UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Complaint and Petition of the Center for Security	**)**	
Policy and the Secure the Grid Coalition to	**)**	
Authorize Cost Recovery for Utilities That Assess	**)**	**Docket No. _____**
And Protect the Electric Grid from GIC	**)**	
To the International Standard of 85 V/km	**)**	

COMPLAINT AND PETITION
Submitted to FERC on March 9, 2026

Introduction:

The Center for Security Policy (CSP) is a non-profit, non-partisan 501(c)(3) organization whose mission is to provide uncompromised national security analysis and solutions to keep Americans safer. The Secure the Grid (STG) Coalition is a group of national security, energy policy and technical experts, focused on the security of the electric grid. Neither the CSP nor the STG Coalition receive any funding from governments, foreign sources, or industries and companies that can profit from our policy recommendations. We exist purely to support the public interest and national security of the United States. The members of the Secure the Grid Coalition also are electric utility ratepayers and would be adversely impacted by a failure of the Bulk Power System. Ground induced current ("GIC") from both solar weather and E3 HEMP threaten our electric power grid.

We are filing this complaint under 16 U.S. Code § 824o(d)(5)[1] because:

1) The current NERC standard for GIC protection[2] is inadequate.
2) The electric utility industry must be incentivized by cost recovery to protect the grid from GIC to the Department of Energy recommendations,[3] Congressional EMP Commission recommendations[4], and

[1] "The Commission, upon its own motion ***or upon complaint***, may order the Electric Reliability Organization to submit to the Commission a proposed reliability standard or a modification to a reliability standard that addresses a specific matter if the Commission considers such a new or modified reliability standard appropriate to carry out this section." [Emphasis added.]

[2] NERC TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events. October 1, 2020. (Attached hereto as Exhibit A.)

[3] "Physical Characteristics of HEMP Waveform Benchmarks for Use in Assessing Susceptibilities of the Power Grid, Electrical Infrastructures, and Other Critical Infrastructure to HEMP Insults" U.S. Department of Energy. January 11, 2021. (Attached hereto as Exhibit C.)

[4] "Recommended E3 HEMP Heave Electric Field Waveform for the Critical Infrastructures." Commission to Assess the Threat to the United States from Electromagnetic Pulse (EMP) Attack. July 2017. (Attached hereto as Exhibit D.)

the International Electrotechnical Commission (IEC) Standard[5] and to avoid exceeding the IEEE 519 Standard[6] due to GIC induced harmonics which is costing the U.S. economy billions of dollars each year.

Request for Investigation:

We request that the Commission issue a public notice of this Complaint pursuant to 18 CFR § 385.206(d), investigate this Complaint and issue an appropriate order to the Electric Reliability Organization ("ERO") to harden the bulk power system from GIC damage caused by GMD and E3 HEMP by specifying that rate recovery is approved for assessing and hardening the system to 85 V/km.

Background:

As shown in Figure 1, the current NERC standard does not protect the electric grid from the GIC threat:

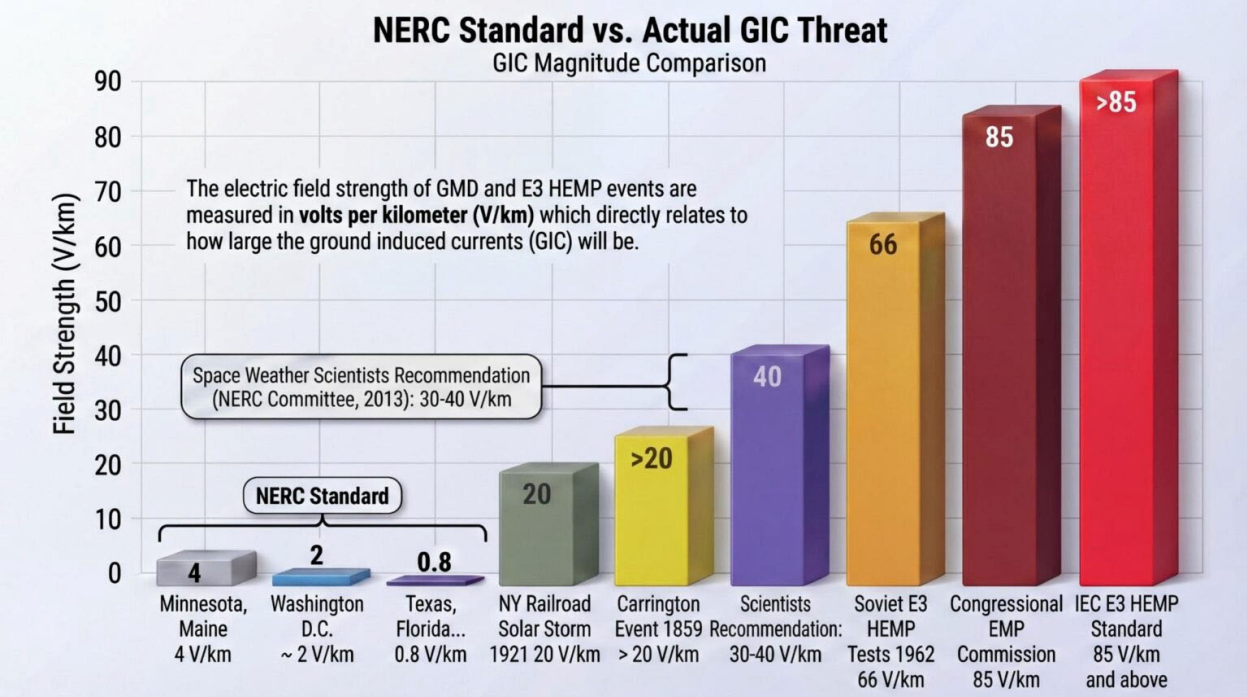

Figure 1

[5] "Standard late-time HEMP waveform, International Electrotechnical Commission IEC 61000-2-9, Edition 2.0, 2025-05 (Abstract attached hereto as Exhibit E, entire standard incorporated by reference.)

[6] "IEEE Standard for Harmonic Control in Electric Power Systems," in IEEE Std 519-2022 (Revision of IEEE Std 519-2014), vol., no., pp.1-31, August 5, 2022. (Abstract attached hereto as Exhibit B. entire standard incorporated by reference)

Credible studies conclude that our electric grid suffers an estimated $10 billion every year due to GIC triggered harmonic anomalies in the electric grid.[7] [8] [9]

For a one-time investment of approximately $4 billion, the U.S. could not only stop this $10 billion annual economic loss but would also permanently protect the electric grid from the GIC hazards associated with severe space weather and High-Altitude Electromagnetic Pulse (HEMP).[10]

NERC TPL-007-4 is a consensus-based document - the lowest common denominator to achieve sufficient votes by the regulated industry. The standard does not protect against Ground Induced Currents (GIC), the half-cycle saturation of transformers and the resulting harmonics which routinely damage equipment in the Bulk Power System. [11]

On May 16, 2013, the Federal Energy Regulatory Commission (FERC) issued Order No. 779, directing the North American Electric Reliability Corporation (NERC) to develop mandatory reliability standards to mitigate the risks of geomagnetic disturbances (GMD) on the Bulk-Power System. However, NERC's "model" (written by the industry) purposely excluded the 1921 storm which produced 20 V/km.[12] The standard was intended to address a one in 100-year GMD event but did not include the largest solar storm in the 100-year period (the 1921 storm). Thus, the NERC standard failed to address one in 100-year GMD event.

GIC blocking devices attached to the neutral of a transformer exist and have been proven and validated both in the United States as well as internationally.[13]

The Center for Security Policy and the Secure the Grid Coalition have submitted several research papers to the Department of Energy on the issue of GIC protection for the electric grid and now submits these to the Commission for the record.[14] [15] [16]

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[7] U.S. Senate Committee on Homeland Security and Government Affairs, Statement by Dr. Justin Kasper. February 27, 2019. (Attached hereto as Exhibit F.)

[8] "Electrical Claims and Space Weather: Measuring the visible effects of an invisible force." Zurich Risk Engineering, Lockheed Martin Advanced Technology Center. June 2015. (Attached hereto as Exhibit G.)

[9] "Assessing the impact of space weather on the electric power grid based on insurance claims for industrial electrical equipment." C. J. Schrijver, R. Dobbins, W. Murtagh, and S. M. Petrinec. July 8, 2014. (Attached hereto as Exhibit H.)

[10] See page 63: "Estimating the Cost of Protecting the U.S. Electric Grid from Electromagnetic Pulse." Foundation for Resilient Societies. September 2020.

[11] NERC TPL-007-4 "Transmission System Planned Performance for Geomagnetic Disturbance Events." (Attached hereto as Exhibit A.)

[12] "Benchmark Geomagnetic Disturbance Event Description" Project 2013-03. GMD Mitigation Standard Drafting Team. May 12, 2016. (Attached hereto as Exhibit Q.)

[13] "Protecting the grid from solar storms." Western Area Power Administration. April 2023. . (Attached hereto as Exhibit J.)

[14] "Speed to Power on a Firm Foundation: Overcoming Dangerous Assumptions That Put America's Future at Risk." Center for Security Policy. November 2025. (Attached hereto as Exhibit K.)

[15] Comments of Secure the Grid Coalition on DOE "Speed to Power" RFI (2025-18058). Secure the Grid Coalition. November 21, 2025. (Attached hereto as Exhibit L.)

[16] Addendum on China, re: Secure the Grid Coalition's DOE "Speed to Power" RFI Response. Secure the Grid Coalition. January 12, 2026. (Attached hereto as Exhibit M.)

National reliance on large "data centers" to power Artificial Intelligence (AI) tools is increasing.[17] Both the U.S. Economy and the Defense Department will require reliable power to Data Centers that could be interrupted by GIC events. On March 1, 2026, The Wall Street Journal reported: "Data centers are equipped with technologies that monitor for disturbances on the grid that could cause a power outage and affect operations. When disturbances occur, many data centers automatically shift to backup supplies, severing their grid connections until power quality stabilizes."[18] The sudden and unexpected loss of thousands of megawatts of data center demand during a GIC event will further stress our unprotected grid.

On May 7, 2025, the Nuclear Regulatory Commission (NRC) published in the federal register[19] an extremely consequential decision with respect to the health, safety, and welfare of the American people and the environment of the continental United States. After more than fourteen years of deliberation, NRC denied an important Petition for Rulemaking submitted in February 2011, by the Foundation for Resilient Societies[20]. This Petition, docketed as PRM 50-96,[21] warned of the potentially catastrophic consequences associated with the long-term loss of offsite power for nuclear power plants, a realistic scenario given the vulnerability of America's electric grid to ground induced currents ("GIC") as a result of geomagnetic disturbances (GMDs) produced by the sun and intentional high-altitude electromagnetic pulse (E3 HEMP) attack by enemies of the United States.

Were a major solar storm to blackout the nation's grid for an extended period, numerous nuclear sites could be at risk of this scenario if their emergency diesel generators fail or run out of fuel. Thus, NERC's inadequate TPL-007-4 puts the United States at risk of a GIC induced nuclear disaster.[22]

We point out to the Commission that utility "Operating Procedures" cannot prevent GIC from entering an operating grid and are dangerously insufficient to protect the system from severe GIC. "Operating procedures" - including VAR supply and load shedding - will ensure grid components are exposed to more severe GIC and harmonics over a longer duration prior to failure, putting critical components at greater risk of permanent damage. The AC circuit breakers these procedures rely on are not designed to operate with GIC across them. As high-voltage circuit breakers begin to trip intentionally due to operating procedures or automatically due to effects of voltage collapse, there is considerable uncertainty regarding their ability to interrupt significant levels of GIC and harmonic currents. This is a dangerous misapplication and has never been tested. Failure to interrupt would lead to catastrophic

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[17] Executive Order 14318. "Accelerating Federal Permitting of Data Center Infrastructure." July 23, 2025. (Attached hereto as Exhibit N.)

[18] "A New Threat to Power Grids: Data Centers Unplugging at Once: Dozens of data centers abruptly dropped off the power grid in recent Virginia incidents, forcing operators to take emergency action." Wall Street Journal. March 1, 2026. Attached hereto as Exhibit O.)

[19] NRC Ruling, "Long-Term Cooling and Unattended Water Makeup of Spent Fuel Pools," https://www.federalregister.gov/documents/2025/05/07/2025-07899/long-term-cooling-and-unattended-water-makeup-of-spent-fuel-pools (Incorporated by reference).

[20] Homepage: Foundation for Resilient Societies, https://www.resilientsocieties.org/

[21] Foundation for Resilient Societies, In the Matter of a Proposed Rulemaking Regarding Amendment of 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities" https://www.resilientsocieties.org/uploads/5/4/0/0/54008795/petition_for_rulemaking_resilient_societies_docketed.pdf (Incorporated by reference).

[22] "Electric Reliability Standards for Solar Geomagnetic Disturbances." Comments submitted to the Federal Energy Regulatory Commission by Thomas S. Popik, George H. Baker, and William R. Harris. June 2017. (Attached hereto as Exhibit P.)

failure in the arcing chamber which contains over 100 pounds of SF6 gas - the world's most toxic greenhouse gas – releasing it into the environment. Load shedding increases this risk to high-voltage breakers even further, as it lowers the AC current across them which enhances the GIC bias. Each destroyed circuit breaker means a prolonged blackout for large sections of the grid. Self-induced "load shedding procedures" to shut the entire grid down, will themselves result in extremely prolonged blackouts. Nevertheless, industry lobbyists consistently placate lawmakers and executive branch officials with these "operating procedures" and "load shedding" arguments, but in reality, this is "a great experiment" that has never been conducted and one that would cause catastrophic harm to the grid and to the American people.

Finally, we bring to the Commission's attention Exhibit K, "Appendix II - Myths Vs Facts on GICs from GMD/HEMP." There is a series of myths that the self-regulator (NERC) and the utility industry propagate to avoid legislative or administrative action to protect the grid. This is a simple problem with simple solutions. The industry has a long history of trying to complicate the simple to avoid regulation. We implore the Commission not to fall into the industry's "complication trap."

Conclusion:

It is in the public interest as well as in the national security interest of the United States to assess the vulnerability of transformers and the power grid to the established international standard of 85 V/km and to protect the vulnerable transformers with proven and tested GIC blocking technology.

Relief Sought:

The Federal Energy Regulatory Commission should direct the North American Electric Reliability Corporation (NERC) to conduct a comprehensive survey of all registered entities in the Bulk Power System:

1. Each registered entity shall, no later than a date determined by the Commission, conduct a technical assessment of all covered equipment to determine vulnerability to GICs. The assessment shall:

    (a) Utilize the waveform in Figure A.5 of IEC 61000-2-9, Edition 2.0 (2025-05), modeling a peak magnetic field strength of 20,000 nT, or the corresponding waveform in Figure 9, modeling a peak electric field of 85 V/km.
    (b) Assume transformers are fully loaded during GIC exposure.
    (c) Account for transformer age and condition using ANSI/IEEE Standard C57.110 and IEEE Standard C57.91.
    (d) Identify susceptibility to half-cycle saturation, GIC-induced harmonics, reactive power consumption, hot spot generation, and insulation degradation.

2. The Commission should provide cost recovery for assessment and GIC protection to 85 V/km.

Respectfully submitted,

Tommy Waller
Lt. Col., USMC Ret.
President and CEO
Center for Security Policy

Douglas Ellsworth
Co-Director
Secure the Grid Coalition

Michael Mabee
Command SgtMaj, US Army Ret.
Principal Investigator
Secure the Grid Coalition

Attachments: 18 CFR § 385.206 Compliance Information
Draft Notice
Exhibit A: NERC TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events. October 1, 2020.
Exhibit B: Abstract from "IEEE Standard for Harmonic Control in Electric Power Systems," in IEEE Std 519-2022 (Revision of IEEE Std 519-2014), vol., no., pp.1-31, August 5, 2022. (Entire standard incorporated by reference.)
Exhibit C: "Physical Characteristics of HEMP Waveform Benchmarks for Use in Assessing Susceptibilities of the Power Grid, Electrical Infrastructures, and Other Critical Infrastructure to HEMP Insults" U.S. Department of Energy. January 11, 2021.
Exhibit D: "Recommended E3 HEMP Heave Electric Field Waveform for the Critical Infrastructures." Commission to Assess the Threat to the United States from Electromagnetic Pulse (EMP) Attack. July 2017.
Exhibit E: Abstract from "Standard late-time HEMP waveform, International Electrotechnical Commission IEC 61000-2-9, Edition 2.0, 2025-05 (Entire standard incorporated by reference).
Exhibit F: U.S. Senate Committee on Homeland Security and Government Affairs, Statement by Dr. Justin Kasper. February 27, 2019.
Exhibit G "Electrical Claims and Space Weather: Measuring the visible effects of an invisible force." Zurich Risk Engineering, Lockheed Martin Advanced Technology Center. June 2015.
Exhibit H: "Assessing the impact of space weather on the electric power grid based on insurance claims for industrial electrical equipment." C. J. Schrijver, R. Dobbins, W. Murtagh, and S. M. Petrinec. July 8, 2014.
Exhibit I: "Estimating the Cost of Protecting the U.S. Electric Grid from Electromagnetic Pulse." Foundation for Resilient Societies. September 2020. And: "Protecting U.S. Electric Grid Communications from Electromagnetic Pulse." Foundation for Resilient Societies. May 2020.
Exhibit J: "Protecting the grid from solar storms." Western Area Power Administration. April 2023.
Exhibit K: "Speed to Power on a Firm Foundation: Overcoming Dangerous Assumptions That Put America's Future at Risk." Center for Security Policy. November 2025.
Exhibit L: Comments of Secure the Grid Coalition on DOE "Speed to Power" RFI (2025-18058). Secure the Grid Coalition. November 21, 2025.
Exhibit M: Addendum on China, re: Secure the Grid Coalition's DOE "Speed to Power" RFI Response. Secure the Grid Coalition. January 12, 2026.
Exhibit N: Executive Order 14318. "Accelerating Federal Permitting of Data Center Infrastructure." July 23, 2025.

Exhibit O; “A New Threat to Power Grids: Data Centers Unplugging at Once: Dozens of data centers abruptly dropped off the power grid in recent Virginia incidents, forcing operators to take emergency action.” Wall Street Journal. March 1, 2026.

Exhibit P: “Electric Reliability Standards for Solar Geomagnetic Disturbances.” Comments submitted to the Federal Energy Regulatory Commission by Thomas S. Popik, George H. Baker, and William R. Harris. June 2017
Exhibit Q: “Benchmark Geomagnetic Disturbance Event Description” Project 2013-03. GMD Mitigation Standard Drafting Team. May 12, 2016.

Exhibit Q: “Benchmark Geomagnetic Disturbance Event Description” Project 2013-03. GMD Mitigation Standard Drafting Team. NERC. May 12, 2016.

18 CFR § 385.206 Compliance Information

We Tommy Waller, Douglas Ellsworth, and Michael Mabee, hereby state the following:

18 CFR § 385.206(b) Contents. A complaint must:
(1) Clearly identify the action or inaction which is alleged to violate applicable statutory standards or regulatory requirements;

- The threat to reliability posed by GIC induced half-cycle saturation and GIC-induced harmonics is not addressed by NERC TPL-007-4.

(2) Explain how the action or inaction violates applicable statutory standards or regulatory requirements;

- The threat to reliability posed by GIC induced half-cycle saturation and GIC-induced harmonics is not addressed by NERC TPL-007-4.

(3) Set forth the business, commercial, economic or other issues presented by the action or inaction as such relate to or affect the complainant;

- The Commission should provide cost recovery for testing and GIC protection to 85 V/km.
- GIC blocking devices attached to the neutral of a transformer exist and have been proven and validated both in the United States as well as internationally.
- An estimated $10 billion is lost annually from routine GIC-induced harmonics damage and power interruption due to space weather.
- A one-time investment to install GIC blocking devices will not only stop the annual damage from space weather but would also protect against catastrophic damage from large solar storms (coronal mass ejections).
- Utility companies should be incentivized by cost recovery for surveying their systems and protecting their equipment to 85 V/km.

(4) Make a good faith effort to quantify the financial impact or burden (if any) created for the complainant as a result of the action or inaction;

- As an electric ratepayer and citizen of the United States, myself and fellow rate payers and citizens, as well as investors, are impacted by an estimated $10 billion annually from routine GIC-induced harmonics damage due to space weather.
- It is in the public interest, as well as in the interest of the utilities to protect the grid from GIC-induced damage.
- A widespread power outage due to GIC harmonic damage from solar weather or E3 HEMP would have a devastating impact on the U.S. economy and also cause a substantial loss of life.
- Even short-term GIC-induced power interruptions to data centers could have a devastating impact to the American economy.

(5) Indicate the practical, operational, or other nonfinancial impacts imposed as a result of the action or inaction, including, where applicable, the environmental, safety or reliability impacts of the action or inaction;

- A widespread power outage due to GIC-induced damage would have a devastating impact on the U.S. economy as well as substantial loss of life and impact to the environment. For example, major wastewater treatment plants might cease to function.

(6) State whether the issues presented are pending in an existing Commission proceeding or a proceeding in any other forum in which the complainant is a party, and if so, provide an explanation why timely resolution cannot be achieved in that forum;

- We are unaware of any public FERC docket which addresses the threats presented by the GIC-induced damage to the Bulk Power System from severe GIC levels and the catastrophic harmonic currents injected into the grid by many transformers across the grid that are simultaneously half-cycle saturating.

(7) State the specific relief or remedy requested, including any request for stay or extension of time, and the basis for that relief;

- Contained in "Relief Sought" section of Complaint.

(8) Include all documents that support the facts in the complaint in possession of, or otherwise attainable by, the complainant, including, but not limited to, contracts and affidavits;

- We have attached all supporting facts as exhibits to the Complaint.
- We affirm that this Complaint is being filed to support the public interest and national security of the United States of America and that neither we nor our Center for Security Policy receive funding from electric utilities or the companies that seek to protect these utilities.

(9) State

(i) Whether the Enforcement Hotline, Dispute Resolution Service, tariff-based dispute resolution mechanisms, or other informal dispute resolution procedures were used, or why these procedures were not used;

- N/A

(ii) Whether the complainant believes that alternative dispute resolution (ADR) under the Commission's supervision could successfully resolve the complaint;

- N/A

(iii) What types of ADR procedures could be used; and

- N/A

(iv) Any process that has been agreed on for resolving the complaint.

- N/A

(10) Include a form of notice of the complaint suitable for publication in the Federal Register in accordance with the specifications in § 385.203(d) of this part. The form of notice shall be on electronic media as specified by the Secretary.

- Draft Notice Attached

(11) Explain with respect to requests for Fast Track processing pursuant to section 385.206(h), why the standard processes will not be adequate for expeditiously resolving the complaint.

- N/A

18 CFR § 385.206(c) Service. Any person filing a complaint must serve a copy of the complaint on the respondent, affected regulatory agencies, and others the complainant reasonably knows may be expected to be affected by the complaint. Service must be simultaneous with filing at the Commission for respondents. Simultaneous or overnight service is permissible for other affected entities. Simultaneous service can be accomplished by electronic mail in accordance with § 385.2010(f)(3), facsimile, express delivery, or messenger.

- A copy of this Complaint will be sent electronically to the North American Electric Reliability Corporation (NERC) simultaneously with my filing with the Commission.

Respectfully submitted,

Tommy Waller
Lt. Col., USMC Ret
President and CEO
Center for Security Policy

Douglas Ellsworth
Co-Director
Secure the Grid Coalition

Michael Mabee
Command SgtMaj, US Army Ret.
Principal Investigator
Secure the Grid Coalition

Draft Notice

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FEDERAL ENERGY REGULATORY COMMISSION

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Policy and the Secure the Grid Coalition to	)	
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And Protect the Electric Grid from GIC	)	
To the International Standard of 85 V/km	)	

NOTICE OF COMPLAINT

( )

Take notice that on [date filed], pursuant to section 215(d) of the Federal Power Act, 16 U.S.C. 824o(d) and Rule 206 of the Federal Energy Regulatory Commission's (Commission) Rules of Practice and Procedure, 18 CFR 385.206 (2019), the Center for Security Policy and the Secure the Grid Coalition, (Complainants) filed a formal complaint alleging: 1) The current NERC standard for GMD/GIC protection is inadequate. 2) The electric utility industry must be incentivized by cost recovery to protect the grid from GIC to the Department of Energy recommendations, Congressional EMP Commission recommendations , and the International Electrotechnical Commission (IEC) Standard and to avoid exceeding the IEEE 519 Standard due to GIC induced harmonics which is costing the U.S. economy billions of dollars each year.

Complainant certifies that copies of the complaint were served on the contacts as listed on the Commission's list of Corporate Officials.

Any person desiring to intervene or to protest this filing must file in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211 and 385.214). Protests will be considered by the Commission in determining the appropriate action to be taken but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a notice of intervention or motion to intervene, as appropriate. The Respondent's answer and all interventions, or protests must be filed on or before the comment date. The Respondent's answer, motions to intervene, and protests must be served on the Complainants.

The Commission encourages electronic submission of protests and interventions in lieu of paper using the "eFiling" link at http://www.ferc.gov. Persons unable to file electronically should submit an original and 5 copies of the protest or intervention to the Federal Energy Regulatory Commission, 888 First Street, NE, Washington, DC 20426.

This filing is accessible on-line at http://www.ferc.gov, using the "eLibrary" link and is available for review in the Commission's Public Reference Room in Washington, DC. There is an "eSubscription" link on the web site that enables subscribers to receive email notification when a document is added to a subscribed docket(s). For assistance with any FERC Online service, please email

FERCOnlineSupport@ferc.gov, or call (866) 208-3676 (toll free). For TTY, call (202) 502-8659.

Comment Date: 5:00 pm Eastern Time on (insert date).

[Typed Name],
Secretary.