Minnesota River Crossings to New Prague Advisory Task Force

Third Meeting- Thursday, April 30, 2009

DRAFT MEETING NOTES

Welcome and Agenda Review

The facilitator for the task force, Georgie Peterson, State of Minnesota Management Analysis & Development welcomed task force members and all present. Task force members were asked to introduce themselves and share their designation (representing a particular constituency or serving as an individual citizen member of the advisory task force). Task force members signed an attendance sheet to indicate their presence. Citizen observers were reminded that there was time set aside at the end of the meeting for them to speak to the task force and they were asked to "sign in" if they intended to speak.

Several task force members suggested that citizens be asked for comments during the meeting, as the task force discussed the various alternatives before it, i.e., it would be more helpful for citizens to speak during the meeting rather than at the end. The task force agreed on this approach.

Meeting Purpose

The task force charge for the day, to discuss alternative routes and/or route segments and to list pros and cons for each alternative, was referenced as well as the role of the advisory task force meetings in the permitting process.

Review and Approval of Meeting Notes

Advisory task members were asked if there were revisions or additions to the notes from the second task force meeting. No revisions were identified by task force members. However, two resolutions by governmental units (Le Sueur County, City of New Prague) were presented and asked to be added (Appendix A). Georgie noted that a re-write of a homework page, submitted by an advisory task force member at the last meeting, will be included in the minutes of the first meeting in the homework section.

Update on Certificate of Need for Project

Scott Ek, Office of Energy Security, said that the Public Utilities Commission, on April 16, 2009, approved a certificate of need for the CapX 2020 projects, including the proposed Brookings County – Hampton transmission line. Additionally, approval for the Brookings line is contingent on the line carrying a certain percentage of renewable energy. The Commission has

not yet issued its formal order for the Certificate of Need, thus detail about the approved need and its components are not yet available.

Scott noted that the Commission's description of the approved need would influence which route alternatives would be feasible for the proposed Brookings line. He noted that route alternatives using relatively distant interstate highways (e.g., I-90 route) are likely not feasible since they will not meet the need for the project, at least as the need for the project is currently understood.

A discussion ensued and several task force members were disinclined to continue with the agenda to the "Review of Alternatives" process proposed by the facilitator. Other task force members wanted to continue, noting their investment of time and energy to develop alternatives and their interest in getting the best ideas on the table. A range of opinions were expressed including: (1) doubt that real change would come from task force deliberations because all of the decisions have already been made, (2) a belief that the scoping process is only a cover for lawsuits, (3) that there should be a unified recommendation from the task force on interstate highway routes to send a message that citizens in this part of the state are not pleased, (4) if the task force "quits in protest," then it loses the chance to comment further on alternatives that may very well be part of the project.

Ms. Hagen proposed a resolution from the task force to recommend the southern suggested alternative route (I-90 route and its variations), which was read by Mr. Swenson. The resolution was discussed and Ms. Hagen briefly left the meeting to make edits.

Review of Alternatives

Ultimately, task force members decided to review the alternatives generated at the second meeting of the task force. Maps (slightly revised to correct errors in the mailed versions) and impact tables were distributed to task force members and reviewed (Appendix B). Mr. Holicky noted that the alternative in Tyrone Township (labeled as SW_Alt5) was not quite correct on the map. There is already an underground line in this area that might help facilitate the proposed Brookings line.

Citizens were offered the opportunity to comment to the task force on each alternative. The task force identified pros and cons for each of the alternatives as follows:

NE Alterative 2 (NE_Alt2)

Task Force Member Comments

Pros

- When the route crosses the road at Belle Plaine it continues on the road and so avoids homes and uses an existing right-of-way (ROW).
- The applicant's proposed routes create "triangles" in the Helena substation area where property owners will be fenced in by power lines. The alternative avoids this effect.

Cons

- Possible impact on dairy farms
- Possible impact on an airfield
- Connects to the northern route (applicant's alternative route)

Questions

- Why is there a need to go north and/or south of Highway 19?
- Are federal guidelines for electrical reliability applicable when the distance between lines is small? What is this distance?
- Why can't the line follow the already-existing, diagonal 345 kV line in the Helena substation area?
- The diagonal 345 kV line goes to Iowa; thus, it could connect with more southerly alternatives, e.g., I-90 route.
- Why not follow Highway 3/11 south? Too many homes?

Citizen Comments

Speaker 1

- General question: Do we know if there is or will be foreign ownership of easements associated with this line? Scott Ek, OES, replied that the transmission lines will be owned by a consortium of 11 utilities in the Upper Midwest. These companies are listed in the route permit application. None of these companies appears to be "foreign-owned."

Speaker 2

- The speaker addressed his comments to the applicant's proposed alternative route in the Belle Plaine area, not the NE_Alt2 alternative.

The speaker referenced a City of Belle Plaine resolution and emphasized that the applicant's proposed alternative route is inappropriate because the route:

- Locates power lines within 1 mile of a new elementary school, and
- Infringes upon an area designated as a "next buy" for the city (falls within an area scheduled for annexation).

The speaker noted that the Blakely Township Board has concerns about the applicant's proposed alternative route, including:

- This area has already been impacted by the MinnCan pipeline project,
- The Metropolitan Council has included some of this area as an option in a search process for a new park, and
- There are dairy farms and century farms in the area.

The speaker presented a signed statement of concern (746 citizen signatures) regarding the applicant's proposed alternative route.

NE Alternative 4 (NE_Alt4)

Task Force Member Comments

Pros

- The alternative follows a county road / established right-of-way
- There are homes "in spots" (not a great density of homes)
- The alternative avoids negatives associated with the applicant's proposed alternative route in this area, including impacts to dairy farms, day cares, and wetlands. The applicant's proposed alternative route goes "cross country."

Cons

- There are homes are on this alternative, but they could be avoided by routing or mitigation (under-grounding).

Questions

- Has the Public Utilities Commission and Department of Commerce given fair consideration to the use of underground lines? Such lines are being considered in Western Europe. There are higher costs at this time but this is an area that needs consideration. Ms. Prchal submitted an overview of under-grounding technology in Europe (Appendix C). Scott Ek, OES, noted that under-grounding is more appropriately considered a mitigation strategy, rather than a route alternative.
- There is uncertainty with the data concerning structures. Dots on the map indicate homes, but out-buildings, tanks, and other structures may be overlooked.
- Can the line be routed to jog across roads to avoid homes?

NE Alternative 5 (NE_Alt5)

Task Force Member Comments

Pros

- It follows the existing 345 kV line

Cons

- None offered

NW Alternative 3 (NW_Alt3)

Task Force Member Comments

Pros

- It impacts two homes far from the road instead of six homes close to the road
- It could be routed on boundary lines
- It does not compound exposure to other existing lines. There is already a 345 kV line and a gas pipeline in this area.

Cons

- That the proposed line is "coming through" at all.

Questions

- Payments to landowners in the easement process are unfair. Ms. Ruhland noted that there is landowner interest in changing eminent domain laws in Minnesota with respect to public utilities.
- During the planning process for this line, there has been little communication with residents by Great River Energy.
- Where is the power on this line going? Is it true that it is going east (e.g. La Crosse, Chicago)? Scott Ek, OES, noted that the propose line has eight substations (four existing; four proposed). These substations act as on/off ramps for power. Thus, communities along the line can draw on the power or provide power.

Citizen Comments

Speaker 1

- The speaker related his opinion on several points, including:
  - The only reason the utilities are in this business is to make money,
  - There is no real concern for citizens,
  - Minnesota does not need these transmission lines,
  - What this process does is encourage the tendency in society to have no concern for one another (a selfish perspective of moving the problem to your neighbor).
  - He is proud of the task force's "common sense" and noted that there is no common sense outside of local citizenry.

SW Alternative 5 (SW_Alt5)

Discussed at the beginning of the route alternatives review as an existing underground line that might be a corridor or otherwise facilitate the proposed Brookings line. No additional pros or cons suggested.

I-29 to I-94 Alternative

Task Force Member Comments

Pros

- Route follows large, existing rights-of-way.
- The route is less populated (open prairie).

Cons

- Could interfere with waterfowl flyways near Big Stone Lake.

US 14 to I-90 Alternative

Task Force Member Comments

Pros

- Alleviates Minnesota River valley impacts (avoids the valley).
- Relatively close to existing substations
- Crosses diagonal 345 kV line going to Iowa
- Follows a railroad right-of-way

Cons

- How is the route getting from US 14 to I-90? What is the diagonal? A railroad right-of-way? Would it be better to drop down on MN 15 to I-90 at Fairmont?

I-90 to I-35 Alternative

Task Force Member Comments

Pros

- Uses existing right-of-way
- "Just head south to Chicago!"
- Less populated between cities; avoids cities
- Might serve the long-term development of the power grid well; crosses land with high wind energy potential
- The applicant's proposed substations could be moved south
- Crosses diagonal 345 kV line and could connect with it

Cons

- None offered

I-90 to US 52 Alternative

Task Force Member Comments

Pros

- Follows the highway; direct to the Hampton substation area

Cons

- None offered

I-90 to MN 56 Alternative

Task Force Member Comments

Pros

- Advantages similar to I-90 to I-35 alternative
- Can pick up power at McNeilus wind farms and Dodge Center

Cons

- None offered

Task force members did not want to list pros and cons for the applicant's preferred and alternative routes.

Task force members discussed Ms. Hagen's resolution supporting: (1) use of the southern suggested alternative routes (I-90 route and its variations), and, in the alternative, (2) the under-grounding of the entire line. The resolution was passed around the table for signatures and signed by fourteen task force members (Appendix D).

Task force members discussed whether to make specific mitigation recommendations for route alternatives. Two recommendations were suggested: (1) under-grounding along NE_Alt4 near Heidelberg, and (2) under-grounding along the applicant's preferred route along County Road 2.

Report Discussion

Georgie discussed logistics for finalizing meeting notes and the advisory task force's report. Meeting notes for this meeting will be sent out for review. A draft final report, for task force comment, is scheduled to be sent out the week of May 11. The draft will include information on the review period (about one week) and where to send comments.

Final Public Comments to Advisory Task Force

Citizens who had not spoken previously were provided an opportunity to address the task force. Key points of citizen-speakers are listed below (with comments made by an individual grouped together).

Speaker I

- As mitigation near Heidelberg (NE_Alt4), put the line underground. Ms. Prchal submitted a letter on this and related topics (Appendix E).

Speaker II

- Looking at the applicant's preferred route, no line should be build along County Road 2.
- If necessary, go underground near homes on County Road 2.
- Go on county lines and section lines and not through farm fields.

Speaker III

- Were "deals cut" with particular communities along the applicant's proposed routes? Early communications and later route maps do not match, particularly in the Le Sueur area. What was the basis for these changes?

Speaker IV

- Concern that a city administrator was uninterested in / insensitive to the opinions of a citizen regarding the need for the line and the applicant's proposed routes.

STATE OF MINNESOTA
Energy Facility Permitting

Attendance Sheet
Proposed Brookings County - Hampton 345 kV Transmission Project
Minnesota River Crossing to New Prague Advisory Task Force
April 30, 2009

PLEASE FILL IN ANY BLANKS, MAKE SURE INFORMATION IS CORRECT, AND CHECK BOX TO INDICATE ATTENDANCE

Last	First	Title	Local Government Unit	Address 1	Address 2	City	State	Zip	Phone	Email	
Brockway	Kathy	Planning and Zoning Director	Le Sueur County	88 South Park Ave.		Le Center	MN	56057	507-357-8209	kbrockway@co.le-sueur.mn.us	In Attendance
Hagen	Dolores			PO Box 68	212 North 6th St.	Henderson	MN	56044	507-248-3824	dhagen@closingthegap.com	In Attendance
Holicky	Howard	Township Supervisor	Tyrone Township	30970 281st Ave.		Henderson	MN	56044		holickyhowardp@hughes.net	In Attendance
Lambrecht	Joe	Township Supervisor	Lanesburg Township	436 Maplewood Circle SW		New Prague	MN	56071	612-747-1515	jvl12345@aol.com	In Attendance
Logue	Kelly			1800 East 260th St.		New Prague	MN	56071	952-758-9597	klogue@bevcomm.net	In Attendance
Maas	Terry	Township Supervisor	Helena Township	26121 Aberdeen Ave.		New Prague	MN	56071	952-200-5809	tamaas@bevcomm.net	In Attendance
Minar	Dave			25816 Drexel Ave.		New Prague	MN	56071	952-212-9506	daveandflo@cedarsummit.com	In Attendance
Ondich	Kenneth	Planning Director	City of New Prague	118 Central Ave. N		New Prague	MN	56071	952-758-1136	kondich@ci.new-prague.mn.us	In Attendance
Prchal	Jodi			32155 Sanborn Dr.		Montgomery	MN	56069	952-758-4213	mrsprchal@aol.com	In Attendance
Rist	Linda		Henderson Township								In Attendance
Rucks	Maynard	Township Clerk	Jessenland Township	35493 226th St.		Henderson	MN	56044	507-317-7158	king70@frontiernet.net	In Attendance
Ruhland	Theresa			8375 W. 280th St.		New Prague	MN	56071	952-873-6105	trruhl@hotmail.com	In Attendance
Schmidt	Brian	Township Supervisor	Blakeley Township	17501 W. 250th St.		Belle Plaine	MN	56011	952-873-4402		In Attendance
Slack	Kevin	Township Treasurer	Belle Plaine Township	7982 228th St. W		Belle Plaine	MN	56011	952-492-2081	kevin142@aol.com	In Attendance

office of energy security
Minnesota Department of Commerce

STATE OF MINNESOTA
Energy Facility Permitting

Attendance Sheet
Proposed Brookings County - Hampton 345 kV Transmission Project
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PLEASE FILL IN ANY BLANKS, MAKE SURE INFORMATION IS CORRECT, AND CHECK BOX TO INDICATE ATTENDANCE

Last	First	Title	Local Government Unit	Address 1	Address 2	City	State	Zip	Phone	Email	
Swenson	Keith	Mayor	City of Henderson	PO Box 431	208 N. 5th St.	Henderson	MN	56044	612-532-4483	keithswenson@mchsl.com	☒ In Attendance
Wagner	Joe	County Commissioner	Scott County	18020 Xanadu Ave.		Jordan	MN	55352	612-270-2660		☒ In Attendance
Wicks	Darvin	City Councilman	City of Le Sueur	101 North Morningside		Le Sueur	MN	56058	507-665-3919	lsdiner@hotmail.com	☐ In Attendance
Ek	Scott	Office of Energy Security		85 7th Place East	Suite 500	St. Paul	MN	55101	651-296-8813	scott.ek@state.mn.us	☐ In Attendance
Kirsch	Ray	Office of Energy Security		85 7th Place East	Suite 500	St. Paul	MN	55101	651-296-7588	raymond.kirsh@state.mn.us	☐ In Attendance
Peterson	Georgie	Management Analysis & Development		50 Sherburne Ave.	203 Admin. Bldg.	St. Paul	MN	55155	651-201-2274	georgie.peterson@state.mn.us	☐ In Attendance
											☐ In Attendance
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											☐ In Attendance

Appendix A

Minnesota River Crossings to New Prague Advisory Task Force
April 30, 2009

Resolutions by Governmental Units

SOURCE:
JODI PRCHAL

RESOLUTION BY THE COUNTY BOARD
LE SUEUR COUNTY

On motion by Connolly, seconded by Grimm and unanimously approved, the Board approved the following resolution:

COUNTY BOARD RESOLUTION 2009-10
CAPX2020 TRANSMISSION LINE PROJECT

WHEREAS, Capx2020 Utilities filed a Route Permit application with the Minnesota Public Utilities Commission on December 29, 2008 for the Brookings County-Hampton 345 kilovolt (kV) transmission line project based on the State's routing criteria and input received from interested stakeholders, including local government officials and landowners in the project area; and

WHEREAS, the Le Sueur County Board of Commissioners recognizes the need for additional capacity is driven by urban development; and

WHEREAS, the Le Sueur County Board of Commissioners recognizes the environmental sensitivity of the river, and the impact of the preferred route as it enters Le Sueur County from the west; and

WHEREAS, the Le Sueur County Board of Commissioners has heard from constituents regarding the location of the transmission line; and

WHEREAS, the Le Sueur County Board of Commissioners supports the location for the line as the alternative route up to the Helena Substation then the preferred route east to Hampton.

NOW THEREFORE BE IT RESOLVED, that the Le Sueur County Board of Commissioners hereby requests this option be considered as it is a more direct route with less impact to the residents of Le Sueur County.

STATE OF MINNESOTA

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COUNTY OF LE SUEUR

I, Peggy Donovan, County Coordinator of said County of Le Sueur, do hereby certify that I have compared the foregoing copy with the original resolution as adopted by the County Board of said County at their meeting held on the 21st day of April 2009 and recorded in Commissioner Record Book now remaining on file and on record in my office and that the same is a correct transcript therefrom, and of the whole of such original.

Witness by hand and official seal this 24th day of April, 2009.

Peggy Donovan

County Coordinator

RESOLUTION #09-04-20-01

RESOLUTION OPPOSING THE PROPOSED PREFERRED AND ALTERNATIVE ROUTES FOR THE CAPX2020 TRANSMISSION LINE PROJECT AND RECOMMENDING A NEW ALTERNATE ROUTE

WHEREAS, Capx2020 Utilities filed a Route Permit application with the Minnesota Public Utilities Commission on December 29, 2008 for the Brookings County-Hampton 345 kilovolt (kV) transmission line project based on the State's routing criteria and input received from interested stakeholders, including local government officials and landowners in the project area; and,

WHEREAS, the filed Route Permit application identifies a preferred and alternate route, with segments of both passing through the southern half of Scott County and northern half of LeSueur County in close proximity to the City of New Prague 2030 Growth Boundaries; and,

WHEREAS, the Minnesota Office of Energy Security has established two advisory task force groups with the specific charge to a.) assist the OES in identifying impacts and issues in the area of concern that should be evaluated in the EIS and to b.) assist the OES in identifying alternative transmission line routes or substation locations in LeSueur, Scott , Rice and Sibley Counties that may maximize positive impacts and minimize or avoid negative impacts of the project in the area of concern; and,

WHEREAS, the Council Members of the City of New Prague have been contacted by landowners regarding objections to the proposed preferred and alternate route segments and have been notified in the form of resolutions adopted by Scott County and Lanesburgh Township that each respective entity does not support portions of both the proposed preferred or alternate route locations; and,

WHEREAS, the New Prague City Council finds that the preferred route alignment along County Highway 2 will result in significant impacts to the future planning of this road corridor which is identified as a future A-Minor arterial in the City's 2030 Comprehensive Plan and the adopted Scotty County 2030 Comprehensive Plan Update and therefore will require major right-of-way expansion and additionally right of way to include the City's planned bike trail along County Highway 2; and,

WHEREAS, the New Prague City Council finds that the proposed preferred and alternate route alignments through Scott County from the Minnesota River crossing to Lake Marion Substation pass near many existing homes and areas planned for more future homes; and,

WHEREAS, the New Prague City Council finds that the alternate route alignment through LeSueur County would cut through the middle of many century farms which could affect the economic viability of the farming operations; and,

WHEREAS, the New Prague City Council finds that the alternative route, while being proposed approximately 1 mile south of the City's Growth Boundary, will lie within the City's 2 Mile Extraterritorial Subdivision Review Area within LeSueur County; and,

WHEREAS, The New Prague City Council finds that the preferred route alignment along County Highway 2 abuts the City of New Prague's 2030 Growth Boundary which comprises a future single family residential area which does not keep the line away from future homes and would have significant future impacts on the City's growth; and,

WHEREAS, the New Prague City Council finds that the preferred route alignment along County Highway 2 will impact numerous properties within the existing MinnCann pipeline corridor, which creates undue hardship on future private development options for these landowners and impedes the City's ability to provide logical extensions of roads and other public infrastructure to serve the future development; and,

NOW THEREFORE BE IT RESOLVED by the New Prague City Council that the Council opposes both the preferred and alternative routes for the CapX2020 Transmission Line Project and that the Office of Energy Security should consider a new alternative transmission line route. This new alternative route would start near Brookings, head south along Interstate 29 to Interstate 90, follow Interstate 90 to the east, north along Highway 56 to Dodge Center and finally a leg heading north to Hampton or continuing east to LaCrosse.

This resolution is effective immediately upon its passage and without publication.

Passed this 20th day of April, 2009.

W.A. Bender, Mayor

State of Minnesota)
)ss. *(CORPORATE ACKNOWLEDGMENT)*
County of Scott & Le Sueur)

Subscribed and sworn before me, a Notary Public this 23rd *day of* April, *2009.*

Notary Public

MARY J. HRUBY
Notary Public-Minnesota
My Commission Expires Jan 31, 2013

ATTEST: Michael J. Johnson
Michael J. Johnson, City Administrator

State of Minnesota)
)ss. *(CORPORATE ACKNOWLEDGMENT)*
County of Scott & Le Sueur)

Subscribed and sworn before me, a Notary Public this 23rd *day of* April, *2009.*

Notary Public

MARY J. HRUBY
Notary Public-Minnesota
My Commission Expires Jan 31, 2013

Appendix B

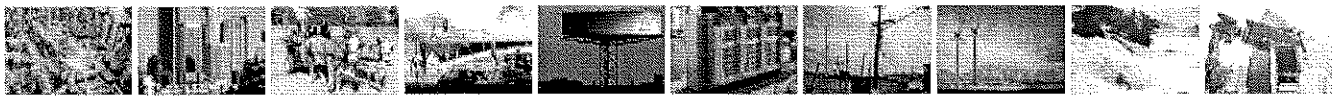
Minnesota River Crossings to New Prague Advisory Task Force
April 30, 2009

Maps of Alternatives and Impact Tables
(distributed at meeting)

Appendix C

Minnesota River Crossings to New Prague Advisory Task Force
April 30, 2009

Information on Underground High Voltage Cables in Europe



Underground High Voltage Cables: Wiring Europe for the Future

By Hans De Keulenaer / Published on Fri, 2006-08-25 19:56

Underground High Voltage Cables: Wiring Europe for the Future

In many of Europe's largest cities and in areas where construction of overhead transmission lines creates difficulties, high and extra-high voltage underground electricity cable systems rated 220kV and above have become part of the backbone of modern day power transmission infrastructure. Although cables have been in use for over half a century, today's underground high voltage cables are leveraging state-of-the-art technology and advanced design to expand their reach and are increasingly becoming an efficient and reliable alternative to overhead lines. Underground high voltage cables are powering a changing world.

This eBook presents the main benefits of underground high voltage cables:

- Versatile and Unique
- Cost Effective Solution
- Enhanced Technology
- Increased Reliability
- Reduced Transmission Losses
- Advanced Installation Techniques
- Improved Monitoring

If you are a cable specialist and are interested in learning more details about underground high voltage cables, choose from the topics below:

- Environmental: Information about EMFs, land issues, recyclability, installation impacts, and sensitivity benefits.
- Regulation: Details on basic mechanisms, regulatory drivers, and incentives.
- Case Studies: Presentation of reliability showcases, unstopping bottlenecks, overcoming obstacles, and strategies for success.
- System Reliability: Information about overload capacity, failure issues, technical changes, and warranties and testing.
- Life Cycle: Details about transmission losses, planning delays, and replacement cycles.

Versatile and Unique

Underground cables have unique properties for transmitting power - they are out of sight, often require only a narrow band of land to install, emit no electric field and can be engineered to emit no magnetic fields, have better power loss characteristics and can absorb emergency power loads. As a result, underground cables assist the transmission of

Please Scan + Submit for Public Comment.

The State of MN should be utilizing underground lines.

power across:

- Densely populated urban areas;
- Areas where land is unavailable or planning consent is difficult;
- Rivers and other natural obstacles;
- Land with outstanding natural or environmental heritage;
- Areas of significant or prestigious infrastructural development; and
- Land whose value must be maintained for future urban expansion and rural development.

Cost Effective Solution

In the past, the higher cost of underground cables was a significant deterrent to their use. However, with lower cost production methods, improved technologies and increased reliability, the cost differential between underground cables and overhead power lines is narrowing. This means that power project developers are more frequently turning to underground cables as an economic and technically effective alternative when physical obstructions or public opinion hinder the development of networks. Opportunity costs from lengthy planning delays are reduced and the expense and complexity of public legal cases are minimized.

Apart from the reduced visual impacts, underground cables also offer lower maintenance costs than overhead lines. They are also less susceptible to weather-related issues such as storm damage, interruptions, costs of storm damage surveys and precautionary storm shutdowns. In addition, underground cables contain high quantities of copper, the most conductive engineering metal, resulting in 30 percent lower power losses than overhead lines at high circuit loads and improved system efficiency.

Advanced Features Offer Savings and Reliability

Today's cable manufacturers are able to provide innovative and customized solutions for the modern state-of-the-art power transmission industry. Underground high and extra-high voltage cables are equipped with new design features, such as real-time monitoring, which make them an effective and reliable alternative to overhead lines.

Enhanced Technology

Cables for burial on land using extruded insulation technology are taking the place of traditional oil-filled cables because of significant advantages that include:

- Easier installation and jointing;
- Better environmental compatibility and friendliness in service;
- Reduced installation costs; and
- Reduced or practically zero maintenance.

Increased Reliability

Today's cable systems, using cross-linked polyethylene (XLPE) as the primary insulation material, have been performance tested to ensure reliability. New cables based on this technology have been running for over 20 years with an excellent reliability record.

Reduced Transmission Losses

Underground extra-high voltage cables generally have more efficient copper conductors and operate at lower temperatures than overhead lines. These properties combine to transmit energy to end users as efficiently as possible, which is especially important for remote renewable and low carbon generators. Reducing these power transmission losses makes a valuable contribution to lowering greenhouse gas emissions.

Advanced Installation Techniques

With new burial and jointing techniques, underground cable projects that once took years to complete can now take only months to install. Through the use of directional drilling and "trenchless" burial techniques, cable manufacturers are applying leading edge design know-how to dramatically reduce installation times. In some installations, where it is not

possible to trench or duct the cables, underground tunnels have been built to carry the cables. In some cases, significant cost savings have been made by placing cables in existing tunnel systems.

Improved Monitoring

To reduce outage time, power system operators can monitor underground cables through built-in temperature sensors. The sensors allow the cable to safely accept enormous emergency power overloads when other parts of the network are down. This means that the overall system becomes more robust and supply is maintained. In the rare event of a cable fault, generally caused by external disturbance, advanced monitoring of temperature and integrity in real time will allow faults to be located and repairs to be carried out in a much shorter timeframe than in the past.

Powering a Changing World

Power markets across Europe are being challenged by four often conflicting drivers:

1. Requirements to carry more power generated from remote renewable and nuclear sources of energy;
2. Requirements to increase the interconnection capacity between countries;
3. Requirements to increase system security while replacing ageing transmission assets; and
4. Increased planning delays for new overhead transmission infrastructure due to heightened public interest in environmental matters.

Transmission companies and cable manufacturers are searching for new ways to manage the response to these drivers.

By targeting problem locations for overhead transmission projects at the planning stage and by proposing underground cable solutions, developers can:

- Gain support from stakeholders who would otherwise oppose transmission projects;
- Reduce or eliminate planning delays so projects are completed on reliable timescales to satisfy investors, customers and regulators;
- Leverage the improved lifecycle cost of underground cables to control costs on the overall project; and
- Demonstrate to investors that business risk from emerging environmental and corporate social responsibility drivers is being managed effectively.

Previous Wave Dragon

Next 1. Environmental Module

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- Ensuring future reliability of the North-American power grid
- Enhancing the European transmission grid
- High Voltage Cable Inspection
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Appendix D

Minnesota River Crossings to New Prague Advisory Task Force
April 30, 2009

Task Force Resolution

Minnesota River Crossing to New Prague
Advisory Task Force
Resolution

We, members of the Minnesota River Crossing to New Prague Advisory Task Force recognizes the environmental sensitivity of the Minnesota River, and the impact of the preferred and alternative routes as they impact the Minnesota River Valley hereby resolve:

The body of evidence demonstrates that irreversible damage can and will be caused by construction, installation and/or maintenance of a high voltage double circuit 345 kV Transmission power line to the Minnesota River Valley General Landscape Context if using the preferred or alternate routes crossing of the Minnesota River, therefore recommend the following:

#1 **WHEREAS** the Impacts and Mitigation suggestions in section 6.2.8.7 of 6.3.3.1 by the applicants do not acknowledge any for the recreational resources held by private concerns such as the Le Sueur/Henderson Recovery Zone, Henderson Feathers or Scenic Byway and as stated "No impacts to area tourism are anticipated due to the presence of the transmission line, and no mitigation is necessary." is a blatantly false statement therefore the Minnesota River Crossing to New Prague Advisory Task Force, in order to correct this false statement, rejects the preferred and/or alternate routes and recommends use of the Southern Suggested Alternate Route as provided by the Task Force.

#2 **WHEREAS** the damage to Biological Resources, viewed as the most collectively important impact, by the task force members, cannot be mitigated by any way other than to remove potential for that impact, recommends removal of the preferred and alternative routes from consideration and adoption of the Southern Suggested Alternate Route as provided by the Task Force.

#3 **WHEREAS** the Socio-economic, EMF/Health and Safety, and Economic Impact issues where considered the three most important Top Considered Issues of potential damage by the proposed preferred and alternate routings, therefore, suggest routing to the Southern Suggested Alternate Route as provided by the Task Force be used.

#4 **WHEREAS** bureaucratic doubletalk dances around the health and safety issues such as statements within the Minnesota Department of Health, 2002 report: " Most researchers concluded that there is insufficient evidence to prove an association between EMF and health effects; however, many of them also concluded that there is insufficient evidence to prove that EMF exposure is safe." The Minnesota River Crossings to New Prague Advisory Task Force resolves rejection of the Le Sueur and or Belle Plaine

Crossings of the Minnesota River and recommends the Southern Suggested Alternate Route provided by the Task Force.

NOW THEREFORE BE IT RESOLVED, that the Minnesota River Crossings to New Prague Advisory Task Force hereby requests these options be considered and use of the Southern Suggested Alternate Route as provided by the Task Force (known on the task force map as the I 90 route) as it is a more direct route with less impact to the residents and ecology of the Minnesota River Valley.

Signed the 30th Day of April 2009 by members of the Minnesota River Crossings to New Prague Advisory Task Force:

Alternate Route - To Be Run Under Ground.

for New Prague city Council regarding route suggestion only.

Brian Schmidt
Blakeley twp.

Kevin
Belle Plaine Twp

Kathy Brockway - Route Selection Only.

Linda Rist - Henderson twp.

Appendix E

Minnesota River Crossings to New Prague Advisory Task Force
April 30, 2009

Note from Ms. Prchal Concerning Route Alternatives and Under-grounding

April 30, 2009

To Scott Ek, Ray Kirsch and Georgie Peterson,

I would like to clarify something to be added to the task force minutes from today's meeting and emailed to the members of the task force. I feel that there are other alternates that were submitted via email that should be considered and in the public record. So much of this depends on obstacles that we have no knowledge of or roads we are not familiar with. Since there was no data given on the gray line that is supposed to be connecting 169 to the existing Scott County Road 2, I asked someone tonight about it and they thought that it was supposed to be a future extension. With that knowledge ahead of time, planning could take place for pole placement knowing a future road would be going there. There are very few homes impacted near this gray line as well. As for the Scott County Road 2 populated areas/organic farms, underground mitigation should be utilized as much as possible.

When I spoke about the NE Alt 4 alternate(yellow) I was comparing **ONLY** the area of the jog north of County Road 28 (221st Ave) and where it comes back down to 28(on 141st Ave) . This was to eliminate the jog and run it **underground for less impact to homes** on County Road 28/Rice County 2 as an alternate to the alternate route. Underground should be highly considered in this entire project. In addition, the task force in New Market proposed another suggestion which should have been presented at the Henderson task force which included following the southern alternate route but then shooting straight across cross country and then following 60th St to Hwy 19. This would create an even bigger mess from an environmental standpoint while still impacting homes. This was not shown on our map but really should have been discussed as well. It may have been even more helpful to bring both task forces together for the last meeting or for a future meeting. I think there was confusion because of two different task forces not knowing what the other was proposing. I still feel that the Le Sueur River Crossing should be highly scrutinized as the environmental impacts are tremendous and find a better place to cross the river if it has to be crossed at all.

Sincerely,

Jodi Prchal