

From: [Youngman, Catherine A](#)
To: [Steinhauer, Suzanne \(COMM\)](#)
Subject: PUC DOCKET NO CN-12-113
Date: Thursday, November 15, 2012 6:01:20 PM

Dear Ms. Steinhauer:

I am a homeowner in Holly Creek Townhomes in Plymouth. I am very concerned about the Certificate of Need (CON) for the Hollydale 115kV HVTL, PUC Docket No. CN-12-113.

Please require Xcel to prove it has re-calculated need based on the most current demand projections as of November 2012. News stories in the Star Tribune on Nov. 2 and Nov. 9, 2012 indicate that demand has fallen in the last several years since Xcel filed their original request. A certificate of need should not be based on out-of-date data.

I am also concerned with aesthetics and setting precedents. The original route chosen for the 69kV line was not regulated by the city or state because of the lower voltage. The line was installed before any of the current housing developments were built. Saying this unregulated route sets a precedent for upgrading to a regulated route is unreasonable in this case.

No neighborhoods in Plymouth have 115 kV 70-90 foot metal transmission poles between homes. This is a new, dramatic and unnecessary precedent to set in Plymouth. The current precedent in Plymouth is that metal transmission poles are relegated to railroad right-of-ways or major highways. Highway routes are available. Because this is a contested case, Xcel needs to justify why it should set this new precedent, beyond the convenience of using an existing route.

We trust that you will consider all the public comments submitted and help to find a reasonable resolution. Thank you.

Sincerely,

Catherine Youngman

Address

16824 39th Ave N

Plymouth Mn 55446

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Dear Ms. Steinhauer,

Below are my comments regarding the Hollydale 115kV High Voltage Transmission Line ["HVTL"] Project, Certificate Of Need scoping, docket 12-113:

1. Significant potential impact of proposed solution:
 - a. The project is highly contested as evidenced by the large number of potentially affected properties and residents, the body of comments submitted to the record of the routing process docket (11-152), the 763 signatures on the petition to convert to the full routing permitting process, and the 428 signatures on the petition to utilize a contested case hearing for the CON process. There is an extensive body of proof that exhibits how significantly the community opposes the proposed project (including system solution and proposed route).
 - b. The short of it is that a for-profit corporation (Xcel) is trying to cut costs by proposing to use the least costly, but most impactful, solution. Ms. Steinhauer, the residents of Plymouth and Medina are looking to you for a thorough, unbiased approach in your analysis that incorporates independent and critical thinking. Since much input has been and will be provided by the Applicants, I believe that it is your duty to question the information you are given and to diligently verify and corroborate its validity.
2. Impact comparison basis:
 - a. While routing is arbitrarily separated from need, the environmental study for need must consider not only the issues in general, but the actual impact, accounting for the number of residents and property owners potentially impacted by each system solution. That is to say, each system solution will potentially impact a different number of residents and property owners. If a certain system solution is determined to have certain impacts (socioeconomic, health, safety, aesthetics, noise, etc.) for a typical household, then to facilitate a true comparison among the various solutions, these impacts must be quantified and compared while accounting for the number of residents and property owners potentially impacted by each system solution.
 - b. For example, if a proposed distribution system is found to have magnetic field magnitudes that are a quarter of those emitted by the proposed transmission line, and that impact 10% as many residents compared to the proposed route for the transmission solution, then the impact of that distribution system should be counted as 2.5% ($25\% * 10\%$) of the proposed transmission line impact. Generating impact on a per-resident basis would not provide the complete impact picture to the commissioners when they determines which system solution is to be implemented, specifically in light of the tremendous number of properties potentially impacted by the proposed route.
 - c. The applicants are proposing that the transmission line be routed next to two schools. Since children are more susceptible to the health impact of EMF, the impact on them should also be taken into consideration as part of the impact of the proposed transmission line.

- d. While I realize that this approach presents increased workload challenges to you in running your analysis, I argue that this is the only way to truly compare the impact of the various system solutions.
 - e. I request that impact calculated for each system solution include the actual number of units impacted, accounting for the number of units in multi-unit properties such as condominium or apartment buildings. That is, such multi-unit properties must not be counted as one property, but as the number of units therein.
3. Considerations and guiding principles:
- a. The Applicants indicate that they have considered various system alternatives, including generation, distributed generation, lower (69kV) and higher (345kV) voltage alternatives, direct current lines, and distribution alternatives.
 - b. I feel that these system alternatives have been summarily dismissed. Some alternatives appear to be dismissed mostly on technical bases. Others appear to be dismissed mostly due to cost considerations.
 - c. Ms. Steinhauer, your analysis should seek to find a system solution that is least impactful to the residents and property owners in a way that is divorced from cost, logistical or other arbitrary considerations.
4. Generation versus transmission:
- a. In the Application for CON, section 4.2.1.1 (page 85), the Applicants claim that peaking generation is not a suitable alternative to the proposed project because “Adding additional generation would not correct the **geographically diverse distribution feeder circuit overloads** [...] This means that generation would need to be sized specifically to each feeder and need to be flexible enough to allow reconfiguration of feeders due to load growth or operational issues.”
 - b. It appears that the problem is “geographically diverse”, as the Applicants state in their application.
 - c. I wonder how adding capacity to the Hollydale substation by means of transmission differs from adding capacity to the substation via generation. I believe that both require automation and switching to allow reconfiguration of feeders due to load growth or operational issues. Why is it that generation will not solve the “geographically diverse distribution feeder circuit overloads” that transmission will? As I understand it, a transmission line simply connects a remote generation facility to the substation. If generation is not a viable system solution, why is transmission viable?
 - d. To be clear: I am not advocating for generation. However, the Applicants’ reasoning in supporting transmission as a solution to a geographically diverse problem while dismissing generation escapes me. I request that this issue be addressed in the study.
 - e. I respectfully request that a truly independent party analyze system alternatives in ways that are purely technical and divorced from cost and other arbitrary considerations.
5. Historical trends:
- a. In their Application, the Applicants claim that temperature caused the significant drop in demand between 2006 and 2009 (page 42): “Loads declined in 2007, 2008, and 2009 as these years experienced cooler weather conditions compared to 2006.”

- b. Figure A in this document shows the historical total demand in MW (solid blue line) as obtained from Appendix G of the Application. It also shows historical temperatures in Hamel, which is very close to the Hollydale substation (<http://climate.umn.edu/HIDradius/radius.asp>).
 - c. Figure B in this document shows the exact same plot as Figure A, but it brings up some interesting points:
 - i. The average July-August temperature in Hamel in 2010 was 0.7F hotter than in 2006. Demand, however, was 10% lower.
 - ii. The most significant decrease in demand was in 2006 through 2008, but 2007 and 2008 June-September average temperatures were higher than or equal to that in 2006.
 - iii. Significant '09-'10 average temperature increases (1.7 June-September; 6.5 F July through August) translated to only 0.5% increase in demand.
 - iv. '03 July-August average temperature was 1.3 F higher than '02, but power demand was 4% lower.
 - d. What I'm establishing is that the Applicants made a causality claim that is not necessarily correct. I am showing four instances where the correlation between warming and cooling and energy demand breaks down. I request that you diligently review the actual facts behind any claims made throughout this process for which actual, fact-based evidence had not been submitted.
6. Forecast:
- a. Figure 12 on page 44 of the Application projects a load growth of ~20 MW between 2011 and 2030 for both forecasts for the 13.8kV distribution circuits. Figure 13 on page 45 shows a ~8MW load growth for the 34.5kV circuits. These are not additive, as I understand it, so I'll assume an understated overall demand growth of 20 MW in 2011-2030 according to the Applicants' plots.
 - b. Figure C in this document shows a linear extrapolation of historical overall demand data. The value in 2011 is 120.2MW whereas in 2030 it is 129.0 MW, an 8.8 MW difference. This is much lower than the Applicants' forecast differential of ~20 MW. It is unclear to me why the Applicants are using 6.1% average growth rate for the 34.5kV lines and 0.8% for the 13.8kV lines. It appears that they are taking into consideration only peak trends. In order to truly model demand growth based on historical data, all data should be considered.
 - c. The Applicant's forecasts do not seem to account for conservation and demand side management.
 - d. In short, I strongly challenge the Applicants' forecast. I would like to gain a much more in depth understanding of the assumptions and growth drivers used in generating this forecast. The permit granting body would do well to challenge these forecasts as well.
7. Higher voltage alternative:
- a. Sections 4.1.1.3 through 4.1.1.5 on pages 76-81 of the Application describe in quite some detail the hypothetical higher voltage, 345-kV system alternative. While the

Applicants state that such a solution is not prudent, they do present a clearly thought-out map (Figure 25, page 80) of the conceptual 345kV configuration.

- b. I wonder, if this solution is not prudent, why go to the trouble of mapping out which substations such a line would serve and why present what appears to be a very well thought-out route for such a non-prudent solution? Also, why elaborate on the “outer loop” concept, which did support a previous project (Brookings County – Hampton 345kV Project).
 - c. While the Applicants seem very clear on how this solution is not relevant, there appears to me to be some ground-laying for some future project which may already be in the works. It is the Applicants’ lawful responsibility to notify the potentially affected homeowners of all such future plans rather than present them piecemeal.
8. Distribution system alternatives:
- a. Section 4.1.1.1, Page 72, the Applicants claim that “The 345 kilovolt system has sufficient capacity to feed the lower voltage system (69 kilovolt and 34.5 kilovolt in this case), but the existing 34.5 or 69 kilovolt system cannot deliver enough power to meet customer demands.” It is unclear to me where the problem is: 69kV is a transmission line, 34.5kV is a distribution line. Is the problem one of transmission or one of distribution?
 - b. I request that the study address this issue, particularly as I fear that the community may find that distribution upgrades are still necessary even after installation of the proposed transmission line, while such distribution upgrades may be sufficient to solve the problem by themselves (i.e., with no transmission line implemented).
 - c. Throughout the document, it appears that the problem is one of distribution. The term “feeder circuit overload” is repeated throughout the Application. During the public meetings, the Applicants also stated that the problem is one of distribution. Why are the Applicants trying to solve a distribution problem via a transmission solution?
 - d. The distribution system in the area consists of eleven 13.8kV and two 34.5kV feeder circuits. Page 33 of Appendix B claims that a decision has been made to “no longer expand the 34.5kV system in this area”. Would converting the 13.8kV feeder circuits to 34.5kV not solve the problem? Why was the decision made to no longer expand the 34.5kV system? I would like to understand whether this decision was arbitrary or cost-related. If it was, it should not be presented as a constraint on system alternatives that cannot be reconsidered. This option should be very much open to debate and public scrutiny.
 - e. Tables 2 and 3 in the Applications (pages 48 and 49) clearly show that the problem is mostly limited to the eleven 13.8kV distribution lines. These are the lines that have had almost all of the overload incidents.
 - f. I propose a system alternative whereby several or all of the 13.8kV distribution feeder circuits and all related infrastructure are upgraded to 34.5kV. I request an in-depth analysis of this system alternative, and would like to understand any technical limitations that would negate it. Such considerations should be divorced from cost-

- b. During the June 7th, 2012 routing meeting, The Applicants explained that the preferred design for the 115kV HVTL was based on steel poles. While The Applicants stated that wooden poles can support the 115kV line, The Applicants made it clear that it is not the preferred design for a 115kV HVTL.
- c. Why would GRE, the current owner of the easement, limit the easement to wooden poles if there was ever an expectation that the line would be upgraded to 115kV, for which the preferred design is based on steel poles? I believe that the answer is that there was never such an expectation.

3714289

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Easement

KNOW ALL MEN BY THESE PRESENTS, that ~~we~~ (We) the undersigned William C. Mitchell and Nancy C. Mitchell (husband and wife), Merrill H. Pearson and Wilma Pearson (Husband and Wife) whose post office address is R#1-Box 572, Excelsior, Minn. 55331

In consideration of one dollar and other good and valuable considerations, the receipt whereof is hereby acknowledged, do hereby grant unto The RURAL COOPERATIVE POWER ASSOCIATION, whose post office address is Elk River, Minnesota, and to its successors or assigns the right to enter upon the following described lands of the undersigned, situated in Hennepin County, Minnesota, to wit:

The South one-half of the Southwest quarter (S $\frac{1}{2}$ of SW $\frac{1}{4}$) of Section 18, Township 118, Range 22.

The South one-half of the Northeast quarter of the Southwest quarter (S $\frac{1}{2}$ of NE $\frac{1}{4}$ of SW $\frac{1}{4}$) of Section 18, Township 118, Range 22, lying South of County Road No. 48.

and to construct, operate and maintain thereon, and in or upon all streets, roads or highways abutting said lands, an electric transmission line or system consisting of single pole wood structures.

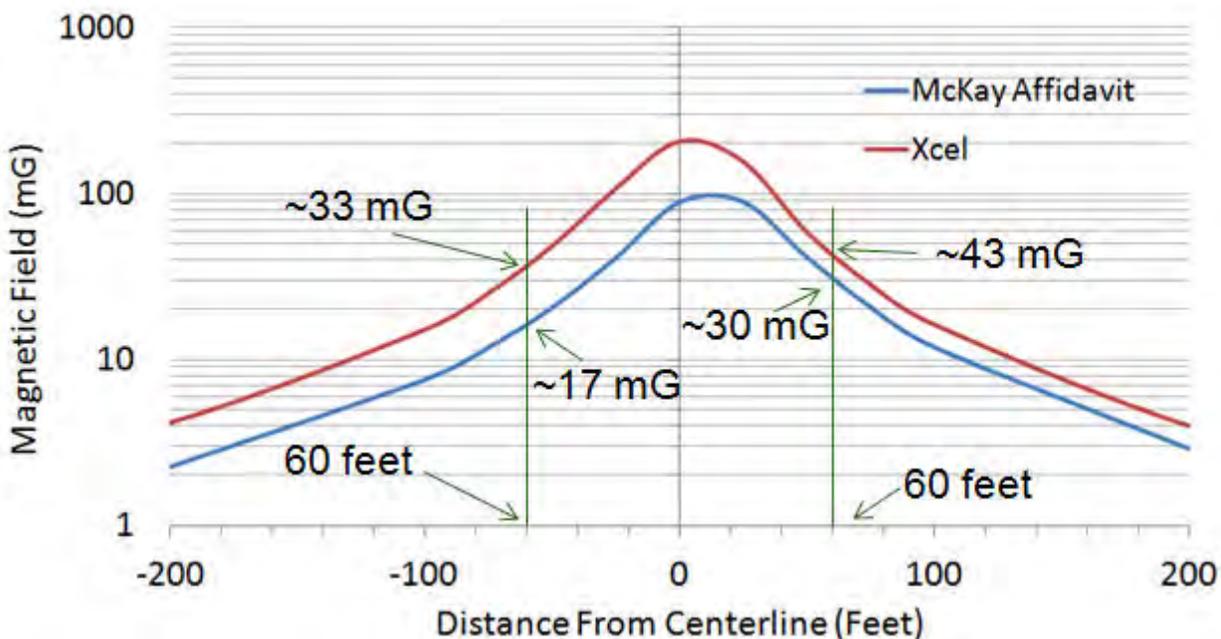
12. Aggregate property devaluation:

- a. Xcel is a for-profit, publicly traded corporation. Publicly traded corporations serve their shareholders first and foremost.
- b. By proposing the Existing Line as the basis for the proposed route, Xcel is clearly serving its shareholders via a cost-cutting effort for this project. However, in the process, Xcel is maximizing overall impact, potentially impacting hundreds of households and bringing about millions of dollars of aggregate property devaluation.
- c. As a case in point:
 - i. There are 134 properties within 300 feet of the proposed route west of the Hollydale substation and east of Holy Name Drive.
 - ii. The Hennepin County website offers property value estimates. The County estimates property values next to the existing line to average \$396k in Bridlewood Farm. Assuming 30% devaluation on an average \$396k property makes for \$119k average devaluation per property, and an aggregate devaluation of almost \$16 million along this portion of the line alone, without

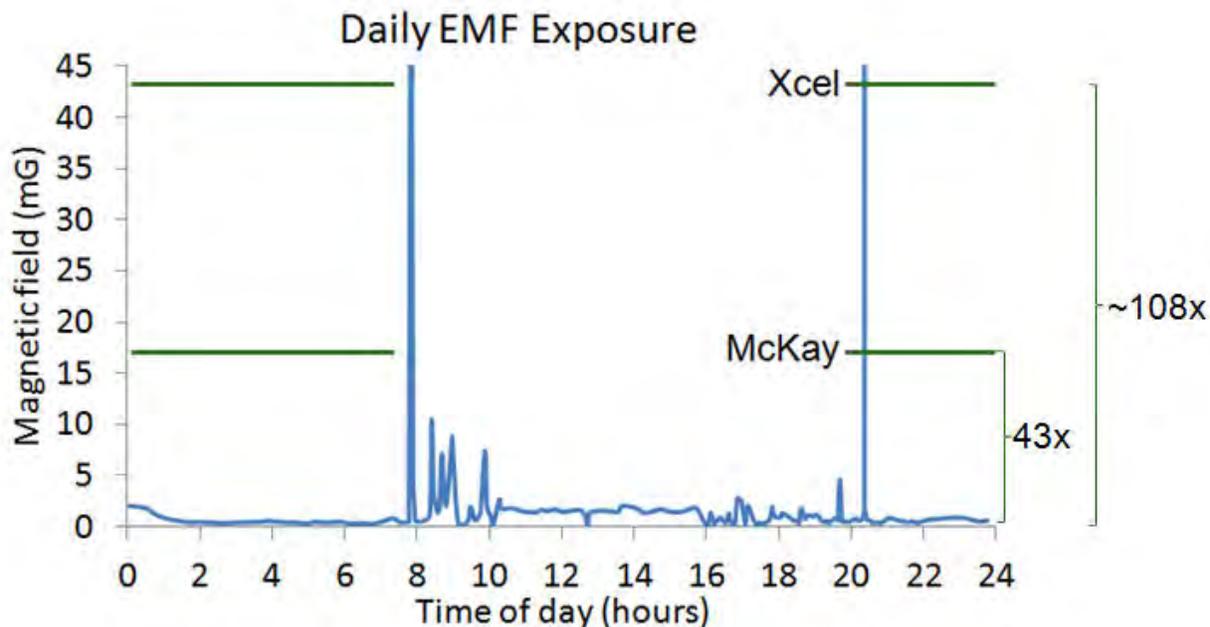
accounting for secondary devaluation impact via comparables analysis and lower property tax for the cities.

- b. If granted permit, the proposed transmission line will bring about tremendous aggregate residential property devaluation throughout Plymouth and Medina, all in the interest of cutting costs for a publicly traded, for-profit company.
 - c. When comparing aggregate property devaluation for each system solution, I request that you not only provide final values, but the details of your calculations, so that the public is well-informed of the assumptions made and the underlying data used.
12. Electromagnetic fields [“EMF”]:
- a. Health concerns:
 - i. Epidemiology studies show a statistical association between chronic exposure to EMF and childhood leukemia.
 - ii. To date, lab experiments cannot reliably prove that EMF is a probable carcinogen. Furthermore, there is no established physiological mechanism.
 - iii. Childhood leukemia is a rare disease, and reliably proving the carcinogenic properties of EMF requires following very large study and control groups over many years. In short, the correlation is extremely difficult to reliably prove in a lab setting. It is equally as difficult to establish a mechanism.
 - iv. The combination of positive epidemiological statistical association, negative lab experimental results, and lack of proven mechanism has led The International Agency for Research on Cancer [“IARC”] to find that **“extremely low-frequency magnetic fields are possibly carcinogenic to humans”**
<http://monographs.iarc.fr/ENG/Monographs/vol80/volume80.pdf>
 - b. Magnetic field exposure:
 - i. On page 1 of LETTER--RESPONSE TO PAUL ABLACK AND KIM CARLSTROM TO REQUEST FOR INFORMATION, document number 20126-75380-01 in docket 11-152, answer number 3, The Applicants state that there is potential for the 115kV HVTL to feed three transformers with a rating of 50 MVA each. This makes for a potential power of 150 MVA flowing through the HVTL.
 - ii. When using a value of 115kV for voltage and the square root of 3 (1.732) as a power factor, this yields a current of 753 A.
 - iii. Below are the EMF profiles for a horizontal post, 115kV, single circuit design with 753A current.
 1. The blue curve, titled “McKay Affidavit”, was calculated by dividing the values provided in the Affidavit of Bruce McKay, P.E., PUC docket no. E002/CN-10-694, by the current he used, and multiplying the resultant values by 753
<https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={97EF41CC-3B69-4ACA-8A45-DA1C12BC45C9}&documentTitle=20114-61941-02}>.
 2. The red curve, titled “Xcel”, was provided by Xcel to certain members of the public via email. The original data are titled “Single Pole, Horizontal

Post, 115 kV Single Circuit”, and were calculated for a current of 250 A. I divided those values by 250 and multiplied by 753, the potential current flowing through the HVTL.



- iv. The McKay profile shows that at 60 feet – the approximate distance from the Existing Line to my children’s bedroom windows – the magnetic field will be approximately 17 to 30 mG, depending on which side of the pole our property will end up. The Xcel profile shows this value to be approximately 33 to 43 mG.
- v. Below is a profile of EMF exposure by an adult over a period of one day (<http://www.emfs.info/Sources+of+EMFs/exposure/>). The profile shows that during the night hours, the person was exposed to approximately 0.4 to 0.5 mG on average. The plot also shows thick green horizontal lines, which indicate the chronic exposure my children will suffer. The bottom green line is at 17 mG, in accordance with Mr. McKay’s “best case” profile. The top green line is at 43 mG, in accordance with Xcel’s “worst case” profiles.
- vi. My children spend at least 10 hours every day in their rooms, mostly sleeping. As they grow older, they will spend at least as much time in their rooms – if not longer – sleeping, doing their homework and generally hanging out in the only space in the house that affords them privacy.
- vii. To summarize: if the proposed line is granted permit, my children will be chronically exposed to 17 to 43 mG, compared to a normal value of 0.4 mG. **That translates to chronic exposure of 43x to 108x the normal levels of a possible carcinogen for ten hours every day.**
- viii. My family is one of hundreds of families that would be so affected if the proposed transmission line is granted permit.

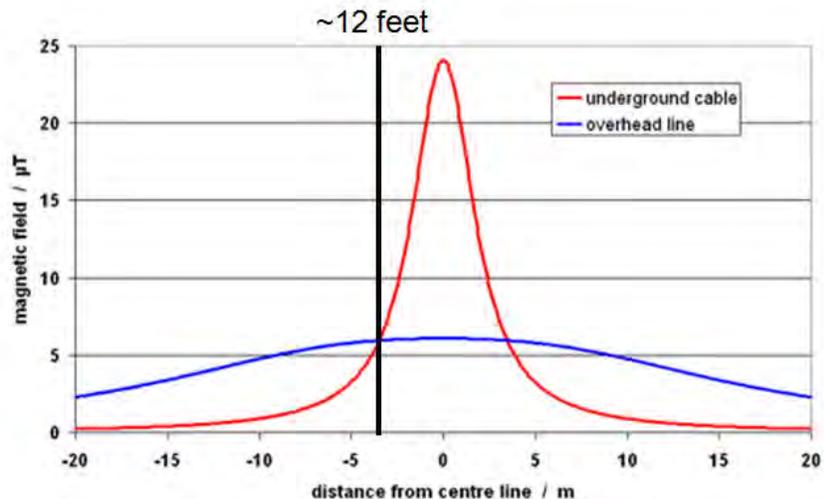


14. Undergrounding:

- a. The Applicants also considered undergrounding the transmission lines as a system alternative. How is undergrounding a system alternative? Does it solve the problem in a different systematic way? I am not certain why this is included in the Application for CON. It appears that the Applicants wanted to resolve this issue in a process that is typically removed from the public eye when compared to the routing process. That is, to have undergrounding dismissed as a system alternative as part of the CON Application so that it is no longer available for discussion when discussing routing.
- b. The Applicants dismiss undergrounding based on several considerations: cost, construction and maintenance. The Applicants focus on mostly short term construction impacts such as noise and dust, traffic disruptions, as well as clearing and grading.
- c. Most other comments that support dismissal of undergrounding are cost-related. The Applicants claim that (page 84) “Typical examples include congested downtown centers where there is no space available between city streets and adjacent buildings for adequate clearance, or airport approaches where an overhead transmission line cannot be constructed for safety reasons. **No circumstance warrants underground construction based on Applicants’ examination of the environmental and land use setting associated with the proposed Project.**”
- d. DOC comments note that dismissing undergrounding at this point is “extremely premature” and does not belong in this docket (docket 12-113, document 20127-77378-01 “Comments—and recommendations, page 4). The DOC comments state that “**it is extremely premature** to conclude that site specific mitigative measures are not warranted prior to the preferred and alternative routes full evaluation **in the HVTL Route Permitting process.**”

- e. This is just another instance where the Applicants summarily dismiss an option that would tremendously benefit potentially affected homeowners, mostly due to cost considerations. The arbitrary manner in which the Applicants dismiss undergrounding, supposedly considering environmental and land use settings, is a grave concern to me. This is a clear case where the Applicants' bias towards minimizing cost rather than truly considering impact is clearly demonstrated. Again, I request that in your analysis you do not accept any such claims without extensive review of the underlying facts.
- f. The plot below compares the magnetic field profiles of the same HVTL, once in an overhead configuration and another when undergrounding the conductors (<http://www.emfs.info/Sources+of+EMFs/Underground/>). The plot shows the much stronger decay of the magnetic field profile of the undergrounded conductors, crossing the overhead configuration at 12 feet from centerline and decaying to practically zero very fast. This is because the closer together the conductors are, the more they cancel each other's magnetic fields.

1 μT = 10 mG
1 m = ~3 feet



- g. I request that undergrounding be considered in this environmental study as a crucial means to mitigate health, aesthetic, noise, safety, and most of the property devaluation concerns that are associated with the proposed HVTL.
14. Scope of study: in addition to the various system solutions I have proposed above, I request that the environmental study include the following topics:
- Socioeconomic impact: primary property devaluation, secondary property devaluation, tax revenue lost to the cities, other.
 - Impact of EMF on health: I request that true magnetic field profiles be established for each appropriate system solution **based on line capacity**, not some arbitrary current value. I request a truly independent study of the effects of EMF on health. It is already established that EMF is a possible carcinogen. It should be recognized as such in this study, and it should be made clear that the Applicants are proposing a solution that

would chronically expose hundreds of residents to significantly elevated levels of this possible carcinogen, up to 108 times the normal exposure!

- c. Other impact: safety, noise, aesthetics – including tree and plant removal, wetlands, and wildlife.

15. Summary:

- a. Minnesota rule 4410.2000, PROJECTS REQUIRING AN EIS, subpart 4, states that “Connected actions and phased actions. Multiple projects and multiple stages of a single project that are connected actions or phased actions must be considered in total when determining the need for an EIS and in preparing the EIS.”
- b. I request that if this project is indeed only a portion of one or more larger projects, and or part of a broader plan for the area, that the Applicants and or Department of Commerce come forth with all information relating to any such projects or plans at this time, so the Project may be evaluated in its entirety, as required by law.
- c. This project potentially impacts hundreds of households through Plymouth and Medina. This should be taken into consideration when contemplating need and which system solution is granted permit. **The system that is granted permit should solve the feeder circuit overload problem in a way that is least impactful on the population regardless of cost or other arbitrary considerations to the Applicants.**
- d. Cost appears to be the Applicants’ main concern. The fact that the Applicants have summarily dismissed system alternatives is of grave concern to hundreds of residents, as evidenced by the petition I filed to the CON docket to implement a contested case hearing and allow for broader public involvement.
- e. I respectfully request:
 - i. That all future public meetings, public comment periods, and any other opportunity for public involvement implement direct mail notification of all potentially affected homeowners;
 - ii. That a truly independent party analyze system alternatives in ways that are purely technical and divorced from cost and other arbitrary considerations;
 - iii. That the public gain access to the assumptions and growth drivers used in generating the forecasts
 - iv. That the public gain access to material regarding decision to “no longer expand the 34.5kV system in this area”.
 - v. That it is made clear that the undergrounding issue is to be resolved as part of the routing docket, and following substantial public involvement. I request that even if the Application is accepted, that said acceptance **not** constitute a resolution of the undergrounding issue. Undergrounding has nothing to do with need or with system alternatives. It is purely an environmental impact issue to be considered as part of the routing process (docket 11-152), as indicated by the Department of Commerce.
 - vi. An in-depth analysis of my proposed system alternative (several or all of the 13.8kV distribution feeder circuits and all related infrastructure are upgraded to 34.5kV). I would like to understand any technical limitations that would negate

it. Such considerations should be divorced from cost-related, logistical or any other arbitrary considerations. The only question is: would such a system alternative solve the circuit feeder overload problem?

- vii. An in-depth analysis of my other proposed system alternatives: energy efficiency, peak load shifting, distributed generation, no-build.
- viii. That the study include the topics I have indicated above (socioeconomic impact, health, safety, noise, aesthetics, wetlands, wildlife, etc.)
- ix. That distribution system alternatives be analyzed in a way that is independent of the exact routing of the distribution lines. For example, the new distribution line in alternate A2 could run through Fernbrook Ln N, which already has a distribution line.

Thank you for considering my comments.

Ilan Zeroni.

**Figure A: Hamel Historical Summer Average Temperatures
And Focus Area Historical Power Demand**

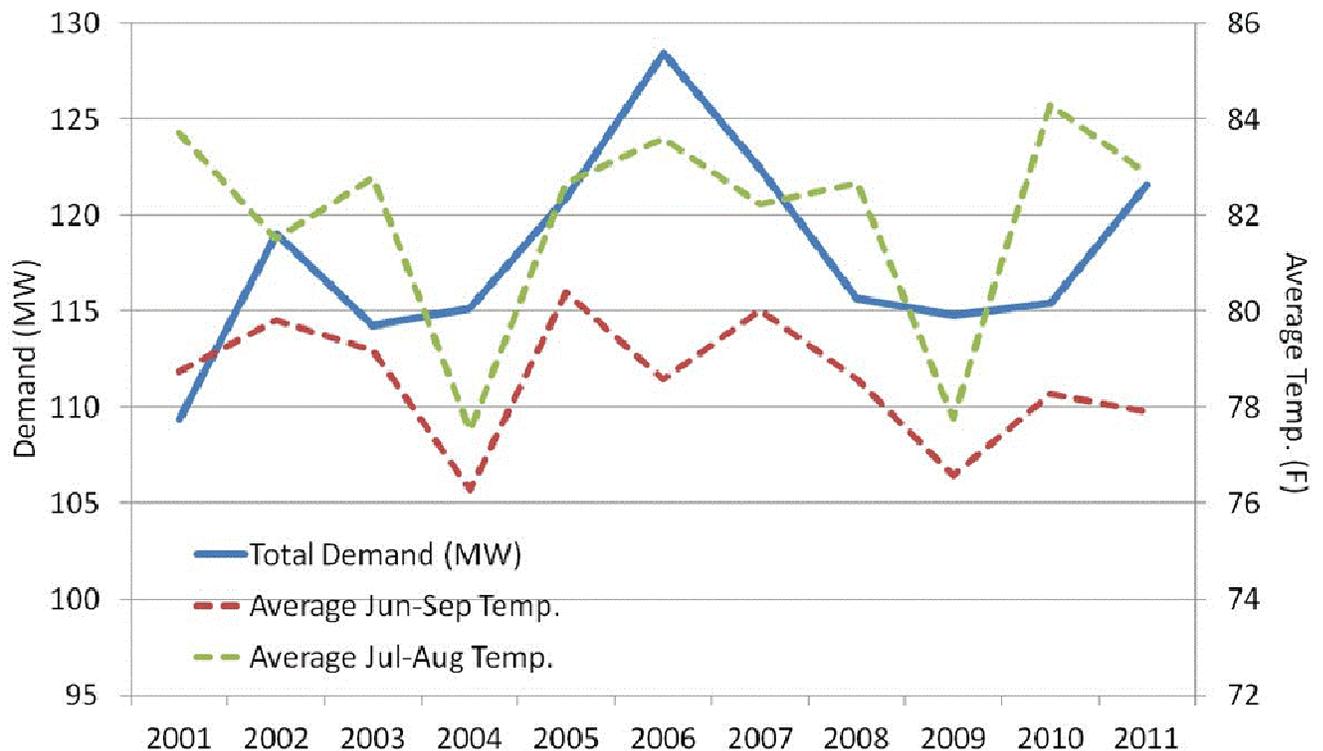


Figure B: Hamel Historical Summer Average Temperatures And Focus Area Historical Power Demand

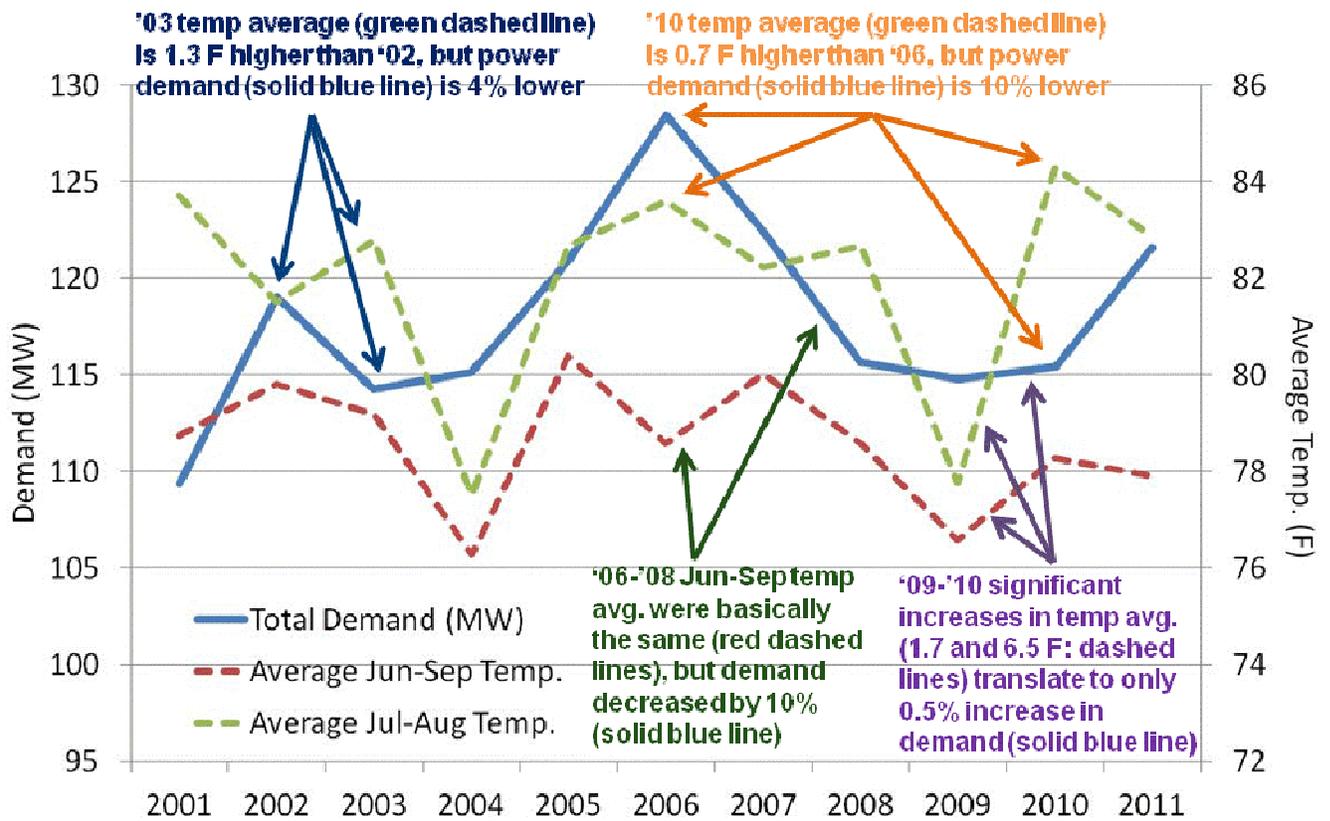


Figure C: Extrapolating Historical Demand Yields 129 MW
By 2030, A 8 MW Difference From The 2011 Value

