

Midwest Rural Energy Council

February 23, 2001

Presentation

By

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Agricultural Services Director

Michigan Attorney General Complaint



- Filed April 22, 1998
- At MI Public Service Commission
- Against Consumers Energy
- Relating to Stray Voltage.

Allegations in Attorney General Complaint



- Negligent Operation & Maintenance
- Unreasonable & Prejudicial Treatment of Rural Customers
- Removal of Costs in Rates.

Negligent Operation & Maintenance



- Consumers Energy Grounded Electric System
- Electricity Returning Through the Earth
- Creating Stray Voltage & Current Problems
 - Dairy & Livestock Farms
 - Other Private Property.



Negligent Operation & Maintenance – More

- Failure to Trim Trees
- Inadequate Repairs to Downed Lines
- Failure to Upgrade, Update, and/or Improve System
- Resulting in an Inadequate Quality of Service.

Unreasonable & Prejudicial Treatment of Rural Customers

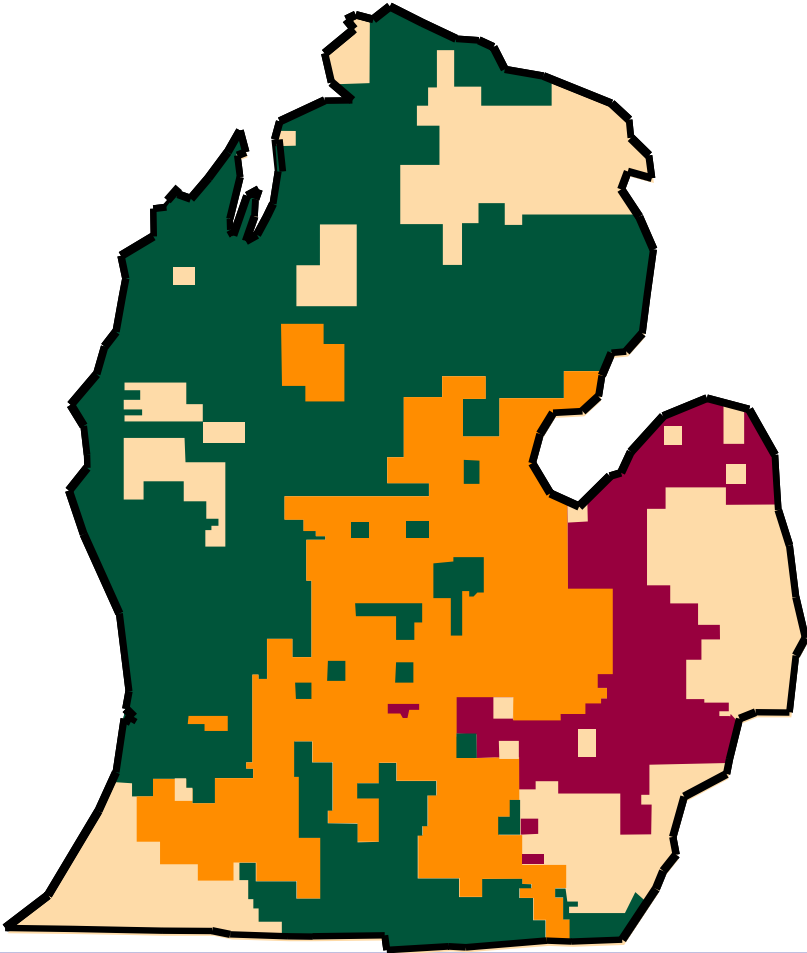
- Stray Voltage & Current Disproportionately Impacts Dairy & Livestock Customers
- Lack of Upgrades & Improvements
 - Inferior and Inadequate Electric Service
 - Increased Incidents of Stray Voltages & Currents.






Removal of Costs in Rates

- Current Rates Use 1993 Test Year
- 1993 Stray Voltage Costs Included in 1996 Test year.

Consumers Energy Service Territory



-  Electric only
-  Gas only
-  Electric and Gas



Consumers Energy

- 1.7 Million Electric Customers
- 1.6 Million Gas Customers
- 68 Counties in Lower Peninsula
- 6 Million of 9.5 Million Michigan Residents
- Subsidiary of CMS Energy.

Consumers Energy Agricultural Market

- First Rural Electric Line
- February 4, 1927
- Seven Miles
- 13 Farm Families
- 1937
 - 10,000 Miles
 - 41,300 Farm Customers
- 100,000 Farm Customers in 1949.

Consumers Energy Livestock Market



- 10,400 Livestock Farms
- 1,700 Dairy Farms
- 6,300 Beef & Swine
- 2,400 Other.



Agricultural Services Program

- 800 Toll Free Service
- Agricultural Specialists
- 150 Customer Inquiries Each Year
- On-Farm Services.



Agricultural Services Program

- Farm Service Maintenance Program
 - 1994 to 1998
 - Isolation of Neutrals
- Scheduled Evaluations.



Agricultural Services Program

- Customer Communications
 - *AgriCulture* Newsletter
 - Advertising
 - Expos
 - Publications.



Agricultural Services Program

- Industry Relations

- Michigan State University

- Michigan Agricultural Electric Council

- Michigan Department of Agriculture

- Michigan Farm Bureau

- Michigan Milk Producers Association.



Agricultural Services Program

- NFEC 1994 Silver Switch Award
- Satisfied Customers:
9.3 on a 1 – 10 Scale.

Attorney General Files Testimony

- March 15, 2000
- Ten Witnesses
- Two Thousand Pages.



Attorney General Witnesses

- Dave Stetzer, Industrial Electrician
- Martin Graham, D.E.E.
- William English, P.E.
- Larry Wallman, Retired Primary Meter Worker
- Frank Perri, Salesman.

Attorney General Witnesses – More



- Donald Hillman, Ph.D, Dairy Extension
- Andrew Johnson, DVM
- Kenneth Main, DVM
- Nancy Bellville, Dairy Farmer
- Alex Furo, P.E. .

Dave Stetzer Testimony



- Power Quality Reports
 - Minnesota - 1
 - Wisconsin - 4
 - Michigan - 7
- Four Dairy Farms Served by Consumers Energy.

Dave Stetzer Testimony - More

- “The cows on the _____ farm are reacting to harmonics, especially the third, as seen in the video tape.”
- “Therefore, I agree with
Dr. Graham states that cows are suffering from the long-term effects of electrical pollution,” .



Larry Wallman Testimony

- Power Quality Reports
- Four Dairy Farms
- All Served by Consumers Energy.



Larry Wallman Testimony – More

- “The use of separate grounds (isolated) is a bad and dangerous practice.”
- “..... the NESC Prohibits the use of the earth normally as the sole conductor for any part of a supply circuit.” .

Eight Farms Served by Consumers Energy

- Seven Dairy Farm Power Quality Reports
- One Dairy Farm Milk Production Analysis
- Simon
 - Mier
- Tenbrink
 - DeBacker
- Walt
 - Graham
- Vandenburg
 - Bellville.

Consumers Energy System Capacity

- Seven Substations
 - 73,000 kVA Capacity
 - Maximum Load: 38% – 77%, Average of 65%
- Eight Circuits
 - 3,720 Ampere Capacity
 - Maximum Load: 12% - 77%, Average of 46%
- Eight Customer Transformers
 - Maximum Load: 5% - 79%, Average of 23%
 - Located 1.7 – 8.6 Miles from Substation
 - Average of 4.3 Circuit Miles.

Consumers Energy Service Record

■ Service Quality Complaints

- Fourteen Complaints Last Five Years

- Average of One Complaint/Year for Each 2,836 Customers

- Total Company: One Complaint/Year for Each 1,538 Customers

■ Agricultural Service Activity

- 7,941 Customers on Eight Circuits

- 316 Livestock Farms

- 64 Dairy Farms

- 148 Field Inspections in 2000

- 6 Requested by Customers.



William English Testimony

- Several Mitigation Steps Recommended
- First
 - Separation of the Neutrals
- Second
 - Move Service Transformer
- Third
 - Increase Distribution Voltage
 - Balance Load on Phases
 - Run Additional Phases
 - Install Larger Conductor, especially the Neutral
- Need To Do All Three Steps.

William English Testimony – More

- Fourth Mitigation Step
 - Convert Grounded System to Ungrounded
- Fifth
 - More Tree Trimming
 - Hands-On Inspection of Splices
 - Frequent Measurement of:
 - NEV
 - Ground Rod Resistance
 - Ground Rod Current.

Cost to Implement English Recommendations

- Steps 1, 2, 3 & 5

- All Livestock Circuits: \$1.88 Billion

- All Customer Circuits: \$3.28 Billion

OR

- Steps 4 & 5

- All Livestock Circuits: \$464 Million

- All Customer Circuits: \$1.30 Billion.



Donald Hillman Testimony

- Two Articles Analyze Milk Production
- Analysis Includes Milk Production & Electrical Events
- Seven Wisconsin Dairy Farms
- Four Michigan Dairy Farms.

Donald Hillman Testimony – More



- “These articles present statistically significant evidence that transient electrical events affect milk production of cows on dairy farms.” .

Donald Hillman Testimony – More

- Over last 10 years
 - U.S. - 42.3% Reduction in Dairy Farms
 - MI - 43.1% Reduction in Dairy Farms
 - Aggregate Milk Production Increased in MI Compared to Decline in Other Lake States
 - Milk Production Per Cow is Greater in MI compared to U.S. & Other Lake States.

MPSC Schedule



- March 7, 2001
Consumers Energy Filing Due
- May 1, 2001
MPSC Staff Filing Due
- July 30, 2001
Attorney General Rebuttal Filing Due.

Attorney General Complaint



Questions?