North Star Solar Project

MN Power System Conference
Saint Paul, MN
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MN PUC Docket Number 15-33
North Star Solar Project

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Community Energy

• Pioneers in renewable energy development and marketing

• Developed more than 1400 megawatts of wind and solar capacity

• Solar portfolio includes projects completed or underway throughout the United States

Comanche Solar
120 MW/AC
Pueblo, CO

Butler Solar
100 MW/AC
Taylor County, GA

Amazon Solar East
80 MW/AC
Delmarva Peninsula, VA
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Northern States Power (Xcel) - 2014 Solar RFP

• Minnesota Solar Energy Standard

• 1 of 3 projects selected out of 111 competitive proposals

• Power Purchase Agreement with Xcel Energy was approved by the MN PUC on 2/12/15
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Project details

• 100 megawatts of solar photovoltaic capacity (440,000 modules)
• Approximately 800 acres of agricultural land
• Single axis tracking technology to maximize production
• Grid connection at the Chisago substation (115kV)
• 25-year power purchase contract with Xcel Energy
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Why here?

• Chisago substation – infrastructure and strong ties to Xcel Energy load

• Non-prime agricultural land (MN Administrative Rules - .5ac/MW)

• Few environmental constraints

• Existing local ordinances
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Spring 2014 – Land & Interconnection

Getting Site Control
• No project without it!
• Cold calls and face-to-face visits

MISO Interconnection Application
• Application filed prior to RFP response

Let’s see some maps!
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Spring 2014 – Land & Interconnection
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Project Permitting

MN PUC – Combined Site & Route Permit
• Agency Participation (Federal, State & Local)

State Permits
• Wetland Conservation Act (USACE)
• MPCA (NPDES, SWPP)
• MN DNR
• MN Dept. of Health (wells)

Local Permits – multiple jurisdictions
• Building Permit
• Access Permits
• Crossing Permits
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MN PUC Permitting Calendar

2/11/2015 - MN PUC Site & Route Permit Submitted

4/30/2015 – MN DOC EA Scoping Meeting (Stacy, MN)

9/24/2015 – Environmental Assessment Completed

10/7/2015 – EA Public Hearing (North Branch, MN)

12/16/2015 – OAH Findings of Fact, Conclusions of Law, and Recommendations

2/16/2016 – MN PUC Order Granting Site & Route Permit

2/26/2015 – Reconsideration

4/6/2016 – MN PUC Order Denying Reconsideration
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MISO Interconnection

February West 2015 – Definitive Planning Phase

• Delayed by about 1 year

• Optional Study Path

• Engineering & Procurement Agreement with Xcel

• Provisional Generator Interconnection Agreement

• Southwest Power Pool - Affected Systems
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Construction, operation and decommissioning

Site prep – trenching – pile installation – racking and module installation
• April 2016 – Construction Start
• October 2016 – Mechanical Completion

Electrical connections – testing – commissioning
• Construction of short transmission line to the Chisago substation
• Grid connection and facility commissioning

Operations
• Commercial operations December 2016
• Regular maintenance and inspections

Decommissioning
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Project economics

• $180M total investment
• Approximately 300 local jobs associated with construction and installation
• More than 1,000 direct and indirect jobs

Operations

• $2.5M in annual economic output
• Approximately $350k in annual property taxes
• 6-12 full-time employees
• Annually generate enough electricity for 20,000 homes
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Vegetation plan

Minnesota Department of Natural Resources
• Opportunity to manage vegetation at project sites as restored short-grass prairies or meadows
• Native plants and flowers that are beneficial to wildlife and pollinators

Anticipated benefits

• Improved water quality
• Reduced soil erosion
• Increased water retention
• Improved soil composition
• Less use of fertilizers and herbicides
• Critical habitat
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Landscaping and visual buffers

• A key development focus: residences and public corridors

• Professional landscape design using native vegetation

• Residential buffering - combination of setback, plant type, density and placement, and fencing
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Fencing aesthetics

• Deer fence / agricultural fence
• NEC requirements

https://blogs.cornell.edu/hort/2013/12/04/deer-fencing-installed-at-freeville-farm/
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Solar energy – a global perspective
Thank You

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