mowed in a given year and the same area will not be hayed or mowed in consecutive years. If operational considerations allow, a portion of the site will be set aside as a semi-permanent refugia receiving minimal management and very infrequent haying and/or mowing.

COMMUNITY ENERGY SOLAR

Noxious Weed Management

The Solar Project will be monitored for noxious weeds. Major infestation areas identified during the first growing season will be treated with the use of mechanical methods or approved herbicides and in accordance with the limitations of the Site Permit. In the event that herbicide is required, it will be spot-sprayed to specifically target the noxious colony and minimize killing the native species. Broadcast treatment of selective herbicides will only be utilized to control extreme noxious or invasive weed encroachment.

Herbicides will not be used if the participating landowners prohibit their use. Affected landowners and known beekeepers operating apiaries within three miles of the project site will be provided notice of herbicide use at least 14 days prior to any application. Herbicides will be used in accordance with the manufacture's specification and all applicable federal and state regulations. Herbicides may be used to control the re-sprout of the stumps of tall growing tree species and to control invasive and noxious weed infestations. Only aquatically-certified herbicides will be used within 75 feet of delineated water resources on the site.

Decommissioning

In the event that the Project is decommissioned, it will be done in compliance with the Decommissioning Plan filed in accordance with Section 9.0 of the Site Permit.

MINNESOTA DEPARTMENT OF NATURAL RESOURCES
CENTRAL OFFICE
500 LAFAYETTE ROAD
SAINT PAUL, MN 55155
651-296-6157
888-646-6367

February 22, 2016

Chase Whitney
Community Energy Solar, LLC
1120 Pearl Street, Suite 200
Boulder, CO 80302

Re: North Star Solar Vegetation Management Plan and Fencing Plan
PUC Docket Number: IP6943/GS-15-33

Dear Mr. Whitney:

Thank you for the opportunity to review and comment on the North Star Solar PV LLC (North Star) Vegetation Management Plan and the Fencing Plan. Please see below for Minnesota Department of Natural Resources (DNR) comments.

Page 2 - Re-vegetation Section states: "Ground preparation and seeding will occur in the fall, immediately following the completion of construction." There is danger that if the seeding is installed too soon (before soil temperatures fall below 50 degrees F) that the seed would germinate prematurely and then the new plants would die heading into winter. The DNR recommends that seeding occur when temperatures fall below 50 degrees F for a consistent period of time and/or no sooner than December 1.

Page 2 - Re-Vegetation Section states: "The soil will be raked and or disked as necessary to allow for seed penetration and anchoring." It is unclear whether this is planned for before or after seeding. Disking after seeding is not recommended as it can push the seeds too deep. Raking would be acceptable. This topic is also addressed in the "North Star Solar Vegetation Plan Section.' It may be helpful to incorporate some of that detailed language in this location.

Page 2 - Re-Vegetation Section states: "It is the intent of North Star to locate the Pollinator Mix in the large and contiguous areas around the Solar Project to maximize its ecological value and add to the vegetative buffer between the Solar Project and adjacent properties." Overall the DNR agrees with this approach. However, we would additionally suggest that, because this mix will be on the edge, a "buffer" area between the mix and surrounding landscape be included *if* the surrounding landscape will continue to be actively farmed. This is to avoid accidental overspray of insecticide or herbicide into the planting, both of which would be detrimental to pollinators through direct and indirect effects.

Also, to prevent inadvertent drift or cross-application of herbicides from adjacent cropland, North Star Solar should contact the applicable local agricultural cooperatives to add the footprint of the solar facility to the "DO NOT SPRAY" lists and to ensure that aerial pesticide/herbicides applications on local cropland do not impact the project site.

Page 3 - Vegetation and Maintenance Section states: "As infrequently as practicable, mowing of the Array Mix and Pollinator Mix will be conducted to maintain the safe and reliable operation of the Solar Project and to ensure proper establishment of the native plant community. Vegetative maintenance will include intermittent haying (or mowing provided minimum blade heights are established). Mowing efforts will be generally targeted for late spring and early fall to avoid impacts to ground nesting species. Vegetation that is mowed will be bagged, removed or appropriately spread to prevent smothering of the vegetation."

The DNR would also suggest adding the following language: Haying/mowing should be done at a minimum height of 5" every 2-3 years after stand establishment (first 3 years post-planting). Timing of haying/mowing should be done to allow the prairie adequate time to recover prior to dormancy (winter). Haying or mowing below 5" in height can damage the long-term health of the planting. Hayed/mowed vegetation should be bagged and removed off site to prevent smothering new growth. Haying/Mowing equipment should be inspected prior to use on site to prevent the spread of non-native and invasive species into the planting.

With any management activity it is very important to establish refugia (undisturbed areas). These areas play an important role in pollinator conservation and allow for the completion of pollinator life cycles. No more than 1/3 of the site should be hayed/mowed each year. The same 1/3 should not be hayed/mowed in consecutive years. If possible, 10% of the site should be set aside as semi-permanent refugia-- a portion of the planting that receives limited haying/mowing on a longer return interval of 15 years. For more information about refugia, consult the MNDNR's Pollinator Best Management Practices and Habitat Restoration Guidelines (http://files.dnr.state.mn.us/natural_resources/npc/2014_draft_pollinator_bmp_guidelines.pdf).

Page 3 - Noxious Weed Management Section states: "Broadcast treatment of herbicides will only be utilized if necessary." Generalized broadcast treatment of herbicide will kill the native species. The DNR suggests stating that broadcast treatment of a *selective* herbicide will only be used in cases of extreme noxious weed encroachment.

Page 4 - Seed Mixes states: "Note: The species listed in Figure 1 are the projected species and inclusions at this time. Any species are subject to change based on the availability at the time of planting. There is also the possibility of new species being added to either mix. In the case of new species selections, the same criteria mentioned above will be used (i.e. native to the region, low-growing, local-origin, pollinator friendly)." The DNR suggests adding that substitute forbs would fulfill the same blooming category as the species being replaced in the mix.

Also regarding seed mixes: The array and pollinator species mixes both include buffalograss (*Buchloe dactyloides*). This species is not appropriate for this site given that it is limited to the southwestern part of the state on rock outcrops. Buffalograss is also a special concern species in Minnesota. Given the limited distribution of the species and special concern status, buffalograss should be removed from the seed mix. Buffalograss could be replaced by increasing the percent of a different species in the mix, such as blue grama (*Bouteloua gracilis*).

Regarding the fencing plan, the DNR Natural Heritage Information System review identified records of Blanding's turtles, a state-listed threatened species, in the vicinity of the project area. The project site is also located within an area identified as a Blanding's turtle priority area. Given the likelihood that Blanding's turtles could move through the area, this should be addressed in the Fencing Plan. The fencing design could incorporate gaps at the bottom large enough for turtles to pass through. Approximately eight inches would be an adequate height to

provide clearance for turtles. Also, though it appears that no barb wire will be used, the DNR suggests specifying that no barb wire be used in the Fencing Plan.

Sincerely,

Jamie Schrenzel
Principal Planner
Environmental Review Unit
(651) 259-5115

cc: David Birkholz, Minnesota Department of Commerce

Minnesota Native Landscapes

North Star Solar Vegetation Plan

Overview: The North Star Solar project will require nearly 825 acres of re-vegetation around the solar array. The site provides an excellent opportunity to improve soil retention, water filtration, and wildlife habitat with the use of native plants. Species selection for re-vegetation focuses on local-origin grasses and wildflowers native to the Chisago County region, as well as species beneficial to pollinators and those that fit the solar array and soil conditions.

Timeline: Site preparation and seeding will occur as soon as construction activities have progressed enough to prevent any further soil disturbance. It is anticipated that some seeding will commence as early as June 2016, while other areas will only be ready in the fall of 2016.

Site Prep/Seeding: Necessary site preparation will be determined after construction of the solar array. It is anticipated that the soil may need to be loosened with a light disc or harrow on heavily packed areas, while other areas may need little or no site preparation. Once an adequately smooth, firm seedbed is established, seeding will take place with either a no-till style native seed drill, or by broadcast seeding. Again, it is anticipated that these seeding practices will vary throughout the project areas and timeline, as determined by the contractor at the time of planting. A cover crop of Oats will be used for seeding done up to August 1st, and Winter Wheat used from August through dormant fall seeding.

Seed Mixes: Seed mixes for the project can be seen in Figure 1. The Native Shortgrass Mix has a diverse mix of native grass species that will provide excellent erosion control and water filtration. In addition, the use of several bunchgrasses will create nesting opportunities for Pollinators. This mix will be seeded in all areas underneath the solar array, and in many of the lanes adjacent to the array. The low stature of the mix should reduce maintenance requirements, as well as minimize issues with thatch buildup. Total planted acreage of this mix is projected at 714 acres.

The Native Pollinator Seed Mix will be planted on the remaining 111 acres. This mix contains many of the same shortgrass species, but also includes over 20 species of wildflowers. An emphasis has been placed on diversity of blooming seasons, with 5 or more species present for each season: spring, summer, and fall. Three different milkweed species are also included to promote Monarch Butterfly habitat. The Pollinator mix will be seeded at various locations throughout the site, including open areas between the perimeter fence and the solar array, array aisles that run through the solar array, and open spaces outside of the perimeter fence. Combined, this will create a more contiguous habitat for numerous pollinators.

Note: The species listed in Figure 1 are the projected species and inclusions at this time. Any species are subject to change based on the availability at the time of planting. There is also the possibility of new species being added to either mix. In the case of new species selections, the same criteria mentioned above will be used (i.e. native to the region, low-growing, local-origin, pollinator friendly).

Wes@MNLcorp.com *8740 77th St NE Otsego, MN 55362* *763-295-0010*

Minnesota Native Landscapes

8740 77th Street NE Otsego, MN 55362

North Star Solar
Array Area Native Grass Mix

Date:	2/19/2016
Total Acres:	1.00
PLS lbs/acre:	6.00
Total PLS lbs:	16.00

	Scientific Name	Common Name	% of Mix	PLS lbs/ac	Total PLS lbs	Seeds/ Sq Ft
Grasses:	Bouteloua curtipendula	Side-Oats Grama	54.80	3.29	3.29	12.02
	Bouteloua gracilis	Blue Grama	30.00	1.80	1.80	26.45
	Carex bicknellii	Bicknell's Sedge	1.10	0.07	0.07	0.41
	Carex radiata	Eastern Star Sedge	1.25	0.08	0.08	1.13
	Carex vulpinoidea	Fox Sedge	1.30	0.08	0.08	2.32
	Koeleria macrantha	Junegrass	1.30	0.08	0.08	5.73
	Sporobolus cryptandrus	Sand Dropseed	4.25	0.26	0.26	18.73
	Sporobolus heterolepis	Prairie Dropseed	6.00	0.36	0.36	2.12
Cover Crop:	Triticum aestivum	Winter Wheat		10.00	10.00	

Species subject to change based on price and availability at the time of planting

Seeds/Sq Ft: 68.90

Wes@MNLcorp.com
8740 77th St NE Otsego, MN 55362
Office: (763) 295-0010
Fax: (763) 295-0025

Minnesota Native Landscapes

8740 77th Street NE Otsego, MN 55362

North Star Solar
Open Area Pollinator Mix

Date:	2/19/2016
Total Acres:	1.00
PLS lbs/acre:	8.00
Total PLS lbs:	18.00

Bloom Season: Spring, Summer, Fall

	Scientific Name	Common Name	% of Mix	PLS lbs/ac	Total PLS lbs	Seeds/ Sq Ft
Grasses:	Bouteloua curtipendula	Side-Oats Grama	35.00	2.80	2.80	10.23
	Bouteloua gracilis	Blue Grama	12.00	0.96	0.96	14.10
	Carex bicknellii	Bicknell's Sedge	1.50	0.12	0.12	0.75
	Carex radiata	Eastern Star Sedge	1.50	0.12	0.12	1.81
	Carex vulpinoidea	Fox Sedge	1.25	0.10	0.10	2.98
	Koeleria macrantha	Junegrass	1.25	0.10	0.10	7.35
	Schizachyrium scoparium	Little Bluestem	14.50	1.16	1.16	6.39
	Sporobolus cryptandrus	Sand Dropseed	4.00	0.32	0.32	23.51
	Sporobolus heterolepis	Prairie Dropseed	5.00	0.40	0.40	2.35
Forbs:	Achillea millefolium	Yarrow	0.40	0.03	0.03	2.06
	Agastache foeniculum	Fragrant Giant Hyssop	0.25	0.02	0.02	0.66
	Allium stellatum	Prairie Onion	0.50	0.04	0.04	0.16
	Anemone canadensis	Canada Anemone	0.25	0.02	0.02	0.06
	Aquilegia canadensis	Columbine	0.25	0.02	0.02	0.28
	Asclepias syriaca	Common Milkweed	0.75	0.06	0.06	0.09
	Asclepias tuberosa	Butterfly Milkweed	0.75	0.06	0.06	0.09
	Asclepias verticillata	Whorled Milkweed	0.25	0.02	0.02	0.08
	Aster oolentangiensis	Sky-Blue Aster	1.25	0.10	0.10	2.94
	Aster laevis	Smooth Blue Aster	0.75	0.06	0.06	1.21
	Aster lateriflorus	Calico Aster	0.80	0.06	0.06	5.88
	Astragalus canadensis	Canada Milk Vetch	0.75	0.06	0.06	0.37
	Coreopsis palmata	Prairie Coreopsis	0.50	0.04	0.04	0.15
	Dalea candida	White Prairie Clover	3.00	0.24	0.24	1.67
	Dalea purpureum	Purple Prairie Clover	3.00	0.24	0.24	1.32
	Desmodium canadense	Canada Tick Trefoil	1.00	0.08	0.08	0.16
	Helianthus pauciflorus	Stiff Sunflower	0.40	0.03	0.03	0.05
	Monarda fistulosa	Wild Bergamot	0.75	0.06	0.06	1.54
	Liatris aspera	Rough Blazing Star	0.75	0.06	0.06	0.35
	Lupinus perennis	Wild Lupine	0.25	0.02	0.02	0.01
	Penstemon gracilis	Slender Beardtongue	0.40	0.03	0.03	7.05
	Potentilla arguta	Prairie Cinquefoil	0.25	0.02	0.02	1.69
	Pycnanthemum virginianum	Mountain Mint	0.50	0.04	0.04	3.23
	Ratibida columnifera	Long-Headed Coneflower	1.00	0.08	0.08	1.23
	Rudbeckia hirta	Black Eyed Susan	1.25	0.10	0.10	3.38
	Solidago nemoralis	Old Field Goldenrod	0.50	0.04	0.04	4.41
	Solidago rigida	Stiff Goldenrod	1.50	0.12	0.12	1.81
	Verbena stricta	Hoary Vervain	1.25	0.10	0.10	1.03
	Zizia aurea	Golden Alexanders	0.75	0.06	0.06	0.24
Cover Crop:	Triticum aestivum	Winter Wheat		10.00	10.00	

Species subject to change based on price and availability at the time of planting

Seeds/Sq Ft: 112.68

Wes@MNLcorp.com

8740 77th St NE Otsego, MN 55362

Office: (763) 295-0010
Fax: (763) 295-0025

N

POLLINATOR MIX AREAS

NORTH STAR SOLAR PROJECT
PROPOSED VEGETATION PLAN