

HB 1723 - AS AMENDED BY THE SENATE

12Mar2026... 0935h

04/09/2026 1307s

05/14/2026 1811s

2026 SESSION

26-2705

06/08

HOUSE BILL

1723

AN ACT

requiring utilities and electric grid operators to assess and report the vulnerability of high-voltage transformers to geomagnetic and electromagnetic disturbances, and to recommend mitigation measures to protect the state electric infrastructure.

SPONSORS:

Rep. Mattson, Ches. 18; Rep. Cole, Hills. 26; Rep. Qualey, Ches. 18; Rep. Sabourin dit Choiniere, Rock. 30; Rep. Schneller, Hills. 2; Rep. D. Thomas, Rock. 16; Rep. Vose, Rock. 5; Rep. Ammon, Hills. 42; Rep. McGhee, Hills. 35; Rep. Mary Murphy, Hills. 27; Sen. Innis, Dist 7; Sen. Ricciardi, Dist 9

COMMITTEE:

Science, Technology and Energy

AMENDED ANALYSIS

This bill directs the Department of Energy to investigate vulnerabilities of electric transmission transformers to geomagnetic and electromagnetic disturbances and report findings with recommendations.

Explanation:

Matter added to current law appears in ***bold italics***.

Matter removed from current law appears ~~[in brackets and struckthrough.]~~

Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

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STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Twenty-Six

AN ACT requiring utilities and electric grid operators to assess and report the vulnerability of high-voltage transformers to geomagnetic and electromagnetic disturbances, and to recommend mitigation measures to protect the state electric infrastructure.

Be it Enacted by the Senate and House of Representatives in General Court convened:

1 1 Short title. This act shall be known as "Survey All Vulnerable Electric Transformers Act."

2 2 Findings.

3 I. America's electric grid is critical to modern life and faces existential threats from solar
4 weather events (coronal mass ejections—CME), geomagnetic disturbances—GMDs, and high-
5 altitude nuclear electromagnetic pulse—HEMP, all capable of disabling electric power systems.

6 II. High voltage transformers are especially vulnerable to geomagnetically induced
7 currents—GICs—whether induced by GMDs or HEMP E3 component, entering the grid through
8 ground-connected neutral wires.

9 III. Extra High Voltage (EHV) transformers (345 kV–765 kV) are most vulnerable and
10 difficult to replace, with production lead times of up to 4–6 years.

11 IV. GIC vulnerability is influenced by transformer characteristics, ground conductivity, and
12 the magnetic field intensity from GMD or E3 HEMP.

13 V. Aging transformers are more susceptible to GIC due to degraded insulating oil and coil
14 condition.

15 VI. Federal and international standards highlight the importance of transformer
16 assessment and protection against these threats.

17 VII. On July 23, 2012, a powerful CME erupted off the back side of the sun racing through
18 Earth's orbit missing Earth by 9 days. It was measured by STEREO-A satellite and determined by
19 the National Oceanic and Atmospheric Administration to be in all respects at least the size of the
20 Carrington event of 1859.

21 VIII. In 2012, the United States Department of Energy's Idaho National Laboratory working
22 with the United States Department of Defense's Defense Threat Reduction Agency conducted live
23 grid E3 HEMP tests to analyze GIC harmonic threats to the electric power grid. The results showed
24 transformer half-cycle saturation and generation of harmonics that exceeded the IEEE 519 Standard
25 with GIC of 15 Amps in the neutral of the power transformer.

IX. In February 2013, the North American Electric Reliability Corporation (NERC) GMD committee of 8 respected space weather scientists estimated a reference storm. Preliminary results showed a peak electric field strength of 30 V/km to 40 V/km.

X. In May 2025, the International Electrotechnical Commission (IEC) updated the international standard IEC 61000-2-9 for E3 HEMP to 85 V/km.

XI. The NERC GMD Standard requires New Hampshire to model roughly 3 V/km.

XII. With the existence of validated GIC mitigation hardware that protects power transformers and improves grid resilience against these severe GIC events, reliance on load shedding or operating procedures which cannot block GIC are no longer justified.

3 Geomagnetic and Electromagnetic Disturbance Electric Transmission; Department of Energy; Vulnerability Investigation.

I. The department of energy shall investigate the vulnerability of electric transmission transformers and other system components to geomagnetically induced currents. The investigation shall answer the following questions:

(a) What studies and assessments have previously been performed that reviewed transmission system vulnerabilities to geomagnetic and electromagnetic disturbances?

(b) How were those studies conducted and what were the transmission system grid vulnerabilities identified?

(c) Given the current NERC GMD standard of 3 V/km and the IEC international standard of 85 V/km, did the magnetic field standard utilized adequately assess the vulnerability of the transmission system in New Hampshire to geomagnetic and electromagnetic disturbances?

(d) If the magnetic field standard utilized in previous studies did not adequately assess transmission infrastructure vulnerability, what standard should be used?

(e) What would be the cost to conduct a transmission infrastructure assessment at a higher standard than has previously been used?

(f) How long would an additional assessment at a higher standard take to complete?

(g) What mitigation strategies and response methods are currently utilized to protect transmission system infrastructure from geomagnetic and electromagnetic disturbances and are those strategies and methods adequate?

(h) What role can the state of New Hampshire play in assessing transmission system vulnerabilities that fall under the jurisdiction of the Federal Energy Regulatory Commission and in directing transmission-owning utilities to implement infrastructure and non-infrastructure solutions?

(i) What funding sources are available to conduct additional assessments or support the installation of equipment to further protect vulnerable transmission system infrastructure from geomagnetic and electromagnetic disturbances?

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1 II. The department shall commence the investigation within 120 days of the effective date of
2 this subsection and complete the investigation within a time period not to exceed 12 months of its
3 commencement. At the conclusion of the investigation, the department shall issue a report of its
4 findings and recommendations to the house science, technology and energy committee, the senate
5 energy and natural resources committee, and the division of homeland security and emergency
6 management and the department shall also send the report to the United States Secretary of
7 Energy, the Federal Energy Regulatory Agency, and ISO-New England.

8 III. Notwithstanding any other law, rule, or order to the contrary, and contingent upon
9 sufficient funding for the biennium ending June 30, 2029, the department shall have the authority
10 necessary to conduct this investigation and implement this subdivision, including, but not limited to,
11 the authority to request information from public utilities, including transmission utilities, regarding
12 transmission infrastructure located within the state of New Hampshire.

13 IV. All data submitted under this subsection shall be handled in accordance with critical
14 energy infrastructure information protocols and location and purpose data shall be redacted from
15 public reports. "Critical energy infrastructure information protocols" means specific engineering,
16 vulnerability, or detailed design protocols and procedures related to proposed or existing critical
17 infrastructure, whether physical or virtual, that relate to the production, generation, transmission,
18 transportation, or distribution of energy, the unauthorized disclosure of which could pose a risk to
19 the security, reliability, or integrity of the infrastructure; such protocols are designated as
20 confidential and exempt from public disclosure, as their release could be useful to a person planning
21 an attack or otherwise causing harm to the infrastructure.

22 4 Effective Date. This act shall take effect on September 1, 2027.

HB 1723-FN- FISCAL NOTE
AS AMENDED BY THE SENATE (AMENDMENT #2026-1811s)

AN ACT requiring utilities and electric grid operators to assess and report the vulnerability of high-voltage transformers to geomagnetic and electromagnetic disturbances, and to recommend mitigation measures to protect the state electric infrastructure.

FISCAL IMPACT:

Estimated State Impact				
	FY 2026	FY 2027	FY 2028	FY 2029
Revenue	\$0	\$0	\$0	\$0
<i>Revenue Fund(s)</i>	None			
Expenditures*	\$0	\$0	\$500,000	
<i>Funding Source(s)</i>	General Fund			
Appropriations*	\$0	\$0	\$0	\$0
<i>Funding Source(s)</i>	None			

***Expenditure = Cost of bill**

***Appropriation = Authorized funding to cover cost of bill**

METHODOLOGY:

This bill directs the Department of Energy to investigate the vulnerability of electric transmission transformers and other system components to geomagnetic and electromagnetic disturbances and to report its findings and recommendations.

The Department of Energy states this bill would result in an increase in state expenditures of up to \$500,000 to fund a consultant to perform the required investigation. It is assumed the fiscal impact will occur in FY 2028 - FY 2029 contingent upon the availability of sufficient funding in the budget for the biennium ending June 30, 2029. The Department further assumes since the language requiring the authority to directly assess the utilities for the cost is not longer in the bill that general funds will be appropriated. This bill does not appropriate any funds.

AGENCIES CONTACTED:

Department of Energy