

## 6.4 Northeast Zone

### 6.4.1 Needed Projects

The following table provides a list of transmission needs identified in the Northeast Zone by MISO utilities. There were no projects identified in this zone by non-MISO utilities.

<b>MPUC Tracking Number</b>	<b>MTEP Year/App</b>	<b>MTEP Project Number</b>	<b>CON?</b>	<b>Utility</b>	<b>Project Description and Timeframe</b>
<b>2003-NE-N2</b> <i>Cromwell – Wrenshall- Mahtowa- Floodwood Area</i>	2011/A	2634	Yes	MP/ GRE	Savanna Project: 115 kV Savanna switching station and Savanna-Cromwell and Savanna-Cedar Valley 115 kV lines, St. Louis Co., PUC Docket Nos. CN-10-973 and TL-10-1307 <i>Timeframe: 2015</i>
<b>2003-NE-N6</b> <i>Taconite Harbor – Grand Marais Area</i>	NA	NA	Yes	GRE	Taconite Harbor-Grand Marais 69 kV rebuild to 115 kV. This project has been delayed indefinitely due to drop in load growth.
<b>2007-NE-N1</b> <i>Duluth Area 230 kV</i>	2009/C	2548	Yes	MP	Duluth 230 kV Project: New 230/115 kV transformer & transmission line upgrade to 230 kV to increase load-serving capability in the Duluth area. Recent study indicates this project is not needed until the 2020 timeframe.
<b>2007-NE-N2</b> <i>Essar Steel Project</i>	2010/A	2547	No	MP	Essar 230 kV Project: Transmission for Essar Steel, Grand Rapids-Nashwauk areas, Itasca Co. Phase 1 is completed. <i>PUC Docket No. TL-09-512.</i>
<b>2007-NE-N6</b> <i>Onigum Area</i>	2012/B	2632	No	GRE	Onigum 115 kV conversion. Line is currently less than 10 miles, however CON may be required if route is altered. Cass and Hubbard counties.

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<b>2009-NE-N1</b> <i>Nugget – Hoyt Lakes</i>	2009/A	2552	No	MP	Skibo-Hoyt Lakes 138 kV Line: New ~3 mile transmission line needed to provide redundant sources for expansion of an existing industrial customer; Hoyt Lakes Area, St. Louis Co.
<b>2009-NE-N2</b> <i>Deer River Tap</i>	2012/C	2551	No	MP	28 Line Tap Reconfiguration: Put existing tap on dedicated breaker and rebuild to higher capacity, Cohasset – Deer River, Itasca Co. (This project has been cancelled in favor of MTEP Project #3531.)
<b>2009-NE-N2</b> <i>Deer River Area (f/k/a Deer River Tap)</i>	2012/B	3531	No	MP	Deer River 230 kV Project: construct Zemple 230/115 kV Substation to increase load-serving capability and improve reliability in Deer River and the surrounding area; Deer River, Itasca Co. Due to line length, a CON was not required. <i>PUC Docket No. TL-13-68. Timeframe: 2015</i>
<b>2009-NE-N4</b> <i>Brainerd Lakes – Remer-Deer River Area</i>	NA	NA	Yes	GRE	Macville-Blind Lake 115 kV line and Macville 230/115 kV substation. This project has been delayed indefinitely due to drop in load growth.
<b>2009-NE-N5</b> <i>Ortman Project</i>	2010/A	2621	No	GRE	Build a new 230/69 kV transmission substation and build a new 20-mile 69 kV transmission line from the new Ortman Substation to the existing 69 kV transmission line just west of the Bigfork Substation

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<b>2009-NE-N6</b> <i>Staples-Motley-Long Prairie Area</i>	NA	NA	Maybe	GRE	Shamaineau Lake 115 kV substation and 115 kV line. This project has been delayed indefinitely due to drop in load growth.
<b>2009-NE-N7</b> <i>Park Rapids Area</i>	2010/A 2012/B	2566 2566	No No	GRE	Potato Lake 115 kV distribution sub and 115 kV line. Mantrap 115 kV conversion. This project is projected to be in-service in 2017 or sooner depending on load growth. The 2010/A portion of this project is complete. The 2012/B portion is expected to start in 2015. <i>PUC Docket No. TL-10-86.</i>
<b>2009-NE-N8</b> <i>Barrows Area</i>	NA	NA	No	GRE	Barrows distribution substation and 115 kV line. This project has been delayed indefinitely due to drop in load growth.
<b>2009-NE-N9</b> <i>Shell Lake Area</i>	2011/A	2599	No	GRE	Shell Lake 115 kV distribution substation and 115 kV line. This line will be built at 69 kV.
<b>2009-NE-N10</b> <i>Iron Hub</i>	NA	NA	No	GRE	Iron Hub distribution substation and 115 kV line. This project has been delayed indefinitely due to drop in load growth.
<b>2009-NE-N11</b> <i>Rush City-Cambridge-Princeton-Milaca Area</i>	NA	NA	Yes	GRE	Rush City-Milaca 230 kV line and Dalbo 230/69 kV source. This project has been delayed indefinitely due to drop in load growth.
<b>2011-NE-N1</b> <i>9 Line Upgrade</i>	2011/A	3373	No	MP	Rebuild existing 115 kV line to higher capacity. Blackberry – Meadowlands, St. Louis & Itasca Co. A CON was not required for this project.

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<b>2011-NE-N2</b> <i>15 Line Rebuild</i>	2011/A	2549	No	MP	15 Line Reconfiguration: Rebuild & reconfigure existing 115 kV line to higher capacity, Fond-du-Lac – Hibbard, Duluth area, St. Louis Co.
<b>2011-NE-N5</b> <i>North Met Sub</i>	2010/A	2761	No	MP	Construct new 138/13.8 kV substation to serve new mine, Hoyt Lakes area, St. Louis Co.
<b>2011-NE-N8</b> <i>18 Line Upgrade</i>	2012/A	1292	No	MP	Increase capacity of existing 115 kV line, Forbes – United Taconite, Eveleth area, St. Louis Co.
<b>2011-NE-N9</b> <i>Verndale Transformer</i>	2012/A	3534	No	MP	Increase 115/34.5 kV transformer capacity at existing Verndale Substation, Verndale, Wadena Co.
<b>2011-NE-N10</b> <i>Laskin Transformer</i>	2009/A	2759	No	MP	Increase 115/46 kV transformer capacity and replace end-of-life equipment at existing Laskin Substation, Hoyt Lakes area, St. Louis Co.
<b>2011-NE-N11</b> <i>Savanna 230 kV Expansion</i>	2012/C	3533	Yes	MP	Expansion of the Savanna Substation to 230/115 kV. Rebuild of existing 115 kV line (MTEP Project #3373) proved more economical for transmission line loading issue. Project may be required for future voltage support depending on area load growth; Floodwood area, St. Louis Co. <i>Timeframe: Deferred Indefinitely.</i>

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<b>2011-NE-N12</b>  <i>Wrenshall Substation</i>	2012/C	3756	No	MP	Develop new 115/46 kV substation in Thomson – Cromwell 115 kV Line to improve reliability in eastern Carlton Co. The project will eliminate the need for existing distribution circuits that would otherwise need to be rebuilt due to age and condition and is also a lower cost alternative; Wrenshall, Carlton Co.
<b>2011-NE-N13</b>  <i>MH-MP 230 kV Line</i>	2012/C	3562	Yes	MP	230 kV transmission connection to Manitoba needed to deliver 250 MW PPA from Manitoba Hydro to Minnesota Power. Alternative to MTEP Project #3831; located in St. Louis, Itasca, Koochiching, Lake of the Woods, & Roseau Co. (see Section 3.3.2) <i>Timeframe: 230 kV Alternative Deferred Indefinitely</i>
<b>2013-NE-N1</b>  <i>39 Line Reconfiguration</i>	2013/A	4039	No	MP	Reconfigure Laskin – Virginia 115 kV Line; easement expiration over mine property requires removal & relocation of the line; Eveleth area, St. Louis Co. <i>PUC Docket No. TL-12-1123</i>
<b>2013-NE-N2</b>  <i>North Shore Switching Station</i>	2013/A	4042	No	MP	New 115 kV switching station needed to improve industrial customer reliability. Silver Bay, Lake Co.
<b>2013-NE-N3</b>  <i>Two Harbors Transformer</i>	2013/A	4043	No	MP	New 115/14 kV transformer at Two Harbors Switching State; age & condition of existing Two Harbors substation. Two Harbors, Lake Co.

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<b>2013-NE-N4</b> <i>Mesabi 115 kV Project</i>	2012/B	3791	No	MP	115 kV switching station, capacitor banks, transmission line upgrades to improve reliability & facilitate industrial load growth in the Keewatin area, Itasca & St. Louis Cos.
<b>2013-NE-N5</b> <i>Canisteo Project</i>	2013/A	4040	No	MP	New substation in Boswell – Nashwauk 115 kV line to serve new industrial customer near Taconite, Itasca Co.
<b>2013-NE-N6</b> <i>Panasa Project</i>	2013/A	4041	No	MP	Panasa Project: Tap of Nashwauk – Blackberry 115 kV line to serve new industrial customer near Calumet, Itasca Co.
<b>2013-NE-N7</b> <i>Canosia Road Substation</i>	2013/B	4044	No	MP	New 115/14 kV substation in Arrowhead – Cloquet 115 kV line to unload feeders at existing Cloquet Substation and retire aging Midway Substation. Esko, Carlton Co.
<b>2013-NE-N8</b> <i>Embarrass Transformer:</i>	2013/B	4045	No	MP	New 115/23 kV transformer at Embarrass Switching Station; unload Laskin – Virginia 46 kV system; Hoyt Lakes area, St. Louis Co.
<b>2013-NE-N9</b> <i>15th Avenue West Transformer</i>	2013/C	4047	No	MP	New 115/34.5 kV transformer at 15th Avenue West; reliability, load growth, & unloading existing substations. Duluth, St. Louis Co.
<b>2013-NE-N10</b> <i>Graham Mine Substation</i>	2013/C	4046	No	MP	New substation in Laskin – Hoyt Lakes 138 kV line to facilitate industrial customer expansion, Hoyt Lakes Area, St. Louis Co.
<b>2013-NE-11</b> <i>Arrowhead 230 kV Cap Bank</i>	2012/A	3843	No	MP	New 40 MVAR capacitor bank needed for voltage support at HVDC terminal; Hermantown, St. Louis Co. <i>Timeframe: Completed</i>

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<b>2013-NE-N12</b> <i>Bison 230 kV Cap Bank</i>	2012/A	3842	No	MP	New 40 MVAR capacitor bank needed for voltage support at Bison Wind Energy Center; New Salem, North Dakota. This is a project in North Dakota and is reported here for informational purposes only. <i>Timeframe: Completed</i>
<b>2013-NE-N13</b> <i>Great Northern Transmission Line</i>	2013/B 2012/C	3831 3832	Yes	MP/MH	New 500 kV & 345 kV lines from Winnipeg-Iron Range-Duluth to facilitate increased transfer capability from Manitoba – United States, increase regional access to clean, renewable Canadian hydropower, and improve system reliability (MTEP Project #3831 is the 500 kV build and Project #3832 is the 345 kV build). Impacted counties could include Kittson, Roseau, Marshall, Pennington, Red Lake, Polk, Clearwater, Lake of the Woods, Beltrami, Koochiching, Itasca, and St. Louis. (see Section 3.3.2) <i>PUC Docket No. CN-12-1163</i> <i>Timeframe: October 2013</i>
<b>2013-NE-N14</b> <i>NERC Facility Ratings Alert Medium Priority</i>	2013/A	4293	No	MP	Derates and physical mitigation on NERC “medium” priority lines. MP system-wide
<b>2013-NE-N15</b> <i>NERC Facility Ratings Alert Low Priority</i>	2013/A	4294	No	MP	Derates and physical mitigation on NERC “low” priority lines. MP system-wide
<b>2013-NE-N16</b> <i>HVDC Valve Hall Replacement</i>	2013/B	4295	No	MP	Modernization of Arrowhead & Square Butte converter stations. Hermantown area, St. Louis Co, MN & Center, ND

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<b>2013-NE-N17</b> <i>HVDC 750 MW Upgrade</i>	2013/C	3856	No	MP	Upgrade capacity of existing HVDC line & terminals to 750 MW. Hermantown area, St. Louis Co.
<b>2013-NE-N18</b> <i>44 Line Upgrade</i>	2014/A	4425	No	MP	Increase capacity of existing 115 kV line, Forbes – Hibbing, St. Louis Co.
<b>2013-NE-N19</b> <i>Hoyt Lakes Sub Modernization</i>	2014/A	4426	No	MP	Rebuild and reconfigure aged Hoyt Lakes Substation to serve new industrial customer. Hoyt Lakes area, St. Louis Co.
<b>2013-NE-N20</b> <i>Haines Road Capacitor Bank</i>	2014/C	4427	No	MP	New 115 kV capacitor bank at Haines Road Substation needed for voltage support in the Duluth area, St. Louis Co.
<b>2013-NE-N21</b> <i>Verndale – Hubbard 115 kV Line</i>	2014/B	2571	Yes	GRE/ MP	New Hubbard-Cat River 115 kV line that will replace 2007-NE-N3. Due to motor starting at pumping station, it was decided to immediately operate at 115 kV. To do so, Hubbard 115 kV bus would need the removal of a 115/34.5 kV transformer. This transformer would be moved to the new proposed Cat River Substation. The 115 kV line is expected to be over 20 miles in length and will serve 34.5 kV load between Verndale and Hubbard.



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<b>2013-NE-N22</b>  <i>Osage Area 115 kV Line</i>	2014/B	4378	Yes	GRE	Due to system intact and contingency voltage concerns in the Osage area and the radial aspect of two GRE radial lines, it was decided to build a Hubbard-Elijah-Potato Lake 115 kV system to provide higher reliability to the loads of concern. To do so, Hubbard 115 kV bus would need the removal of a 115/34.5 kV transformer. This transformer would be moved to the new proposed Elijah Substation. The 115 kV line is expected to be over 17 miles in length and will serve 34.5 kV load between Hubbard and Long Lake largely in the Osage area. The Potato Lake-Mantrap radial is expected to be built to 115 kV prior to this project being in service (2009-NE-N7).
<b>2013-NE-N23</b>  <i>39 Line &amp; 16 Line Reconfiguration</i>	2013/B	4428	No	MP	Reconfigure Laskin – Virginia 115 kV Line and Virginia – ETCO – Arrowhead 115 kV Line; easement expiration over mine property requires removal & relocation of the line; Possible alternative to 39 Line Reconfiguration (2013-NE-N13) due to construction issues. Eveleth area, St. Louis Co. <i>PUC Docket No. TL-12-1123</i>

### 6.4.2 Completed Projects

Some inadequacies in the Northeast Zone that were identified in the 2011 Biennial Report were alleviated through the construction and completion of specific projects over the last two years or can be moved to the completed category because changed circumstances have eliminated the need for the project. Information about each of the completed projects is summarized briefly in the table below. More information about these projects and inadequacies can be found in the 2011 Biennial Report. Also, additional information is available by contacting the designated person for the utility that was responsible for constructing the project.

<b>MPUC Tracking Number</b>	<b>MTEP Year/ App</b>	<b>MTEP Project Number</b>	<b>CON</b>	<b>Utility</b>	<b>Description</b>	<b>Date Completed PUC Docket</b>
<b>2003-NE-N4</b> <i>Central Lakes Area</i>	2005/A	600	No	GRE/ MP	Southdale-Scearcyville 115 kV line (aka Baxter-Southdale) and Scearcyville Substation	July 2012
<b>2003-NE-N5</b> <i>Pierz-Genola Area</i>	2010/A	1018	No	GRE/ MP	MP Little Falls to GRE Little Falls 115 kV line <i>PUC Docket No. TL-11-318</i>	April 2013
<b>2003-NE-N9</b> <i>Nashwauk Area</i>	2011/B 2012/A	2569	No	GRE	Shoal Lake 115 kV distribution	October 2013

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<b>2005-CX-1</b>  <i>Bemidji – Grand Rapids 230 kV Line</i>	2006/A	279	Yes	CapX	Added new 230 kV line between Boswell and Wilton (Bemidji – Grand Rapids 230 kV line) to support the Bemidji area and the Red River Valley during winter peak conditions. This project is located in both the Northwest and Northeast zones. <i>PUC Docket No. TL-07-1327.</i>	November 2012
<b>2005-NE-N2</b> <i>Mesaba IGCC Generator</i>	2007/A	1025	No	Excelsior Energy <sup>1</sup>	Mesaba IGCC Generator outlet lines, Grand Rapids area, Itasca Co.	2005-NE-N2
<b>2007-NE-N3</b>  <i>Hubbard – Menahga Area</i>	2011/A	2571	NA	GRE	MN Pipeline-Menahga 115 kV line (operated at 34.5 kV). This project is impacted by pipeline pumping station voltage drop issues. Consideration was giving to extending the line to Hubbard or to the RDO-Osage 34.5 kV line.	Cancelled, replaced with the Hubbard – Cat River project 2013-NE-N21
<b>2007-NE-N5</b> <i>Pokegama Area</i>	2010/A	2576	No	GRE	Pokegama 115 kV distribution substation	Dec. 2011
<b>2009-NE-N3</b> <i>Line 28 Reroute</i>	2010/A	3091	No	MP	Relocate line, Nashwauk area, Itasca Co.	May 2013
<b>2011-NE-N3</b> <i>Swan Lake Sub</i>	2010/A	2762	No	MP	New Swan Lake load serving Substation, Duluth, St. Louis Co.	April 2013

<sup>1</sup> Excelsior Energy is an independent energy development company that has proposed to construct and operate the Mesaba Energy Project and is not a MTO member. See Section 6.3.8 of the 2009 Biennial Report for more information.

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<b>2011-NE-N4</b> <i>LSPI 34.5 kV</i>	2009/A	2763	No	MP	Added LSPI 34.5 kV Transformer, Duluth, St. Louis Co.	March 2012
<b>2011-NE-N6</b>	2011/A	3374	No	MP	Re-energized existing Substation, Taconite MN area, Itasca Co.	April 2012
<b>2011-NE-N7</b> <i>25 Line Tap</i>	2012/A	3532	No	MP	25L tap, constructed 115/34.5 kV substation, Hibbing MN area, St. Louis Co.	July 2012
<b>2013-NE-N11</b> <i>Arrowhead 230 kV Cap Bank</i>	2012/A	3843	No	MP	New 40 MVAR capacitor bank needed for voltage support at HVDC terminal; Hermantown, St. Louis Co.	December 2012
<b>2013-NE-N12</b> <i>Bison 230 kV Cap Bank</i>	2012/A	3842	No	MP	New 40 MVAR capacitor bank needed for voltage support at Bison Wind Energy Center; New Salem, North Dakota	August 2012