

STATE OF IOWA  
DEPARTMENT OF COMMERCE  
UTILITIES BOARD

IN RE:  MIDAMERICAN ENERGY COMPANY	DOCKET NO. E-21822
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**PROPOSED DECISION AND ORDER GRANTING FRANCHISE**

(Issued December 28, 2006)

APPEARANCES:

MR. ROBERT P. JARED, attorney at law, MidAmerican Energy, 106 East Second Street, P.O. Box 4350, Davenport, Iowa 52808, appearing on behalf of MidAmerican Energy Company.

MR. JOHN F. DWYER, attorney at law, Iowa Department of Justice, Office of Consumer Advocate, 310 Maple Street, Des Moines, Iowa 50319, appearing on behalf of the Iowa Department of Justice, Office of Consumer Advocate.

MR. PHILIP E. STOFFREGEN, attorney at law, Brown, Winick, Graves, Gross, Baskerville & Schoenebaum, P.L.C., 666 Grand Ave., Suite 2000, Des Moines, Iowa 50309, appearing on behalf of VeraSun Energy Corporation.

MR. LARRY J. FRAHM, 1948 Jerry Avenue, Charles City, Iowa, appearing pro se.

MS. NEOMA THOMPSON, 702 Kellogg Ave., Charles City, Iowa, appearing pro se.

**STATEMENT OF THE CASE**

On July 10, 2006, MidAmerican Energy Company (MidAmerican) filed a petition with the Utilities Board (Board) requesting a franchise to construct, maintain, and operate a total of 4.64 miles (later amended to 4.38 miles) of 69,000-volt (69 kV) nominal, 72.5 kV maximum, electric transmission line proposed to be constructed in Floyd County, Iowa. The petition is identified as Docket No. E-21822. MidAmerican

filed revisions to the petition and additional information on August 11 and 28, September 6, and December 18, 2006.

As proposed, the transmission line would originate at a connection with an existing MidAmerican 69 kV transmission line located in Charles City, Iowa and terminate at a proposed MidAmerican substation located near a new ethanol plant northwest of Charles City, Iowa. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Albertson, Mr. Custer.) Pursuant to Iowa Code § 478.1, MidAmerican's petition seeks a franchise for only the part of the proposed transmission line located outside the corporate limits of Charles City. (petition for permit; testimony of Mr. Albertson.) The proposed transmission line is a single circuit line with some single-phase and three-phase distribution underbuild lines of 7.2 kV and 12.47 kV respectively. (petition for franchise; Hockmuth/Nguyen report.)

MidAmerican does not request eminent domain authority pursuant to Iowa Code § 478.6 (2005). The following persons filed written objections with the Board prior to the hearing: Ms. Martha Cavanaugh, Mr. Robert and Mrs. Tamara Den Hartog, the Floyd County Board of Supervisors, Mr. Larry J. Frahm, Mr. Dennis Hutchinson, Mr. L. Thomas Keiser, Mr. Kenneth Lovrien, Ms. Mary Kathryn McElroy, Mr. Roger Mulcahey, Mr. Dennis Sanvig, Mr. Daniel J. Squier, Ms. Neoma J. Thompson, and Mr. Jeffrey J. Weigel. In addition, Mr. Frahm filed a petition with multiple signatures in opposition to the proposed line.

On October 4, 2006, VeraSun Energy Corporation (VeraSun) filed a petition to intervene in the case. VeraSun is in the process of constructing a new ethanol plant that would be served by the proposed transmission line. (petition for franchise;

petition to intervene; testimony of Mr. Pesicka.) On October 17, 2006, the Board issued an order granting VeraSun's petition to intervene.

On October 24, 2006, the Board issued an order assigning this case to the undersigned administrative law judge. On October 31, 2006, the undersigned issued a procedural order and notice of hearing and proposed to take official notice of a report dated October 19, 2006, concerning the proposed transmission line written by Mr. Dennis Hockmuth and Mr. Bao Nguyen, Utility Regulatory Engineers for the Board.

On November 7, 2006, the Floyd County Board of Supervisors filed a withdrawal of its objection. In its withdrawal, the Floyd County Board of Supervisors stated: "The Board of Supervisors met today to discuss the reroute of the MidAmerican Energy transmission lines. On June 13, 2006, the Supervisors sent a letter to the Utilities Board opposing the lines being placed along 185<sup>th</sup> St. and Quarry Road. In today's meeting, the Supervisors made a motion that they do not object to the new route that MidAmerican has proposed since the lines do not interfere with the Mulcahy airstrip on 185<sup>th</sup> St."

MidAmerican filed a prehearing brief and prepared direct testimony and exhibits of Mr. K. Thomas Albertson, Mr. Brian Currie, Mr. Daniel E. Custer, Ms. Meghan E. Wagner, and Mr. Brian O. Williams on November 15, 2006. VeraSun filed the prepared direct testimony and exhibit of Mr. John Pesicka on November 15, 2006.

On November 17, 2006, Mr. Mulcahy filed a withdrawal of his objection. In his withdrawal, Mr. Mulcahy stated: "Comes now Roger Mulcahy and withdraws the

objection he asserted herein based upon the location of the power line as interfering with his airport facility. The objection is withdrawn because the line has been relocated and does not interfere with the airport facility."

On December 6, 2006, Mr. Frahm filed a memo to MidAmerican dated December 2, 2006, with the Board. The subject of the memo was "Powerline Routing Alternative." The memo stated the following:

Part I. Through conversation with Ray Holzer, I am aware that Brian Currie of MidAmerican has visited with Mr. Holzer about the possibility of routing the 69,000-volt powerline through Mr. Holzer's field south of 195<sup>th</sup> Street (about halfway between Mr. Keiser's south property line and the north property line of Sunset Addition). Mr. Holzer is agreeable to this concept, providing the details can be satisfactorily worked out.

Part II. We, the undersigned objectors to the powerline routing along the south side of 195<sup>th</sup> Street, would withdraw our objections to the powerline if the routing in Part I (above) was used for construction of the powerline.

The Powerline Routing Alternative memo was signed by Mr. Frahm, Mr. Keiser, Mr. Wiegel, Mr. Squier, Mr. Lovrien, Ms. McElroy, Mr. Hutchinson, Mr. Den Hartog, and Mrs. Den Hartog.

On December 8, 2006, MidAmerican filed a response to the Powerline Routing Alternative memo. MidAmerican stated, among other things, that timing is critical for the consideration of MidAmerican's filing, and if approved, the prompt construction of the line to provide electric service to the new ethanol plant and enhance reliability of MidAmerican's electric system. MidAmerican stated that consideration of the alternative route must not delay consideration of MidAmerican's proposal or the construction of the line. MidAmerican stated that in the spirit of voluntary

cooperation, it was willing to consider the alternate route if certain actions could be completed so the project was not delayed. These included that: a) all necessary easements for the new route be obtained by the hearing date and landowners waive their rights to cancel the voluntary easement agreements; b) no new objections were filed regarding the alternate route; c) Case No. CVCV028752 filed by the Keisers in district court was dismissed with prejudice; and d) no one who filed an objection appealed the proposed or final decision. MidAmerican noted that objectors Ms. Thompson, Ms. Cavanaugh, and Mr. Sanvig did not sign the Powerline Routing Alternative memo and the positions of the signatories to the petition filed by Mr. Frahm on July 28, 2006, were not stated. MidAmerican stated it intended to present its case on the proposed route as filed at the hearing. It stated that if the above items could be worked out before the hearing, MidAmerican would also be agreeable to supporting the alternative route. If everything could not be worked out prior to the hearing, MidAmerican stated it would not be possible for it to support the alternative route. MidAmerican reiterated that its proposed route complies with all applicable statutory and regulatory requirements and is in the public interest. It stated that its willingness to cooperate and consider the alternative route is not an admission or inference that its proposed route should not be approved by the Board as being in compliance with all applicable requirements.

MidAmerican caused notice of the hearing to be published in Floyd County in the Charles City Press, a newspaper of general circulation in the county, on November 8, 14, and 15, 2006. (proof of publication.) MidAmerican filed proof of publication on November 20, 2006.

The hearing was held on December 14, 2006, beginning at 9 a.m., in the District Court Courtroom, Third Floor, Floyd County Courthouse, 101 South Main, Charles City, Iowa. MidAmerican was represented by its attorney, Mr. Robert P. Jared. Mr. Albertson, Mr. Currie, Mr. Custer, Ms. Wagner, and Mr. Williams testified on behalf of MidAmerican. MidAmerican's Exhibits 1 through 7 were admitted at the hearing. The Consumer Advocate Division of the Department of Justice (Consumer Advocate) was represented by its attorney, Mr. John F. Dwyer. The Consumer Advocate did not present evidence at the hearing. VeraSun was represented by its attorney, Mr. Philip E. Stoffregen. Mr. Pesicka testified on behalf of VeraSun. VeraSun's Exhibit 101 was admitted. Mr. Frahm and Ms. Thompson appeared pro se and testified on their own behalf. Mr. Frahm's Exhibits 300 and 301 were admitted at the hearing. Mr. Dennis Hockmuth and Mr. Bao Nguyen testified as the engineers selected by the Board to examine the petition and proposed route pursuant to Iowa Code § 478.4. The remaining objectors did not testify at the hearing. The parties did not object to the taking of official notice of Mr. Hockmuth's and Mr. Nguyen's report dated October 19, 2006 (Hockmuth/Nguyen report), and it was officially noticed.

Mr. Frahm's Exhibit 300 is a letter dated December 11, 2006, from Ms. Martha Cavanaugh to the Executive Secretary of the Board, in which Ms. Cavanaugh states: "I am writing to remove my objection to the MidAmerican route as first proposed and I support the alternate route through Mr. Holzer's field south of 195<sup>th</sup> Street providing details can be satisfactorily worked out with Mr. Holzer." Mr. Frahm's Exhibit 301 is a letter dated December 11, 2006, from Mr. Dennis Sanvig to the Executive Secretary of the Board, in which Mr. Sanvig states: "By this letter, I withdraw my objection to

the MidAmerican Energy powerline proposal, providing the alternative routing (through Mr. Ray Holzer's field, south of 195<sup>th</sup> Street) is used for construction."

At the conclusion of the hearing, the Consumer Advocate requested the ability to file a statement of position regarding its concern that MidAmerican had not selected one of the alternate routes that was shorter than the preferred route. MidAmerican and VeraSun opposed the request, particularly if it prolonged the consideration of the case. The undersigned set a deadline of December 18, 2006, for the Consumer Advocate to file its statement if it chose to file one.

On December 18, 2006, the Consumer Advocate filed post-hearing comments concerning the issue of the route selection. On December 18, 2006, MidAmerican filed an amended page one of its petition.

### **NEED FOR THE PROPOSED LINE**

In order to obtain a franchise, MidAmerican must prove that the proposed transmission line is necessary to serve a public use. Iowa Code § 478.4. Transmission of electricity to the public is "a public use" within the meaning of the statute. S.E. Iowa Cooperative Electric Association v. Iowa Utilities Board, 633 N.W.2d 814 (Iowa 2001) (S.E. Iowa Cooperative); Vittetoe v. Iowa Southern Utilities Company, 123 N.W.2d 878 (Iowa 1963). Therefore, one issue in this case is whether the proposed transmission line is "necessary" to serve that public use.

MidAmerican must serve customers within its assigned service territories and must maintain reliable electric service for its customers in the areas it serves. Iowa Code §§ 476.3, 476.25.

The persons who filed written objections and testified at the hearing do not challenge the need for the proposed line. (testimony of Mr. Frahm, Ms. Thompson; written objections.) The Consumer Advocate does not challenge the need for the line.

VeraSun requested MidAmerican to provide electric service to its proposed ethanol plant located northwest of Charles City. (petition Ex. D; testimony of Mr. Custer, Mr. Pesicka.) Once the ethanol plant is in operation, VeraSun plans to run it 24 hours per day, 7 days a week, 365 days per year. (testimony of Mr. Pesicka.) VeraSun projects the plant to have an initial peak load of 9.2 MW. (petition Ex. D; testimony of Mr. Custer, Mr. Pesicka.) The plant will consistently operate at or near its peak load. (testimony of Mr. Pesicka, Mr. Custer.)

MidAmerican determined that its existing distribution facilities in the Charles City area were insufficient to serve the VeraSun load within MidAmerican's criteria for steady-state voltage, voltage flicker, and thermal loading. (petition Ex. D; testimony of Mr. Custer, Mr. Pesicka.) In order to provide adequate capacity to the new plant, MidAmerican determined that it is necessary to construct the proposed 69 kV transmission line tapping the Charles City 69 kV loop and a new substation near the ethanol plant. (petition Ex. D; testimony of Mr. Custer, Mr. Pesicka.) MidAmerican will serve the town of Floyd, Iowa, from the new substation and a reconfiguration of the 12.47 kV distribution system in the area, which will improve reliability to those customers. (petition Ex. D; testimony of Mr. Custer.) This reconfiguration will also allow for partial backup of service to the ethanol plant, the customers in Floyd, and

the customers in the north and northwest sides of Charles City. (petition Ex. D; testimony of Mr. Custer.)

MidAmerican presented substantial evidence supporting the need for the proposed line that was supported by the evidence presented by VeraSun. (petition for franchise; testimony of Mr. Custer, Mr. Pesicka.) MidAmerican and VeraSun presented sufficient evidence that demonstrates the proposed transmission line is needed for the reasons given and is necessary to serve a public use. (petition for franchise; testimony of Mr. Custer, Mr. Pesicka.)

#### **RELATIONSHIP TO OVERALL PLAN OF TRANSMITTING ELECTRICITY IN THE PUBLIC INTEREST**

To obtain a franchise, MidAmerican must prove that the proposed transmission line is reasonably related to an overall plan of transmitting electricity in the public interest. Iowa Code §§ 478.3(2), 478.4.

In its petition, a utility company seeking a franchise must include information showing the relationship of the proposed project to economic development, comprehensive electric utility planning, needs of the public both present and future, existing electric utility system and parallel routes, other power systems planned for the future, possible alternative routes and methods of supply, present and future land use and zoning, and inconvenience or undue injury to property owners. Iowa Code § 478.3(2). MidAmerican provided this information in its petition and MidAmerican and VeraSun provided it in prefiled testimony and testimony at the hearing. (Petition

Exhibit D; testimony of Mr. Albertson, Mr. Custer, Mr. Pesicka, Ms. Wagner, Mr. Currie, Mr. Williams; MidAmerican Exhibits 1 through 7; VeraSun Ex. 101.)

Through planning studies, MidAmerican determined that the existing MidAmerican distribution facilities in the area of the new ethanol plant would not be adequate to serve the plant's electric load. (testimony of Mr. Albertson, Mr. Custer; petition for franchise.) The studies also showed the plant's electric load could be served from MidAmerican's existing 69 kV transmission system that currently serves the Charles City area without adversely affecting the existing 69 kV system. (testimony of Mr. Albertson, Mr. Custer.) The existing transmission system consists of a 69 kV loop around Charles City comprised of four substations connected by four lines. (testimony of Mr. Albertson, Mr. Custer.) Therefore, the line route study area was determined to be the area between the ethanol plant site and the closest reasonable tap point on the existing 69 kV system. (testimony of Mr. Albertson.) As a part of the existing 69 kV system, there is a 69 kV transmission line that parallels Gilbert Street before turning north off Gilbert Street and continuing northerly off of roadways where it crosses the Cedar River, and then turns easterly and away from the ethanol plant site. (testimony of Mr. Albertson.) The proposed tap point is at the point where the existing 69 kV line turns north off Gilbert Street. (testimony of Mr. Albertson.) MidAmerican determined that this location was the most reasonable south terminus point. (testimony of Mr. Albertson.) Tapping the existing 69 kV line south of this location would unnecessarily increase the length, and therefore, the expense, of the proposed line. (testimony of Mr. Albertson.) Tapping the existing 69 kV line north of this location would have to be done in an area where access is

unacceptable because the area is very rugged and off a roadway. (testimony of Mr. Albertson.)

MidAmerican also considered whether the new ethanol plant could be served using existing distribution facilities. (testimony of Mr. Custer.) An existing three-phase 12.47 kV distribution feeder is adjacent to the new plant. (testimony of Mr. Custer.) However, the new plant would be approximately eight circuit-miles from the 69-12.47 kV source if it were served by this distribution feeder. (testimony of Mr. Custer.) MidAmerican's analysis showed that serving the plant's load via the existing distribution circuit is not practical because it would cause violations of MidAmerican's voltage criteria and thermal loading criteria. (testimony of Mr. Custer.) MidAmerican also considered constructing a new dedicated 12.47 kV distribution circuit to serve the plant. (testimony of Mr. Custer.) However, given the locations of the existing substations, the feeder route to the new plant would be approximately six circuit-miles, which would not be practical because it would cause a violation of MidAmerican's voltage criteria. (testimony of Mr. Custer.) The proposed electric service plan that includes the new 69-12.47 kV substation near the new plant and the proposed 69 kV transmission line meets all MidAmerican's voltage criteria. (testimony of Mr. Custer.)

The evidence presented in this case shows that the proposed 69 kV transmission line represents a reasonable relationship to an overall plan of transmitting electricity in the public interest. Iowa Code § 478.3(2). (Petition Exhibit D; testimony of Mr. Albertson, Mr. Custer, Mr. Pesicka, Ms. Wagner, Mr. Currie, Mr. Williams; MidAmerican Exhibits 1 through 7; VeraSun Ex. 101.)

### **CONSTRUCTION AND SAFETY REQUIREMENTS**

In order to obtain a franchise, MidAmerican must show that the proposed transmission line will conform to the construction and safety requirements of Iowa Code §§ 478.19 and 478.20 and the Utilities Board rules at 199 IAC chapters 11 and 25.

MidAmerican proposes to construct a 69 kV transmission line 4.38 miles long originating at a connection with an existing MidAmerican 69 kV transmission line within the corporate city limits of Charles City and terminating at a proposed MidAmerican substation near a new ethanol plant northwest of Charles City. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Albertson, Mr. Curry, Mr. Custer, Mr. Pesicka.) The proposed transmission line is a single circuit 69 kV line with 7.2 kV single-phase and 12.47 kV three-phase distribution underbuild in certain sections of the proposed line. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Albertson.)

The design of the proposed line conforms to the National Electrical Safety Code requirements and Board rules. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Albertson.) The proposed line will be constructed, operated, and maintained in accordance with all applicable federal and state construction and safety standards. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Albertson.)

MidAmerican has shown that the proposed line will conform to the construction and safety requirements in Iowa Code §§ 478.19 and 478.20 and 199 IAC chapters

11 and 25. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Albertson.) No additional terms, conditions, or restrictions regarding construction and safety requirements need to be imposed pursuant to Iowa Code § 478.4.

### **ELECTRIC AND MAGNETIC FIELDS**

Electric and magnetic fields are produced by anything that generates, transmits, or uses electricity, such as appliances and electric transmission lines. (Testimony of Ms. Wagner.) There are also natural sources of electric and magnetic fields, such as our own bodies, that produce electric fields as a result of the normal functioning of our circulatory and nervous systems. (Testimony of Ms. Wagner.) The electric and magnetic fields associated with electricity are often called power-frequency EMF. (Testimony of Ms. Wagner.)

Electric fields are the result of voltages applied to conductors and equipment. (Testimony of Ms. Wagner.) They are measured in volts per meter (V/m) or kilovolts per meter (kV/m). (Testimony of Ms. Wagner.) One kV/m equals 1,000 volts/m. (Testimony of Ms. Wagner.) Magnetic fields are produced by the flow of electric currents and are measured in units called milligauss (mG). (Testimony of Ms. Wagner.) Most research has focused on magnetic fields because electric fields are blocked by conducting objects, such as trees and buildings, and are therefore of less concern. (Testimony of Ms. Wagner.)

Electric and magnetic fields are present in nearly every place we encounter on a daily basis, including our homes. (Testimony of Ms. Wagner.) Typical sources of EMF in homes include appliances, wiring, electric current flowing on water pipes, and

nearby electric distribution and transmission lines. (Testimony of Ms. Wagner.)

Since conductive objects block electric fields, certain appliances within the home are the major source of electric fields indoors, and electric fields in the home range up to 0.010 kV/m away from appliances and up to 0.25 kV/m near appliances. (Testimony of Ms. Wagner.) If a home is very close to a transmission line or distribution line (which run next to most residences), the lines could be the dominant, but not the only, source of magnetic fields in the home. (testimony of Ms. Wagner.) However, since magnetic fields decrease rapidly as you get further away from the source of the field and most homes are set far away from transmission lines, the contribution of transmission lines to a home's magnetic field level may be low to nonexistent.

(testimony of Ms. Wagner.) Therefore, appliances are usually the strongest sources of magnetic fields in homes because they produce relatively high magnetic fields and are often held close to the body. (testimony of Ms. Wagner.) A study by the United States Environmental Protection Agency conducted in 1992 showed the median magnetic field at six inches from a sampling of appliances was 90 mG (copier), 150 mG (drills), 600 mG (can opener), 300 mG (hair dryer), and 6 mG (baby monitor). (testimony of Ms. Wagner.)

Electric field levels from power lines depend primarily on the voltage of the electric power lines. (testimony of Ms. Wagner.) The higher the voltage on the line, the higher the electric field levels that are associated with the line. (testimony of Ms. Wagner.) Since voltage levels of power lines do not vary significantly, there is little variation expected with electric field levels from a power line. (testimony of Ms. Wagner.) Magnetic field levels from power lines depend primarily on the current, or

load, flowing on the power lines. (testimony of Ms. Wagner.) As electric demand increases and the current on the line increases, the magnetic field levels associated with the line increase. (testimony of Ms. Wagner.) Both electric and magnetic field levels decrease rapidly with distance from a distribution or transmission line.

(testimony of Ms. Wagner.)

MidAmerican witness Ms. Meghan Wagner is a Scientist with Exponent, Inc. (Exponent), a research and consulting firm. (testimony of Ms. Wagner.) Ms. Wagner has a Master of Public Health in Epidemiology. (testimony of Ms. Wagner.) Much of her work at Exponent has focused on evaluating the literature on the possible health effects of electric and magnetic fields. (testimony of Ms. Wagner.)

Electrical engineers at Exponent calculated the electric and magnetic field levels associated with the operation of the existing 12.47 kV distribution line along 195<sup>th</sup> Street. (testimony of Ms. Wagner; MidAmerican Ex. 6.) They also calculated the electric and magnetic field levels associated with the proposed addition of the 69 kV transmission line with a 7.2 kV underbuild distribution line. (testimony of Ms. Wagner; MidAmerican Ex. 6.) These calculations were done for both average line loadings and for peak line loadings. (testimony of Ms. Wagner; MidAmerican Ex. 6.) The calculations were done for both a stacked configuration, with all conductors on one side of the poles nearest the road, and for a Delta configuration, which MidAmerican used in its design to reduce electric and magnetic field levels from the proposed line. (testimony of Ms. Wagner, Mr. Albertson.) (A Delta configuration is a triangular arrangement of the three-phase conductors of the line.) MidAmerican plans to use the Delta configuration except next to Mr. Keiser's property along 195<sup>th</sup>

Street, where MidAmerican was unable to receive permission for a conductor overhang from Mr. Keiser that would have allowed MidAmerican to use the Delta configuration at that location. (testimony of Mr. Albertson.)

The projected electric and magnetic levels of the proposed line are low and within the range of the levels people ordinarily encounter on an everyday basis. (testimony of Ms. Wagner.) With the addition of the proposed 69 kV line, the current and voltage will typically increase, so the electric and magnetic field levels will increase in most locations. (testimony of Ms. Wagner.)

Using a stacked configuration, the maximum calculated magnetic field is 4.98 mG at six feet to the north of the centerline, and the maximum calculated electric field is 0.50 kV/m at six feet north of the centerline. (testimony of Ms. Wagner; MidAmerican Ex. 6.) At 25 feet from the facilities, the magnetic field level is projected to increase from 0.14 mG to 2.99 mG, and the electric field level is projected to increase from 0.10 kV/m to 0.23 kV/m. (testimony of Ms. Wagner; MidAmerican Ex. 6.) At 50 feet from the facilities, the magnetic field level is projected to increase from 0.04 mG to 1.39 mG. (testimony of Ms. Wagner; MidAmerican Ex. 6.) At distances greater than approximately 60 feet from the line, the projected magnetic field level will be below 1 mG. (testimony of Ms. Wagner; MidAmerican Ex. 6.) Due to a proposed reconfiguration of the existing distribution line, the calculated electric field level is reduced below existing levels at distances between approximately 50-80 feet. (testimony of Ms. Wagner; MidAmerican Ex. 6.) At distances greater than approximately 80 feet, the electric field level will remain the same. (testimony of Ms. Wagner; MidAmerican Ex. 6.)

Using a Delta configuration, the maximum calculated magnetic field is 3.65 mG at six feet to the north of the centerline, and the maximum calculated electric field is 0.44 kV/m at six feet north of the centerline. (testimony of Ms. Wagner.) At 25 feet from the facilities, the magnetic field level is projected to increase from 0.14 mG to 2.14 mG, and the electric field level is projected to increase from 0.10 kV/m to 0.19 kV/m. (testimony of Ms. Wagner.) At 50 feet from the facilities, the magnetic field level is projected to increase from 0.04 mG to 0.93 mG. (testimony of Ms. Wagner.) At distances greater than approximately 60 feet from the line, the projected magnetic field level will be below 1 mG. (testimony of Ms. Wagner.) Using the Delta configuration, the calculated electric field level will not be reduced below existing levels at distances between approximately 50-80 feet due to a proposed reconfiguration of the existing distribution line. (testimony of Ms. Wagner.) At distances greater than approximately 115 feet, the electric field level will remain the same. (testimony of Ms. Wagner.)

The two states that have set standards to limit magnetic fields from new transmission lines are New York with a limit of 200 mG and Florida with a limit of 150 mG at the edge of the right-of-way (ROW) at maximum loading. (testimony of Ms. Wagner.) The rationale for these standards is to ensure that the magnetic field levels of new transmission lines do not exceed magnetic field levels produced by existing transmission lines. (testimony of Ms. Wagner.) The standards were not based on health effects. (testimony of Ms. Wagner.)

Six states have standards for electric fields on or at the edge of the ROW that were designed to minimize the perception of shocks that can occur at high electric

field levels. (testimony of Ms. Wagner.) Florida, Minnesota, Montana, New York, North Dakota, and Ohio have proposed limits ranging from 7 kV/m to 11.8 kV/m on the ROW.

There has been extensive research on the possible health effects of EMF. (testimony of Ms. Wagner.) The research includes hundreds of epidemiology studies, animal studies, and studies of cells and tissues in the laboratory. (testimony of Ms. Wagner.) These studies have become very advanced over time, so scientists have a large and high quality body of research to use to form conclusions about the possible health effects of EMF. (testimony of Ms. Wagner.) When forming conclusions about whether an exposure, such as to EMF, poses a health risk, scientists consider all the research that has been published. (testimony of Ms. Wagner.) It is important to evaluate the entire body of research because no single study is capable of addressing all the issues that must be considered and each study has strengths and weaknesses. (testimony of Ms. Wagner.) It is essential that both epidemiology and animal studies are considered in a risk assessment, because each have inherent limitations that are addressed in the other. (testimony of Ms. Wagner.)

Reports by individuals about their health experiences are referred to as case reports in epidemiology. (testimony of Ms. Wagner.) Case reports are not useful for drawing conclusions about the cause of a person's disease because they do not include a control group. (testimony of Ms. Wagner.) In order to draw a conclusion about causality, it is necessary to compare people with the disease to people without the disease (the control group) to see if their exposures differ. (testimony of Ms. Wagner.) Case reports are generally only important for generating ideas about the

exposures that may be associated with a disease. (testimony of Ms. Wagner.)

These ideas must then be tested in epidemiology and experimental studies.

(testimony of Ms. Wagner.)

Numerous national and international organizations responsible for public health have convened groups of scientists to review the research and come to a conclusion about the possible risks associated with EMF. (testimony of Ms. Wagner.) These include the U.S. National Institute of Environmental Health Sciences (NIEHS, 1998), the International Agency for Research on Cancer (IARC, 2002), the International Commission on Non-Ionizing Radiation (ICNIRP, 2003), the National Radiological Protection Board of Great Britain (NRPB, 2001; NRPB 2004), the Health Council of the Netherlands (HCN, 2001; HCN, 2004; HCN, 2005), and the Scientific Committee on Toxicity, Ecotoxicity and the Environment (SCTEE, 2006). (testimony of Ms. Wagner.) These groups have included dozens of scientists with diverse skills that reflect the different research approaches required to answer questions about health. (testimony of Ms. Wagner.) The overall conclusions of these reviews were consistent: they agreed that the body of evidence does not support the conclusion that EMF is the cause of any adverse health effect, including adult and childhood cancer, neurological disease, or reproductive effects. (testimony of Ms. Wagner.) Each group expressed that the evidence in support of a causal relationship is tenuous because it is founded largely on findings from epidemiology studies that are inconsistent, weak, and possibly erroneous. (testimony of Ms. Wagner.) The animal studies did not report consistent increases in cancer among animals exposed to high levels of magnetic fields, and the laboratory studies have not been able to explain

how magnetic fields could cause disease. (testimony of Ms. Wagner.) Most of the reviews noted that epidemiology studies in total suggest a statistical association between magnetic fields at higher long-term average exposure levels (greater than 3-4 mG) and childhood leukemia. (testimony of Ms. Wagner.) However, combined with the lack of consistent findings from animal and laboratory studies, the groups concluded that the overall evidence does not support the conclusion that EMF is a cause of childhood leukemia. (testimony of Ms. Wagner.) An association is just a measure of how things vary together, but it does not prove that the factors are causally related. (testimony of Ms. Wagner.) Other factors related to how the study is designed and conducted can make it seem that there is a real association when, in reality, there is no real association. (testimony of Ms. Wagner.)

There are no federal or state health-based standards for electric or magnetic fields. (testimony of Ms. Wagner.) The only recommendations from scientific organizations regarding standards are those aimed at protecting against acute effects that can occur at very high levels. (testimony of Ms. Wagner.) Exposure to high levels of EMF, not typically found in our communities, can cause stimulation of nerves and muscles, a shock-like effect. (testimony of Ms. Wagner.) To protect against these effects, the ICNIRP recommends that public exposure to magnetic fields be limited to 833 mG and occupational exposure be limited to 4,200 mG. (testimony of Ms. Wagner.) The International Committee on Electromagnetic Safety (ICES) recommends that magnetic field exposures of the general public be limited to 9,040 mG. (testimony of Ms. Wagner.) The ICNIRP recommends that electric field exposure of the general public be limited to 4.2 kV/m and the ICES recommends a

limit of 5 kV/m. (testimony of Ms. Wagner.) Within power line ROWs, the ICES has proposed a 10 kV/m limit. (testimony of Ms. Wagner.) Both organizations recommend much higher limits for occupational electric field exposures. (testimony of Ms. Wagner.)

The electric and magnetic field levels associated with the proposed project are well below the ICNIRP and ICES recommendations. (testimony of Ms. Wagner.) MidAmerican witness Ms. Wagner concluded to a reasonable degree of scientific certainty that the EMF levels associated with the proposed project will not adversely affect public health or safety. (testimony of Ms. Wagner.)

No one presented any expert or scientific evidence that contradicted the expert testimony presented by MidAmerican. Several of the objectors expressed concerns that the electric and magnetic fields from the proposed line would adversely affect their health. The objectors did not present medical or other scientific evidence to support their expressed concerns.

MidAmerican designed the proposed line using a Delta configuration where possible to reduce electric and magnetic field levels from the proposed project. (testimony of Mr. Albertson, Ms. Wagner; petition for franchise.) MidAmerican has presented sufficient proof that the electric and magnetic field levels associated with the proposed line will not adversely affect public health and safety. (testimony of Ms. Wagner; MidAmerican Ex. 6.) Based on the record, no additional terms, conditions, or restrictions related to electric and magnetic field levels need to be imposed pursuant to Iowa Code § 478.4.

### LINE LOCATION AND ROUTE

The Board has the authority to impose modifications of the location and route of the proposed line that are just and proper. Iowa Code § 478.4. Iowa Code § 478.18 and Board rule 199 IAC 11.1(7) require transmission lines to be constructed near and parallel to roads and railroads and along division lines of land wherever practical and reasonable. The same section and rule require the utility to construct the line so as not to interfere with the use of the public of the highways or streams of the state and so as not to unnecessarily interfere with the use of any lands by the occupant. "When a route near and parallel to these features has points where electric line construction is not practical and reasonable, deviations may be proposed at those points, when accompanied by proper evidentiary showing, generally of engineering reasons, that the initial route or routes examined did not meet the practical and reasonable standard. Although deviations based on landowner preference or minimizing interference with land use may be permissible, the petitioner must be able to demonstrate that route planning began with a route or routes near and parallel to roads, railroad rights-of-way, or division lines of land." 199 IAC 11.1(7). The Iowa Supreme Court has interpreted "division lines of land" to mean section lines, quarter section lines, and quarter-quarter-section lines. Hanson v. Iowa State Commerce Comm'n, 227 N.W.2d 157 (Iowa 1975).

The requirement in Iowa Code § 478.18 means that MidAmerican must start its planning using roads, railroads or land division routes. Iowa Code § 478.18; Hanson, at 163. The route must follow a road, railroad or land division route wherever practical and reasonable. Id. If such routes contain points of impracticality

or unreasonableness, MidAmerican may deviate from the route at those points. Id. The Iowa Supreme Court struck down a proposed diagonal route that the Court called "a wholesale departure from railroad and land division routes" when the utility had not begun its planning along division lines of land and railroad routes. Id. The Court noted that diagonal routes running directly from the origin to the termination of the line would be the cheapest, simplest, and most convenient location, but stated that the legislature chose the system of requiring lines to follow division lines of land wherever practical and reasonable, and utilities must follow that requirement. Hanson, at 162. The Court approved a route that deviated from division lines of land when the planning began with division line locations and deviations were based on engineering considerations of practicality and reasonableness in Anstey v. Iowa State Commerce Comm'n, 292 N.W.2d 380 (Iowa 1980). The Court also upheld the Board's conclusion that a new transmission line should follow an existing right-of-way and that new construction along division lines of land was not practical or reasonable under the circumstances in Gorsche Family Partnership v. Midwest Power, et al, 529 N.W.2d 291 (Iowa 1995). However, the Gorsche decision did not overrule or change the Hanson and Anstey decisions and does not authorize utilities to build transmission lines on new diagonal routes that neither follow existing routes nor division lines of land, roads, or railroads as required by Iowa Code § 478.18.

In addition, no transmission line outside of cities "shall be constructed, except by agreement, within 100 feet of any dwelling house or other building, except where such line crosses or passes along a public highway or is located alongside or parallel with the right-of-way of any railway company." 199 IAC 11.1(7); Iowa Code § 478.20.

MidAmerican's proposed route begins at a tap point on an existing MidAmerican 69 kV line within the corporate city limits of Charles City, continues northwesterly along Gilbert Street for approximately 0.3 miles, then turns westerly and runs along the south side of 195<sup>th</sup> Street for approximately 2.7 miles, then northerly and westerly around a residence at the corner of 195<sup>th</sup> Street and Ocean Avenue for approximately 0.2 miles, then northerly along the east side of Ocean Avenue for approximately one mile, crossing 185<sup>th</sup> Street, then continues northerly across private property approximately 0.2 miles, then easterly and northerly on VeraSun ethanol plant site property approximately 0.6 miles to a new Quarry Road Substation to be constructed by MidAmerican. (petition Exs. A, B; testimony of Mr. Albertson; Hockmuth/Nguyen report.) The easterly 0.58 miles of the proposed line, including all of the proposed line along Gilbert Street and a part of the proposed line along 195<sup>th</sup> Street, is within the city of Charles City. (petition Exs. A, B; testimony of Mr. Albertson.) The Board does not have jurisdiction over the part of the proposed line that is inside the corporate city limits of Charles City. Iowa Code § 478.1. The total length of the proposed line is approximately 4.96 miles, with approximately 0.58 miles of this length being within Charles City. (petition Exs. A, B; testimony of Mr. Albertson.) MidAmerican has authorization from the city of Charles City to construct the portion of the proposed line within Charles City. (testimony of Mr. Albertson.) In this proceeding, MidAmerican requests a franchise for the portion of the proposed line outside of Charles City, which is approximately 4.38 miles long. (petition Exs. A, B; testimony of Mr. Albertson; Hockmuth/Nguyen report.)

MidAmerican has obtained all required railroad, Iowa Department of Transportation, county, and environmental permits and authorizations for the proposed line. (testimony of Mr. Albertson, Mr. Williams; MidAmerican Exs. 4, 5.)

MidAmerican's proposed route follows roadways for its entire length except for two locations. (petition Exs. A, B; testimony of Mr. Albertson; Hockmuth/Nguyen report.) At its northern end, the proposed route is not along a roadway. (petition Exs. A, B; testimony of Mr. Albertson; Hockmuth/Nguyen report.) MidAmerican selected this portion of the proposed route to avoid impacting an airstrip near 185<sup>th</sup> Street and to route the proposed line to the new Quarry Road substation. (petition Exs. A, B; testimony of Mr. Albertson; MidAmerican Exs. 2, 3; MidAmerican Figures 3-1, 3-2.) This portion of the proposed line is either on VeraSun ethanol plant site property, or for a very short distance affecting only three poles, is along a line of land division that is also a property line. (petition Exs. A, B; testimony of Mr. Albertson.) Although MidAmerican preferred routes along roadways for easier access to the proposed line, access will still be very good on the ethanol plant site property and to the three poles. (testimony of Mr. Albertson.)

The second location not along roadways is at the corner of 195<sup>th</sup> Street and Ocean Avenue. (petition Exs. A, B; testimony of Mr. Albertson; Hockmuth/Nguyen report.) MidAmerican originally proposed a route along 195<sup>th</sup> Street west to Ocean Avenue, and then northerly along Ocean Avenue. (testimony of Mr. Albertson.) However, the affected property owners at the corner of 195<sup>th</sup> Street and Ocean Avenue had previously established a utility corridor for fiber optic lines and a natural gas line around the easterly and northerly sides of their residence and requested that

the proposed line follow that existing corridor. (testimony of Mr. Albertson.) This deviation is approximately 300 feet from Ocean Avenue's east ROW and 600 feet from 195<sup>th</sup> Street's north ROW. (testimony of Mr. Albertson.) Access across this parcel is good even though the route is not along the roadways. (testimony of Mr. Albertson.)

MidAmerican has obtained voluntary easements that accommodate these two deviations from roadways. (testimony of Mr. Albertson; petition for franchise; Hockmuth/Nguyen report.) MidAmerican began its planning in accordance with Iowa Code § 478.18. (testimony of Mr. Albertson.) The reasons for the two deviations are reasonable and will minimize interference with the use of the land containing the airstrip and the residence at the corner of 195<sup>th</sup> Street and Ocean Avenue. (testimony of Mr. Albertson; petition for franchise; Hockmuth/Nguyen report; MidAmerican Exs. 2, 3; MidAmerican Figures 3-1, 3-2.) The evidence supports a conclusion that following roadways, railroads, or division lines of land at the two locations involving the deviations from roadways is not practical or reasonable under the circumstances. (petition Exs. A, B; testimony of Mr. Albertson; Hockmuth/Nguyen report; MidAmerican Exs. 2, 3; MidAmerican Figures 3-1, 3-2.) The proposed route at these two locations meets the requirements of Iowa Code § 478.18. (petition Exs. A, B; testimony of Mr. Albertson; Hockmuth/Nguyen report; MidAmerican Exs. 2, 3; MidAmerican Figures 3-1, 3-2.)

As discussed above, MidAmerican began its line route study considering the locations of the new VeraSun ethanol plant to be constructed northwest of Charles City and the closest reasonable tap point on the existing 69 KV loop serving Charles

City. (testimony of Mr. Albertson, Mr. Custer; petition for franchise.) Since the proposed transmission line would be the only transmission source to the new ethanol plant, MidAmerican focused its route selection on those routes that would provide prompt and reasonable access for timely responses to operating issues related to the line. (testimony of Mr. Albertson.) MidAmerican determined that access-related delay in responding to outages of the proposed line would be unacceptable because they would cause further delay in returning electric service to the plant. (testimony of Mr. Albertson.)

MidAmerican considered a route along an active railroad corridor in the area, but this was not pursued because there were unacceptable access issues. (testimony of Mr. Albertson.) MidAmerican's experience has been that patrolling, maintaining, and repairing transmission lines along railways is more difficult and time consuming resulting in longer delays in restoring service. (testimony of Mr. Albertson.) In addition, for safety reasons, railroad companies typically require dispatching their own flagman prior to utility work on railroad right-of-way. (testimony of Mr. Albertson.) MidAmerican determined the access issue and the flagman issue would delay MidAmerican's response to outage-related issues if the line were routed along the railroad corridor. (testimony of Mr. Albertson.) In addition, MidAmerican learned that the use of the railroad corridor could impact an operating airstrip adjacent to the railroad corridor. (testimony of Mr. Albertson.) Aircraft take off and land on the airstrip that is parallel and directly adjacent to the railroad, and the airstrip operator, Mr. Roger Mulcahy, raised concerns that aircraft traffic in close proximity to

an overhead transmission line presented a safety hazard. (testimony of Mr. Albertson; Mulcahy objection.)

MidAmerican considered other potential routes in the study area along division lines of land but off of roadways. (testimony of Mr. Albertson.) These were not selected because there would be unacceptable delays related to lack of access if service had to be restored in the event of an outage. (testimony of Mr. Albertson.)

MidAmerican considered two other routes that follow roadways. (testimony of Mr. Albertson.) The first would have tapped the existing 69 kV line at the same location along Gilbert Street, then followed Gilbert Street northwesterly to 185<sup>th</sup> Street, then westerly along 185<sup>th</sup> Street to Quarry Road, then north on Quarry Road to the ethanol plant site. (testimony of Mr. Albertson; MidAmerican Exhibit 1.) MidAmerican did not select this route since it would have impacted a larger number of residences than the proposed route and would have required clearing of many large and established trees along the route to enable safe operation of the proposed line. (testimony of Mr. Albertson.) In addition, MidAmerican learned of a planned project by Floyd County to replace a bridge that crosses the railroad on Gilbert Street north of 195<sup>th</sup> Street. (testimony of Mr. Albertson.) MidAmerican anticipated that this construction work would require the temporary relocation of the proposed line to allow the bridge replacement work to proceed safely. (testimony of Mr. Albertson.) Since the proposed transmission line would be the only electric source to the new ethanol plant, this temporary relocation would have required an outage to the plant to move the line temporarily out of the way of the bridge reconstruction, and then a second outage to return the line to what would have been its original location.

(testimony of Mr. Albertson.) In addition, MidAmerican learned of another planned project by Floyd County to widen 185<sup>th</sup> Street just west of the 185<sup>th</sup> Street freeway interchange. (testimony of Mr. Albertson.) MidAmerican anticipated this project would also require the temporary relocation of the proposed line, resulting in a similar disruption of electric service to the ethanol plant. (testimony of Mr. Albertson.) Finally, this route would have been adjacent to the northwesterly end of the airstrip near the intersection of 185<sup>th</sup> Street and Quarry Road and could have impacted aircraft take offs and landings. (testimony of Mr. Albertson; MidAmerican Figures 3-1, 3-2; MidAmerican Exhibits 1, 2, 3; Mulcahy objection; petition for franchise.)

The second alternate route along roadways that MidAmerican considered would have begun at the same tap location along Gilbert Street, followed Gilbert Street northwesterly to 195<sup>th</sup> Street, then westerly along 195<sup>th</sup> Street to Packard Avenue, then northerly along Packard Avenue to 185<sup>th</sup> Street, then westerly along 185<sup>th</sup> Street to Quarry Road, then northerly along Quarry Road to the ethanol plant site. (testimony of Mr. Albertson; MidAmerican Ex. 1.) MidAmerican did not select this alternate route because it would have been adjacent to the southeasterly end of Mr. Mulcahy's airstrip near the intersection of 185<sup>th</sup> Street and Packard Avenue and also would have been adjacent to the northwesterly end of the same airstrip near the intersection of 185<sup>th</sup> Street and Quarry Road. (testimony of Mr. Albertson; MidAmerican Ex. 1; MidAmerican Figures 3-1, 3-2; Mulcahy objection.) Both of these locations could have impacted aircraft take offs and landings at the airstrip. (testimony of Mr. Albertson; MidAmerican Exs. 1, 2, 3; MidAmerican Figures 3-1, 3-2; Mulcahy objection.)

The Federal Aviation Administration (FAA) regulates the navigable airspace surrounding public use and military airports. (MidAmerican Ex. 3.) There are no FAA standards applicable to the proposed transmission line project in the area of the airstrip for several reasons. (testimony of Mr. Albertson; MidAmerican Exs. 1, 2, 3; MidAmerican Figures 3-1, 3-2; Mulcahy objection.) Notification of the FAA is required for transmission line projects only if the height of the line exceeds 200 feet or is found to penetrate any of several imaginary surfaces around a public use airport. (testimony of Mr. Albertson; MidAmerican Ex. 3.) The proposed 69 kV transmission line is less than 200 feet tall. (petition for franchise; testimony of Mr. Albertson; MidAmerican Ex. 3.) In addition, the airstrip is not registered with the FAA and is not considered a public use airport, so FAA notification of the proposed project is not required. (testimony of Mr. Albertson; MidAmerican Ex. 3.) Since FAA notification is not required, FAA standards do not apply to the proposed transmission line. (testimony of Mr. Albertson; MidAmerican Ex. 3.)

However, the owner of the airstrip, Mr. Roger Mulcahy, raised concerns regarding the alternate routes near his airstrip with MidAmerican and in written objections filed with the Board. (testimony of Mr. Albertson; Mulcahy objections.) In his written objection filed May 9, 2006, Mr. Mulcahy stated he owned a private airstrip that would be adversely affected by the transmission line. (Mulcahy objection.) He stated he had used the airstrip for 30+ years to develop his business, Westside Aircraft Components. (Mulcahy objection.) Westside Aircraft Components fabricates aircraft and rents hangar space to other aircraft owners. (Mulcahy objection.) Mr. Mulcahy stated the airstrip is vital to the operation of his business. (Mulcahy

objection.) Mr. Mulcahy filed a second written objection with the Board on June 9, 2006, in which he stated the grant of the franchise would effectively deprive him of the use of his private airport and property and would obstruct the flight path to his airport. (Mulcahy objection.) On June 15, 2006, the Floyd County Board of Supervisors also filed a written objection with the Board stating they had voted to oppose the transmission line routes that would prevent usage of Mr. Mulcahy's airstrip. (Floyd County Board of Supervisors objection.)

MidAmerican hired Burns & McDonnell, a consultant with expertise in FAA standards and use, to evaluate the impact of the proposed route on Mr. Mulcahy's airstrip as though the FAA standards applied to the proposed line. (testimony of Mr. Albertson.) Burns & McDonnell prepared an evaluation regarding the airstrip and the proposed transmission line, which MidAmerican included as prehearing Exhibit 3 attached to Mr. Albertson's testimony. (testimony of Mr. Albertson; MidAmerican Ex. 3.) Burns & McDonnell stated in the evaluation that, although this airstrip is not regulated by the FAA, the FAA regulations at 49 C.F.R. Part 77 could serve as a guideline to determine whether the proposed transmission line may affect airstrip operations. (MidAmerican Ex. 3.) Burns & McDonnell stated the proposed transmission line would extend north along Ocean Avenue approximately 3,350 feet west of the airstrip, then run east approximately 1,200 feet north of 185<sup>th</sup> Street, and that the 69 kV transmission structures would not exceed a height of 70 feet. (MidAmerican Ex. 3.) Burns & McDonnell stated that the approach and corresponding transitional surfaces are the surfaces most likely affected by a transmission line with pole heights less than 150 feet. (MidAmerican Ex. 3.) Based

on the characteristics of this airstrip and its use, the type of aircraft that use it, and the location and height of the proposed transmission line, Burns & McDonnell stated its analysis indicated that the proposed transmission line would not affect the airstrip. (MidAmerican Ex. 3; testimony of Mr. Albertson.) The Floyd County Board of Supervisors and Mr. Mulcahy acknowledged the proposed route would not adversely impact the airstrip and withdrew their objections on November 7 and 17, respectively. (MidAmerican Ex. 2; testimony of Mr. Albertson; withdrawal of objections.)

MidAmerican has obtained 13 of 14 voluntary easements it sought for the proposed transmission line. (petition for franchise; testimony of Mr. Currie.) Since it was unable to obtain the 14<sup>th</sup> voluntary easement from Mr. Keiser, MidAmerican plans to use the public road right-of-way along 195<sup>th</sup> Street adjacent to Mr. Keiser's property and it does not need to obtain the 14<sup>th</sup> easement. (petition for franchise; testimony of Mr. Currie.)

Several persons filed written objections to the proposed transmission line. The proposed transmission line would not cross the property of any of the persons who filed written objections. (written objections; petition for franchise; testimony of Mr. Albertson; Hockmuth/Nguyen report; MidAmerican Ex. 1.) The following objectors suggested alternate routes to the one chosen by MidAmerican so that the route of the line would not be near the objector's property: Ms. Cavanaugh, Mr. and Mrs. Den Hartog, Mr. Frahm, the petition filed by Mr. Frahm, Mr. Hutchinson, Mr. Keiser, Mr. Lovrien, Ms. McElroy, Mr. Sanvig, Mr. Squier and Mr. Weigel. (written objections.) Some of these alternate routes were the same or similar to the alternate routes considered and rejected by MidAmerican as discussed above. Ms.

Cavanaugh's and Mr. Sanvig's objections related to the alternate route following Gilbert Street to 185<sup>th</sup> Street presented at the informational meeting that was not chosen by MidAmerican. (Cavanaugh objection, Sanvig objection; testimony of Mr. Albertson.) Mr. Sanvig suggested a route along 195<sup>th</sup> Street, which was the route selected by MidAmerican. (Sanvig objection.) In post-hearing comments, the Consumer Advocate supported the alternate route considered and rejected by MidAmerican that would begin at the tap point along Gilbert Street, follow Gilbert Street northwest to 185<sup>th</sup> Street, then west on 185<sup>th</sup> Street to Quarry Road, then north to the new substation. (post-hearing comments.)

Several of the objectors suggested an alternate route west of Charles City along Highway 14. (Den Hartog objection, petition filed by Mr. Frahm, Hutchinson objection, Keiser objection, Squier objection.) MidAmerican considered the route along Highway 14 but did not select it because the proposed route is shorter and more direct. (testimony of Mr. Albertson.) Mr. Albertson testified the rerouting of the line to Highway 14 would delay completion of the proposed line because another informational meeting would need to be held since potentially affected interests along Highway 14 and either Packard Avenue or Ocean Avenue south of 195<sup>th</sup> Street were not notified of the previous informational meeting. (testimony of Mr. Albertson.) Additional property interests beyond those currently obtained, additional permitting from the Iowa Department of Transportation and Floyd County, and additional line design would be required for the Highway 14 alternate route. (testimony of Mr. Albertson.) A route along Highway 14 would increase the length of the proposed line

approximately one mile and would require additional materials and time to install the additional length of line. (testimony of Mr. Albertson.)

Mr. Frahm suggested an alternative route through Mr. Holzer's field south of 195<sup>th</sup> Street. (Frahm objections; Powerline Routing Alternative memo; testimony of Mr. Frahm, Mr. Albertson.) Mr. Frahm obtained the agreement of the persons who had filed written objections other than Ms. Thompson that they would withdraw their objections to the proposed route if this alternative were selected. (testimony of Mr. Frahm; Powerline Routing Alternative memo; Frahm Exhibits 300, 301.) The undersigned notes that persons in addition to those who filed written objections signed the petition filed by Mr. Frahm, and it is unknown whether those persons supported Mr. Frahm's alternative route. Mr. Frahm did not talk with all of the landowners who would be affected by his alternative route, but did talk with Mr. Holzer. (testimony of Mr. Frahm.)

As discussed above, MidAmerican filed a response to the Powerline Routing Alternative on December 8, 2006, in which it stated a willingness to consider the alternative route if certain actions and agreements could be reached prior to the hearing. At the hearing, Mr. Albertson and Mr. Currie testified that MidAmerican had spoken with affected landowners but a consensus of the landowners affected by Mr. Frahm's alternative route could not be achieved. (testimony of Mr. Albertson, Mr. Currie.) MidAmerican's position is that it could have worked with Mr. Frahm's alternative route if landowner consensus were achieved, but that without such consensus, the alternative route was not reasonable. (testimony of Mr. Albertson.)

Therefore, MidAmerican is no longer considering Mr. Frahm's alternative route as an option. (testimony of Mr. Albertson, Mr. Currie.)

Parts of Mr. Frahm's suggested alternative route appear to be within the city limits of Charles City, and therefore, the Board would not have jurisdiction over those parts of the alternative route. (MidAmerican Ex. 1; petition Ex. B; testimony of Mr. Frahm, Mr. Albertson, Mr. Currie; Powerline Routing Alternative memo.)

MidAmerican's access to the line if it followed Mr. Frahm's alternative route would not be as good as it is with the proposed route. (MidAmerican Ex. 1; petition Ex. B; testimony of Mr. Frahm, Mr. Albertson, Mr. Currie; Powerline Routing Alternative memo.) Mr. Frahm's alternative route does not follow roadways, railroads, or division lines of land at some locations and it would require additional right angles.

(testimony of Mr. Frahm, Mr. Albertson.) Although Mr. Frahm is to be commended for his attempt to achieve a compromise, this proved unsuccessful. (testimony of Mr. Albertson, Mr. Currie, Mr. Frahm.) Since there was no consensus of the affected landowners to support Mr. Frahm's alternative route, and considering the problems with the alternative route, MidAmerican's position that it will no longer consider the route is reasonable. (testimony of Mr. Frahm, Mr. Albertson, Mr. Currie.)

MidAmerican addressed each of the alternate routes proposed by the objectors and the one supported by the Consumer Advocate in its post-hearing comments. (testimony of Mr. Albertson, Mr. Currie; MidAmerican Ex. 1; written objections.) Each of the alternate routes is less preferable than the route proposed by MidAmerican for one or more of several reasons: the alternative route is longer and would require additional time, materials, and cost, additional property interests

would have to be obtained, additional authorizations and permitting would be required, the route would adversely impact Mr. Mulcahy's airstrip, there are additional residences along the route, additional tree removal would be required, there would be required outages to accommodate planned bridge reconstruction and road work, access is unacceptable, the route would bisect an existing parcel, the route would place the line directly along two sides of a parcel, and the route does not meet the requirements of Iowa Code § 478.18 and applicable Board rules. (testimony of Mr. Albertson; MidAmerican Exs. 1, 2, 3; Figures 3-1, 3-2; petition for franchise; written objections.)

In its post-hearing comments filed December 18, the Consumer Advocate supported the alternative route considered and rejected by MidAmerican that would run northwesterly along Gilbert Street to 185<sup>th</sup> Street, then west along 185<sup>th</sup> Street to Quarry Road, then north to the new substation. The Consumer Advocate argues this route would be the shortest and most direct path for the transmission line, and would therefore likely cost less to construct than MidAmerican's preferred route. The Consumer Advocate argues the reasons given by MidAmerican for rejecting this route were not supported by detailed evidence other than conclusory statements by MidAmerican's witness Mr. Albertson. The Consumer Advocate argued no specifics were provided regarding the bridge reconstruction and widening of 185<sup>th</sup> Street projects and no information was offered as to the firmness of the plans, including the schedule. The Consumer Advocate argues it is not clear when the projects are to be done or whether they are merely items on the county's long-range wish list. The Consumer Advocate further argues it is not clear that any service interruption to the

ethanol plant would be required and argues MidAmerican did not provide a detailed explanation of why a bypass could not be constructed so that service could continue during construction. The Consumer Advocate further argues that MidAmerican's reasoning regarding the private airstrip is also not persuasive. It argues there was no explanation of why MidAmerican could not have constructed the line on the north side of 185<sup>th</sup> Street where there is an existing distribution line. It argues Mr. Albertson testified he knew of no legal impediment to placing the line adjacent to the airport. The Consumer Advocate argues that a cursory objection was filed by Mr. Mulcahy, but no genuine reason was provided by anyone suggesting the objection would have been valid. The Consumer Advocate argued MidAmerican testified it was concerned about safety in connection with the airstrip, but there was no explanation of why MidAmerican would have been responsible for safe use of the airstrip. The Consumer Advocate argued if MidAmerican was concerned the unsafe airstrip might jeopardize the integrity of its nearby facilities, it did not make that point clear or justify its reasoning. The Consumer Advocate also argued that MidAmerican provided few details as to the total number of residences along this alternate route, their distances from the line, and how using one or the other side of the street could minimize concerns. The Consumer Advocate stated MidAmerican cited a residence at the corner of Packard Avenue and 185<sup>th</sup> Street as an obstacle to this route, but there was no showing why MidAmerican could not have managed this situation similarly to the deviation proposed at the corner of Ocean Avenue and 195<sup>th</sup> Street on the preferred route. In its argument, the Consumer Advocate presented an admittedly rough cost comparison between the alternative route and MidAmerican's

preferred route. It argued the difference in cost between MidAmerican's preferred route and this alternate route would be substantial, and argued this difference in cost would appear to require a more detailed explanation to justify the additional expenditure. The Consumer Advocate argued that MidAmerican is not requiring VeraSun to pay for the construction costs of the line even though the line is being constructed for VeraSun's direct benefit. The Consumer Advocate argues VeraSun's revenue from the plant should repay the investment in the line. The Consumer Advocate further argues the nature of this financing makes it particularly important that the plant be built and begin operations as soon as possible, which results in the fact that potential delays in building the line are magnified in importance beyond what they would be if VeraSun were financing the construction cost of the line. The Consumer Advocate argues the desire to avoid delay affects routing decisions and makes it more difficult to reject or modify the choices made by MidAmerican. The Consumer Advocate argues that carefully considering these issues would delay construction, and in the overall assessment of the petition, the delay would not be acceptable. The Consumer Advocate argues the Board will have to judge whether that factor justifies acceptance of a route that appears to be substantially more costly than an available alternative. The Consumer Advocate argued the Board should put MidAmerican on notice that proposed routes which are not least cost must be fully justified in terms of why any additional cost is justified.

Although each of the objector's alternate routes would mean the proposed line would not be as near the objector's property, thus providing a benefit to the individual objector, the alternate routes would be less preferable to the public at large.

(testimony of Mr. Albertson, Mr. Currie, Mr. Frahm, Mr. Hockmuth, Mr. Nguyen; MidAmerican Exs. 1, 2, 3; Figures 3-1, 3-2; petition for franchise; written objections; Powerline Routing Alternative memo; Hockmuth/Nguyen report.) When considering the public interest, the term public is not limited to the individual objectors, and is not even limited to consumers located in this state. Iowa Code § 478.3(3). Requiring MidAmerican to follow a route that is longer for the benefit of one or more objectors would add unnecessary cost to the project to the detriment of the public, would not be in the public interest, and would not be just or proper. MidAmerican has shown there is a need for the proposed line. It has shown the tap point at the east end of the proposed line is the most reasonable location. Therefore, the proposed line must run somewhere between the tap point at the east end of the proposed line and the new ethanol plant.

MidAmerican has demonstrated that the route it selected is the most reasonable and it is in compliance with the requirements of Iowa law. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Hockmuth, Mr. Nguyen, Mr. Albertson, Mr. Custer, Mr. Currie, Mr. Williams, Mr. Frahm; MidAmerican Exhibits 1-5; Figures 3-1, 3-2; written objections; Powerline Routing Alternative memo.) The evidence MidAmerican presented to explain why it did not select the alternative route supported by the Consumer Advocate in its post-hearing comments was substantial and persuasive. (testimony of Mr. Albertson; MidAmerican Exs. 1, 2, 3; Figures 3-1, 3-2.) MidAmerican has proven the proposed route is the most practical and reasonable alternative and it should be approved. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Hockmuth, Mr. Nguyen, Mr. Albertson,

Mr. Custer, Mr. Currie, Mr. Williams, Mr. Frahm; MidAmerican Exhibits 1-5; Figures 3-1, 3-2; written objections; Powerline Routing Alternative memo.)

## **OBJECTIONS**

Iowa Code § 478.5 provides that any person whose rights may be affected has the right to file a written objection to the proposed project or the grant of a requested franchise.

Several persons filed written objections with the Board. (written objections; Hockmuth/Nguyen report.) The Floyd County Board of Supervisors and Mr. Mulcahy withdrew their objections prior to the hearing. As of the date of the hearing, since there was no consensus regarding Mr. Frahm's alternative route and therefore MidAmerican did not select it, there remain several objections to the proposed route. (written objections; testimony of Mr. Frahm, Ms. Thompson, Mr. Albertson, Mr. Currie; Hockmuth/Nguyen report.)

Some of the objections raise a concern regarding adverse health effects from electric and magnetic fields. (written objections; Hockmuth/Nguyen report; testimony of Mr. Albertson.) The objectors did not present any scientific or expert evidence regarding this concern. (written objections; testimony of Mr. Frahm, Ms. Thompson.) On the other hand, as discussed above, MidAmerican presented expert testimony and evidence that showed the electric and magnetic field levels associated with the proposed transmission project will not adversely affect the public health and safety. (testimony of Ms. Wagner; MidAmerican Ex. 6.)

### **Ms. Martha Cavanaugh's objection**

Ms. Cavanaugh filed an objection with the Board on June 22, 2006. Ms. Cavanaugh stated she objected to the route that went out Gilbert Street to the Avenue of the Saints, which appears to be an alternate route not selected by MidAmerican. (written objection; testimony of Mr. Albertson; Hockmuth/Nguyen report.) Ms. Cavanaugh's property is located over one-half mile from the route proposed by MidAmerican and she therefore does not appear to be affected by the grant or denial of the requested franchise. (written objection; testimony of Mr. Albertson; Hockmuth/Nguyen report; MidAmerican Ex. 1.)

Ms. Cavanaugh's objection does not provide a reason to deny the requested franchise. Nor does it provide a reason to require any additional terms, conditions, or modifications of the requested franchise.

**Mr. Robert and Mrs. Den Hartog's objection**

Mr. and Mrs. Den Hartog filed an objection on August 1, 2006. The Den Hartogs stated they were opposed to the installation of a high voltage transmission line through a residential neighborhood along 195<sup>th</sup> Street due to potential adverse health effects, decreased property value, aesthetics, and satellite interference. (written objection; testimony of Mr. Albertson; Hockmuth/Nguyen report.) The Den Hartogs suggested an alternate route along Highway 14 or a reduction in their property taxes due to likely decrease in property value. (written objection.) The Den Hartog's property is in the Wandering Acres subdivision and is approximately 150 feet north of the proposed transmission line. (written objection; testimony of Mr. Albertson; Hockmuth/Nguyen report; MidAmerican Ex. 1.) The Wandering Acres subdivision is just to the west of the Maple Heights subdivision on the north side of

195<sup>th</sup> Street and is outside of Charles City. (petition Ex. B; testimony of Mr. Albertson.) At this location, the proposed transmission line route running along the south side of 195<sup>th</sup> Street is outside of the city limits of Charles City. (petition Ex. B.)

The concerns expressed in the Den Hartog's objection regarding adverse health effects and the alternate route is addressed in other parts of this decision. The Den Hartogs did not present evidence to support their concern that there would be a reduction in the value of their property due to the proposed line, and there is nothing in the record that suggests the proposed transmission line would cause such a reduction. To address the concern regarding aesthetics, MidAmerican will use single poles spaced approximately 300 feet apart and will use a compact conductor configuration via use of line post insulators. (testimony of Mr. Albertson.) The expert testimony presented by MidAmerican supports the conclusion that there will be no satellite interference caused by the proposed transmission line because it is a 69 kV line. (testimony of Ms. Wagner.)

The Den Hartog's objection does not provide a reason to deny the requested franchise. Nor does it provide a reason to require any additional terms, conditions or modifications of the requested franchise.

**Mr. Larry Frahm's objections and petition**

Mr. Frahm filed written objections and information with the Board on May 5, May 31, July 12, August 14, September 14, October 11 (2 letters, one opposing VeraSun's request for intervention), and October 30, 2006. Mr. Frahm filed a petition on July 28, 2006. He filed a Powerline Routing Alternative memo on December 6, 2006. Mr. Frahm testified at the hearing and his exhibits 300 and 301 were admitted at the hearing.

Mr. and Mrs. Frahm live at the corner of 195<sup>th</sup> Street and Jerry Avenue in the Maple Heights subdivision on the north side of 195<sup>th</sup> Street. (written objections; Hockmuth/Nguyen report; testimony of Mr. Frahm, Mr. Albertson.) The proposed transmission line would run along the south edge of 195<sup>th</sup> Street. (written objections; Hockmuth/Nguyen report; testimony of Mr. Frahm, Mr. Albertson.) Mr. and Mrs. Frahm's home is approximately 75 feet north of the proposed transmission line. (written objections; Hockmuth/Nguyen report; testimony of Mr. Frahm, Mr. Albertson.)

The Maple Heights subdivision is outside the city limits of Charles City. (Hockmuth/Nguyen report; testimony of Mr. Albertson; petition Ex. B; MidAmerican Ex. 1.) However, property located south of the Maple Heights subdivision on the south side of 195<sup>th</sup> Street is within the city limits of Charles City. (petition Ex. B; Hockmuth/Nguyen report; testimony of Mr. Albertson.) At this location, since the proposed transmission line route is along the south edge of 195<sup>th</sup> Street, it is within the city limits of Charles City. (Hockmuth/Nguyen report; testimony of Mr. Albertson; petition Ex. B.) The Board does not have jurisdiction over the portion of the proposed transmission line that is within the corporate city limits of Charles City. Iowa Code §

478.1. Immediately to the west of this location, the proposed transmission line route exits the city limits of Charles City, and from that point on, the Board has jurisdiction over the proposed transmission line. (petition Ex. B.) Iowa Code § 478.1.

In his objections and in testimony at the hearing, Mr. Frahm expressed a concern that the proposed transmission line could interfere with his wife's Medtronic pacemaker. (Frahm objections; testimony of Mr. Frahm.) Mr. Frahm stated the Medtronic website lists high voltage transmission lines as something to avoid and he enclosed guidelines from Medtronic with one of his objections. (Frahm objections.) The Medtronic information provided by Mr. Frahm states that being underneath transmission power lines may interfere with pacemakers and that power lines carrying more than 100,000 volts are likely to interfere with a pacemaker. (Frahm objection.) The Medtronic information states that areas for the general public are safe but areas with restricted access should be avoided. (Frahm objection.) The information further states that extended time in public walkways under transmission lines should be avoided. (Frahm objection.) Mr. Frahm was concerned that MidAmerican's expert could not guarantee that the proposed line would not cause a problem with Mrs. Frahm's pacemaker, even though she stated the proposed line should not interfere with the pacemaker. (Frahm objections; testimony of Mr. Frahm.)

MidAmerican expert witness Ms. Wagner testified that research shows the potential for interference from the proposed transmission line with the pacemaker is low. (testimony of Ms. Wagner.) She testified there is not a single report in the Food and Drug Administration's monitoring system that exposure to electric or magnetic

fields from power lines caused interference to normal pacemaker function and no cases have been reported in the peer-reviewed scientific and medical literature. (testimony of Ms. Wagner; MidAmerican Ex. 6.) She testified the magnetic and electric field levels associated with the proposed transmission line will be below the exposure limits for workers recommended by the American Conference of Industrial Hygienists. (testimony of Ms. Wagner.) She testified that Medtronic states there are features built into their pacemakers to protect them from most interference encountered in normal daily activities and that power lines carrying more than 100,000 volts can interfere with a pacemaker, thus distinguishing between possible risks associated with higher and lower-voltage transmission lines. (testimony of Ms. Wagner.) Medtronic's technical service department has recommended an electric field level limit of 6 kV/m, below which there should be no interference with its pacemakers. (testimony of Ms. Wagner; MidAmerican Ex. 7.) The electric field levels associated with the proposed transmission line will be about ten times lower than the Medtronic limit. (testimony of Ms. Wagner; MidAmerican Exs. 6, 7.) Ms. Wagner testified that science can never provide a 100% guarantee that a particular exposure is free from all potential risk, even if the body of research is large and strong. (testimony of Ms. Wagner.) She testified that scientists can only say that, after continued testing, the weight of the evidence strongly suggests that the risk is acceptably small. (testimony of Ms. Wagner.) MidAmerican witness Dr. Yakov Shkolnikov, a senior engineer with Exponent, Inc., testified that studies of the Medtronic pacemaker have shown that there is no effect on the pacemaker from electric transmission lines less than 765 kV. (testimony of Dr. Shkolnikov.)

On July 28, 2006, Mr. Frahm filed a petition opposing the proposed transmission line. In the petition, Mr. Frahm stated there were 84 signatures from individuals in the Maple Heights subdivision and 24 signatures from individuals in the Wandering Acres subdivision. Mr. Frahm stated his belief that the petitions represented a solid consensus of opinion that the proposed line should not be built through these residential areas. The petition stated the proposed line would carry an element of danger associated with high voltage, unsightly poles and lines, electric and magnetic fields that may cause interferences with electronic devices including pacemakers and potential for adverse health effects, and a potential negative effect on property values, and recommended an alternate route along Highway 14.

The concerns expressed in Mr. Frahm's objections, testimony, and petition regarding possible adverse health effects and the alternate routes are addressed in other parts of this decision. Mr. Frahm and the petitioners did not present evidence to support their concern that there would be a reduction in the value of their property due to the proposed line, and there is nothing in the record that suggests the proposed transmission line would cause such a reduction. To address the concern regarding unsightliness of the line, MidAmerican will use single poles spaced approximately 300 feet apart and will use a compact conductor configuration via use of line post insulators. (testimony of Mr. Albertson.) As discussed above, MidAmerican will construct, operate, and maintain the proposed line in conformance with all applicable safety requirements. The overwhelming weight of the evidence supports a conclusion that the proposed transmission line will not cause interference with Mrs. Frahm's pacemaker, will not cause interference with microwave Internet,

satellite, or television and radio reception, and will not adversely affect public health or safety. (testimony of Ms. Wagner, Mr. Frahm, Ms. Thompson, Dr. Shkolnikov; Frahm objections; MidAmerican Exs. 1, 2, 3, 6, 7; Figures 3-1, 3-2; petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Albertson.)

Mr. Frahm's objections, testimony and petition do not provide a reason to deny the requested franchise. Nor do they provide a reason to require a different route or any additional terms, conditions or modifications of the requested franchise. The undersigned does appreciate the efforts Mr. Frahm made to work toward a compromise regarding the route of the proposed transmission line.

**Mr. Dennis Hutchinson's objection**

Mr. Hutchinson filed a written objection on July 18, 2006. Mr. Hutchinson expressed concerns that the proposed line would be unsightly, have a "power field effect," and have a possible effect on his microwave Internet used in his business. (Hutchinson objection.) Mr. Hutchinson supported use of an alternate route along Highway 14. Mr. Hutchinson lives in the Wandering Acres subdivision and his home is between 165 and 200 feet north of the proposed line. (Hutchinson objection; Hockmuth/Nguyen report; testimony of Mr. Albertson.)

It is unclear what Mr. Hutchinson meant by "power field effect," but the undersigned will assume it expresses a concern regarding possible adverse health or safety effects. The concerns expressed in Mr. Hutchinson's objection regarding adverse health effects and the alternate route are addressed in other parts of this decision. To address the concern regarding unsightliness of the line, MidAmerican will use single poles spaced approximately 300 feet apart and will use a compact

conductor configuration via use of line post insulators. (testimony of Mr. Albertson.)

The expert testimony presented by MidAmerican supports the conclusion that there will be no interference with Mr. Hutchinson's microwave Internet service caused by the proposed transmission line because it is a 69 kV line. (testimony of Ms. Wagner.)

As discussed above, MidAmerican will construct, operate, and maintain the proposed line in conformance with all applicable safety requirements. The overwhelming weight of the evidence supports a conclusion that the proposed transmission line will not adversely affect public health or safety. (testimony of Ms. Wagner; MidAmerican Exs. 1, 2, 3, 6, 7; Figures 3-1, 3-2; petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Albertson.)

Mr. Hutchinson's objection does not provide a reason to deny the requested franchise. Nor does it provide a reason to require any additional terms, conditions or modifications of the requested franchise.

#### **Mr. Thomas Keiser's objections**

Mr. Keiser filed two objections, one on July 12 and another on September 8, 2006. Mr. Keiser expressed concerns that a large transformer would be located outside the Keisers' bedroom window and that Mr. Keiser believed MidAmerican had not looked at an alternative route with less people. (Keiser objection.) Mr. Keiser recommended two alternate routes: a) one along Highway 14 and; b) the second west on 210<sup>th</sup> Street to Packard Avenue, then north to 195<sup>th</sup> Street. (Keiser objections; testimony of Mr. Albertson; Hockmuth/Nguyen report; petition Ex. B.)

Mr. Keiser's home is approximately 45 feet from the proposed transmission line on the south side of 195<sup>th</sup> Street. (testimony of Mr. Albertson; Hockmuth/Nguyen

report.) Both Mr. Keiser's home and the proposed transmission line near his home are within the city limits of Charles City. (testimony of Mr. Albertson; Hockmuth/Nguyen report.) Therefore, the Board has no jurisdiction over the proposed line at this location. Iowa Code § 478.1.)

At the hearing, Mr. Albertson testified Mr. Keiser's concern regarding the transformer was based on a miscommunication. The suggested alternate route along Highway 14 is discussed above. 210<sup>th</sup> Street is south of Highway 14, and MidAmerican witness Mr. Albertson testified this route would also increase the length of the proposed line and require additional materials, time and expense to install the additional length of line. (testimony of Mr. Albertson; petition Ex. B.)

Mr. Keiser's objections do not provide a reason to deny the requested franchise. Nor do they provide a reason to require any additional terms, conditions or modifications of the requested franchise.

**Mr. Kenneth Lovrien objection**

On July 31, 2006, Mr. Lovrien filed his objection with the Board. Mr. Lovrien stated the nature of his objection was the proposed line was too close to the housing development in Maple Heights and he preferred an alternate route. (Lovrien objection.) Mr. Lovrien's home is in the Maple Heights subdivision and is approximately 70 feet north of the proposed line. (Lovrien objection; testimony of Mr. Albertson, Mr. Hockmuth; Hockmuth/Nguyen report.)

As discussed above, at this location, the proposed transmission line route is within the city limits of Charles City. MidAmerican witness Mr. Albertson testified it is not uncommon to route transmission lines adjacent to residential areas. (testimony

of Mr. Albertson.) The preference for an alternate route expressed in Mr. Hutchinson's objection is addressed in other parts of this decision.

Mr. Lovrien's objection does not provide a reason to deny the requested franchise. Nor does it provide a reason to require any additional terms, conditions or modifications of the requested franchise.

**Ms. Mary Kathryn McElroy's objection**

Ms. McElroy filed an objection on July 17, 2006. Ms. McElroy expressed concerns regarding the aesthetic appearance of the proposed line, its possible health consequences, that the poles would be in a residential neighborhood and very near their homes, that they would not be able to enjoy the view from their homes, that the proposed line may have an adverse effect on property values, and that some who are older fear health consequences. Ms. McElroy said she would appreciate finding some way of bypassing Maple Heights. (McElroy objection.)

Ms. McElroy lives in the Maple Heights subdivision and her home is approximately 70 feet north of the proposed transmission line. As discussed above, at this location, the proposed transmission line route is within the city limits of Charles City. MidAmerican witness Mr. Albertson testified it is not uncommon to route transmission lines adjacent to residential areas. (testimony of Mr. Albertson.) The preference for an alternate route bypassing Maple Heights expressed in Ms. McElroy's objection and the concern regarding possible adverse health effects are addressed in other parts of this decision.

Ms. McElroy did not present evidence to support her concern that there would be a reduction in the value of her property due to the proposed line, and there is

nothing in the record that suggests the proposed transmission line would cause such a reduction. To address the concern regarding aesthetics, MidAmerican will use single poles spaced approximately 300 feet apart and will use a compact conductor configuration via use of line post insulators. (testimony of Mr. Albertson.) As discussed above, MidAmerican will construct, operate, and maintain the proposed line in conformance with all applicable safety requirements. The overwhelming weight of the evidence supports a conclusion that the proposed transmission line will not adversely affect public health or safety. (testimony of Ms. Wagner; MidAmerican Exs. 1, 2, 3, 6, 7; Figures 3-1, 3-2; petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Albertson.) Finally, there is no legal right to a view recognized in Iowa law. Shriver v. City of Okoboji, 567 N.W. 2d. 397 (Iowa 1997); Mohr v. Midas Realty Corp. et al., 431 N.W.2d 380 (Iowa 1988).

Ms. McElroy's objection does not provide a reason to deny the requested franchise. Nor does it provide a reason to require any additional terms, conditions or modifications of the requested franchise.

**Mr. Dennis Sanvig's objection**

Mr. Sanvig filed an objection on June 7, 2006. Mr. Sanvig lives along Gilbert Street and an alternate route not selected by MidAmerican. (Sanvig objection; Hockmuth/Nguyen report; testimony of Mr. Albertson.) His property is over one-half mile from the proposed route, and it therefore does not appear that he would be affected by the grant or denial of the requested franchise. (Sanvig objection; Hockmuth/Nguyen report; testimony of Mr. Albertson; MidAmerican Ex. 1.) Interestingly, Mr. Sanvig recommended an alternate route along 195<sup>th</sup> Street, which was the route ultimately selected by MidAmerican. (Sanvig objection; Hockmuth/Nguyen report; testimony of Mr. Albertson; MidAmerican Ex. 1.)

Mr. Sanvig's objection does not provide a reason to deny the requested franchise, and instead, supports the route chosen by MidAmerican. His objection does not provide a reason to require any additional terms, conditions or modifications of the requested franchise.

**Mr. Daniel J. Squier's objections**

Mr. Squier filed two objections on July 12 and 18, 2006. Mr. Squier objects to the proposed line based on its close proximity to homes, which he stated will spoil a pristine south view for a majority of homes. He stated the proposed route would spare Mr. Mulcahy's private airstrip but would run through a heavily populated Maple Heights subdivision and affect approximately 12 homes on the north side of 195<sup>th</sup> Street. He stated there are no poles or other manmade objects currently visible to the south. Mr. Squier stated they do not want their view spoiled by 70-foot poles

carrying 69 kV of power. Mr. Squier is also concerned about television and radio reception due to interference from the proposed line and stated they have no cable service. Mr. Squier stated all these factors would lessen their quality of life and decrease their property value. He stated they currently receive power from Butler County REC and those lines are all buried. Mr. Squire suggested that MidAmerican use an alternate route, including following a proposed waterline or routing the line along the less inhabited Highway 14 to Ocean Avenue where power lines already exist.

Mr. Squier's property is in the Wandering Acres subdivision and his home is approximately 200-210 feet north of the proposed route. (Squier objection; testimony of Mr. Albertson; Hockmuth/Nguyen report.)

MidAmerican witness Mr. Albertson testified it is not uncommon to route transmission lines adjacent to residential areas. (testimony of Mr. Albertson.) Mr. Squier's suggested route along Highway 14 is addressed in other parts of this decision. Mr. Albertson testified MidAmerican did not select the alternate route along a proposed waterline because access to this off-road route would be unacceptable. (testimony of Mr. Albertson.) In addition, he testified, the waterline route would have required routing the proposed line along Gilbert Street to a point farther north than 185<sup>th</sup> Street. (testimony of Mr. Albertson.) As discussed above, use of Gilbert Street would affect additional residences, require additional tree removal, and require outages to the ethanol plant to accommodate planned roadwork on Gilbert Street and 185<sup>th</sup> Street. (testimony of Mr. Albertson.)

Mr. Squier did not present evidence to support his concern that there would be a reduction in the value of his property due to the proposed line, and there is nothing in the record that suggests the proposed transmission line would cause such a reduction. MidAmerican will use single poles spaced approximately 300 feet apart and will use a compact conductor configuration via use of line post insulators. (testimony of Mr. Albertson.) There is no legal right to a view recognized in Iowa law. Shriver v. City of Okoboji, 567 N.W. 2d. 397 (Iowa 1997); Mohr v. Midas Realty Corp. et al., 431 N.W.2d 380 (Iowa 1988). The expert testimony presented by MidAmerican supports the conclusion that there will be no interference with Mr. Squier's television and radio reception caused by the proposed transmission line because it is a 69 kV line. (testimony of Ms. Wagner.)

Mr. Squier's objections do not provide a reason to deny the requested franchise. Nor do they provide a reason to require any additional terms, conditions or modifications of the requested franchise.

**Ms. Neoma Thompson's objection**

Ms. Thompson filed a written objection on July 11, 2006. She also testified at the hearing. Ms. Thompson lives in Charles City and her home is one mile or more from the proposed transmission line. (testimony of Ms. Thompson; written objection.) Since Ms. Thompson lives a mile or more from the proposed transmission line, it does not appear that she will be adversely affected by the grant of the proposed franchise.

Ms. Thompson testified that the electric and magnetic fields from an existing 69 kV transmission line near her home, perhaps about 75 feet from her back porch,

are causing her pain and adversely affecting her health. (testimony of Ms. Thompson; written objection.) She is also opposed to the proposed transmission line because she is concerned that it will adversely affect the health of people living near it. (testimony of Ms. Thompson; written objection.) Ms. Thompson testified that she has several friends with medical problems they believe are caused by electric and magnetic fields from power lines. (testimony of Ms. Thompson; written objection.) Ms. Thompson is also concerned about the safety of the proposed line. (testimony of Ms. Thompson; written objection.)

While the undersigned is sympathetic to Ms. Thompson, she presented no medical or scientific evidence to support her belief that the existing transmission line near her home is the cause of her problems or that the proposed line will cause harm to others. As MidAmerican's expert witness Ms. Wagner testified, individual case reports such as those Ms. Thompson testified to do not show cause and effect; they do not show that the transmission lines are causing the harm. (testimony of Ms. Wagner.) As discussed above, MidAmerican will construct, operate, and maintain the proposed line in conformance with all applicable safety requirements. The overwhelming weight of the evidence presented in this case supports a conclusion that the proposed transmission line will not adversely affect public health or safety. (testimony of Ms. Wagner, Mr. Albertson, Ms. Thompson; MidAmerican Exs. 1, 2, 3, 6, 7; Figures 3-1, 3-2; petition for franchise; Hockmuth/Nguyen report.)

Ms. Thompson's objection and testimony do not provide a reason to deny the requested franchise nor do they provide a reason to put additional conditions or restrictions on the requested franchise.

**Mr. Jeffrey J. Weigel's objection**

Mr. Weigel filed a written objection on July 17, 2006. Mr. Weigel stated he did not want a high voltage line this close to his property and suggested MidAmerican move the line somewhere where it would not affect so many houses. (written objection.)

Mr. Weigel lives in the Maple Heights subdivision and his home is approximately 75-80 feet north of the proposed line. (written objection; testimony of Mr. Albertson; Hockmuth/Nguyen report.) Mr. Albertson testified it is not uncommon to route transmission lines adjacent to residential areas. (testimony of Mr. Albertson.) As discussed above, the evidence presented in this case supports the conclusion that the route selected by MidAmerican is the most practical and reasonable, complies with all applicable requirements, and is in the public interest. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Hockmuth, Mr. Nguyen, Mr. Albertson, Mr. Custer, Mr. Currie, Mr. Williams, Mr. Frahm; MidAmerican Exhibits 1-5; Figures 3-1, 3-2; written objections; Powerline Routing Alternative memo.)

Mr. Weigel's objection does not provide a reason to deny the requested franchise nor does it provide a reason to put additional conditions or restrictions on the requested franchise.

Members of the public, including the objectors and the VeraSun ethanol plant, need and use electricity. Transmission lines must go somewhere as a part of the system that provides that electricity. This means that some people will be able to see the lines. Some people will have a fear or belief that the lines may affect their health.

In this case, MidAmerican has proven that the proposed line will not adversely affect public health and safety and there was no contradictory scientific or expert evidence presented. Being able to see the line or having a fear or belief that has no basis in medical or scientific evidence does not provide a reason to deny or restrict the request for a franchise.

In this case, MidAmerican has shown that the proposed line is necessary, its selected route is superior to the alternatives proposed and considered, the line would comply with all requirements, and it is in the public interest to grant the franchise. MidAmerican's petition for franchise in Docket No. E-21822 should be granted.

#### **CONSUMER ADVOCATE'S POST-HEARING COMMENTS**

The undersigned is troubled by the Consumer Advocate's post-hearing comments opposing the route selected by MidAmerican and supporting an alternative route considered and rejected by MidAmerican. By waiting until the end of the hearing to request the opportunity to file comments and filing its comments after the close of the record, the Consumer Advocate has created a situation where there is no reasonable opportunity to explore the Consumer Advocate's position in a thorough and meaningful way.

Board procedure is designed so that there is ample opportunity for all parties, including the Consumer Advocate, to raise issues and concerns and have them considered in a thorough, deliberative, meaningful way. The element of surprise is not supposed to be part of Board cases, and it is not helpful in the discernment of what is in the public interest. Indeed, the procedural order issued on October 31,

2006, stated, among other things, that: "if the Consumer Advocate takes the position that MidAmerican should not be granted the requested franchise, or that restrictions on the grant should be imposed, it must file prepared testimony or a brief in support of its position according to the procedural schedule." The procedural schedule provided that: "If the Consumer Advocate takes the position that MidAmerican should not be granted the franchise, or that restrictions on the grant should be imposed, it must file prepared testimony or a brief in support of its position on or before December 1, 2006."

The Consumer Advocate did not file testimony or a brief. It did not indicate in any way prior to the hearing that it had concerns about the extent or quality of MidAmerican's evidence regarding why it did not select the route supported by the Consumer Advocate. None of the concerns raised by the Consumer Advocate in its post-hearing comments related to new evidence presented at the hearing. Evidence regarding all of the issues raised by the Consumer Advocate were included in MidAmerican's petition for franchise and prefiled testimony. Clearly, if the Consumer Advocate had questions regarding the sufficiency of the evidence or it wanted a meaningful cost comparison of the two routes, it could have asked MidAmerican to provide this in data requests, through the prefiled testimony of its own witnesses, or in a prehearing brief.

In addition, as presented, the arguments of the Consumer Advocate are not persuasive. In particular, the cost estimate presented in argument, not through the testimony of a witness, is so rough as to be not meaningful. Of course additional evidence as argued by the Consumer Advocate might have been helpful. However,

the time to request such evidence was prior to the hearing. The evidence presented by MidAmerican is sufficient and persuasive that the route supported by the Consumer Advocate was not a viable choice and that the route MidAmerican selected was the most reasonable alternative and in the public interest. (petition for franchise; testimony of Mr. Albertson, Mr. Currie, Mr. Custer, Mr. Williams, Mr. Frahm, Mr. Hockmuth, Mr. Nguyen; MidAmerican Exs. 1, 2, 3, 4, 5; Figures 3-1, 3-2; Hockmuth/Nguyen Report; written objections.)

In the future, the undersigned expects the Consumer Advocate to abide by the procedural orders issued and to present evidence, request evidence, and make argument prior to the hearing and in accordance with the procedural schedules so that its positions can be explored in a thoughtful, meaningful way and applicants have a reasonable opportunity to address the issues raised.

At the conclusion of its post-hearing comments, the Consumer Advocate requested that the Board "put MidAmerican on notice that proposed routes which are not least cost must be fully justified in terms of why any additional cost is justified." While cost is one factor to consider, Iowa Code Chapter 478 requires the Board to consider many factors in determining whether to grant a requested franchise or place conditions, restrictions, or modifications on the grant. Iowa Code Chapter 478; S.E. Iowa Cooperative. Cost savings are a legitimate consideration in determining whether the proposed transmission line is necessary to serve a public use. S.E. Iowa Cooperative, at 820. MidAmerican has the burden to present sufficient evidence of all required factors to support its requested franchise. Any suggestion by the

Consumer Advocate that the cost factor should be elevated above other factors is not supported by Iowa Code Chapter 478, the Board rules, and relevant cases.

### **FINDINGS OF FACT**

1. MidAmerican held an informational meeting in Charles City, Floyd County, Iowa, in Docket No. E-21822, as required by Iowa Code § 478.2. (petition for franchise; Hockmuth/Nguyen report; Docket No. E-21822 file.)
2. MidAmerican has agreed to pay all costs and expenses of this franchise proceeding pursuant to Iowa Code § 478.4. (petition for franchise).
3. The evidence presented in this case shows the proposed transmission line is necessary to serve a public use. (petition for franchise; testimony of Mr. Custer, Mr. Pesicka.)
4. The evidence presented in this case shows that the proposed 69 kV transmission line represents a reasonable relationship to an overall plan of transmitting electricity in the public interest. (petition Ex. D; testimony of Mr. Albertson, Mr. Custer, Mr. Pesicka, Ms. Wagner, Mr. Currie, Mr. Williams; MidAmerican Exs. 1 through 7; VeraSun Ex. 101.)
5. The evidence presented in this case shows that the proposed transmission line will conform to the construction and safety requirements in Iowa Code §§ 478.19 and 478.20 and 199 IAC chapters 11 and 25. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Albertson.) No additional terms, conditions, or restrictions regarding construction and safety requirements need to be imposed pursuant to Iowa Code § 478.4.

6. MidAmerican has presented sufficient proof that the electric and magnetic field levels associated with the proposed line will not adversely affect public health and safety. (testimony of Ms. Wagner, Dr. Shkolnikov; MidAmerican Ex. 6.) Based on the record, no additional terms, conditions, or restrictions related to electric and magnetic field levels need to be imposed pursuant to Iowa Code § 478.4.

7. MidAmerican has obtained all required environmental reviews and permits for the proposed transmission line. (testimony of Mr. Williams; MidAmerican Exs. 4, 5.)

8. MidAmerican has proven that the route it selected is the most reasonable alternative, it is preferable to the alternates proposed by the objectors and the alternate supported by the Consumer Advocate, and it is in compliance with the requirements of Iowa law. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Hockmuth, Mr. Nguyen, Mr. Albertson, Mr. Custer, Mr. Currie, Mr. Williams, Mr. Frahm; MidAmerican Exhibits 1-5; written objections; Powerline Routing Alternative memo.) The evidence MidAmerican presented to explain why it did not select the alternative route supported by the Consumer Advocate in its post-hearing comments is substantial and persuasive. (testimony of Mr. Albertson; MidAmerican Exs. 1, 2, 3; Figures 3-1, 3-2.) MidAmerican has proven the proposed route is the most practical and reasonable alternative and it is approved. (petition for franchise; Hockmuth/Nguyen report; testimony of Mr. Hockmuth, Mr. Nguyen, Mr. Albertson, Mr. Custer, Mr. Currie, Mr. Williams, Mr. Frahm; MidAmerican Exhibits 1-5; Figures 3-1, 3-2; written objections; Powerline Routing Alternative memo.)

9. As discussed in the body of this order, the objections do not provide a reason to deny the requested franchise and they do not provide a reason to require any additional terms, conditions, or modifications of the requested franchise.

### **CONCLUSIONS OF LAW**

1. The Board has the authority to grant franchises to construct, maintain, and operate transmission lines capable of operating at an electric voltage of 69 kV or more along, over, or across any public highway or grounds outside of cities for the transmission, distribution, or sale of electric current. Iowa Code § 478.1.

2. The Board may grant franchises in whole or in part upon such terms, conditions, and restrictions, and with such modifications as to line location and route, as may seem to it just and proper. Iowa Code § 478.4.

3. Iowa Code § 478.18 requires transmission lines to be constructed near and parallel to roads and railroads and along division lines of land wherever practical and reasonable. The same section requires the utility to construct the line so as not to interfere with the use of the public of the highways or streams of the state and so as not to unnecessarily interfere with the use of any lands by the occupant.

The requirement in Iowa Code § 478.18 means that MidAmerican must start its planning using roads, railroads or land division routes. Iowa Code § 478.18; Hanson v. Iowa State Commerce Comm'n, 227 N.W.2d 157, 163 (Iowa 1975). The route must follow a road, railroad right of way or land division route wherever practical and reasonable. Id. If such routes contain points of impracticality or unreasonableness, MidAmerican may deviate from the route at those points. Id. The

Iowa Supreme Court struck down a proposed diagonal route that the Court called "a wholesale departure from railroad and land division routes" when the utility had not begun its planning along division lines of land and railroad routes. Id. The Court noted that diagonal routes running directly from the origin to the termination of the line would be the cheapest, simplest, and most convenient location, but stated that the legislature chose the system of requiring lines to follow division lines of land wherever practical and reasonable, and utilities must follow that requirement. Hanson, at 162. The Court approved a route that deviated from division lines of land when the planning began with division line locations and deviations were based on engineering considerations of practicality and reasonableness in Anstey v. Iowa State Commerce Comm'n, 292 N.W.2d 380 (Iowa 1980). The Court also upheld the Board's conclusion that a new transmission line should follow an existing right-of-way and that new construction along division lines of land was not practical or reasonable under the circumstances in Gorsche Family Partnership v. Midwest Power, et al, 529 N.W.2d 291 (Iowa 1995). However, the Gorsche decision did not overrule or change the Hanson and Anstey decisions and does not authorize utilities to build transmission lines on new diagonal routes that neither follow existing routes nor division lines of land, roads, or railroads as required by Iowa Code § 478.18.

In addition, no transmission line outside of cities "shall be constructed, except by agreement, within 100 feet of any dwelling house or other building, except where such line crosses or passes along a public highway or is located alongside or parallel with the right-of-way of any railway company." 199 IAC 11.1(7); Iowa Code § 478.20.

MidAmerican's proposed route is the most practical and reasonable alternative, it complies with Iowa law, and it is approved.

4. To obtain a franchise, the petitioner must show that the proposed line is necessary to serve a public use and represents a reasonable relationship to an overall plan of transmitting electricity in the public interest. Iowa Code § 478.4.

5. MidAmerican has met the requirements of Iowa Code chapter 478 and 199 IAC 11 and 25, and the requested franchise should be issued to MidAmerican for the transmission line described in the petition.

**IT IS THEREFORE ORDERED:**

1. Official notice is taken of the report dated October 19, 2006, filed by Mr. Dennis Hockmuth and Mr. Bao Nguyen.

2. Motions and objections not previously granted or sustained are overruled. Arguments in written filings or made orally at the hearing that are not addressed specifically in this proposed decision and order are rejected, either as not supported by the evidence or as not being of sufficient persuasiveness to warrant comment.

3. Pursuant to Iowa Code chapter 478 and 199 IAC 11 and 25, the petition is hereby granted. If this proposed decision and order becomes the final order of the Board, a franchise will be issued to MidAmerican to construct, operate, and maintain the electric transmission line as specifically described in the amended petition. If this proposed decision and order becomes the final order of the Board, the franchise will be issued to MidAmerican after the proposed decision and order becomes the final order of the Board.

4. The Board retains jurisdiction of the subject matter in this docket pursuant to Iowa Code chapter 478, and may at any time during the period of the franchise make such further orders as may be necessary.

5. This proposed decision and order will become the final order of the Board unless the Board moves to review it or a party files an appeal to the Board within 15 days of its issuance. 199 IAC 7.8(2).

6. A copy of this proposed decision and order will be served by ordinary mail upon MidAmerican, VeraSun, and the objectors on the Board's service list, and will be delivered to the Consumer Advocate.

**UTILITIES BOARD**

/s/ Amy L. Christensen  
Amy L. Christensen  
Administrative Law Judge

ATTEST:

/s/ Judi K. Cooper  
Executive Secretary

Dated at Des Moines, Iowa, this 28<sup>th</sup> day of December, 2006.