

HB 1723 - AS INTRODUCED

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

ANALYSIS

This bill requires electric utilities and developers to assess and report the vulnerability of high-voltage transformers to geomagnetically induced currents, and to recommend mitigation strategies.

Explanation: Matter added to current law appears in ***bold italics***.
Matter removed from current law appears ~~[in brackets and struck through.]~~
Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

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 chapter shall be known as "Survey All Vulnerable Electric Transformers
2 Act."

3 2 Findings.

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

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

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

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

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

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

18 3 New Chapter; Survey All Vulnerable Electric Transformers Act. Amend RSA by inserting
19 after chapter 378 the following new chapter:

20 CHAPTER 378-A

21 SURVEY ALL VULNERABLE ELECTRIC TRANSFORMERS ACT

22 378-A:1 Purpose. The purpose of this chapter is to require electric utilities and electric project
23 developers to assess and report the vulnerability of high-voltage transformers to geomagnetically
24 induced currents (GICs) caused by geomagnetic disturbances (GMDs) and high altitude
25 electromagnetic pulse (HEMP), and to recommend mitigation strategies to protect critical electric
26 infrastructure.

27 378-A:2 Definitions. In this chapter:

HB 1723 - AS INTRODUCED

- Page 2 -

1 I. "Covered entity" means any electric utility or electric project developer, owner, or operator
2 within the state, regardless of public or private ownership or jurisdiction under the North American
3 Electric Reliability Corporation (NERC).

4 II. "Covered equipment" means any power transformer with a primary voltage of 100 kV or
5 greater and capacity of 25 MVA or greater, and any generator step-up transformer with a secondary
6 voltage of 100 kV or greater and capacity of 25 MVA or greater.

7 III. "GIC" means geomagnetically induced current, also known as ground induced current,
8 resulting from naturally occurring GMDs or the late-time (E3) component of HEMP.

9 IV. "Critical energy infrastructure information protocols," "critical electric infrastructure
10 information protocols," or "CEII" means specific engineering, vulnerability, or detailed design
11 protocols and procedures related to proposed or existing critical infrastructure, whether physical or
12 virtual, that relate to the production, generation, transmission, transportation, or distribution of
13 energy, the unauthorized disclosure of which could pose a risk to the security, reliability, or integrity
14 of the infrastructure; such protocols are designated as confidential and exempt from public
15 disclosure, as their release could be useful to a person planning an attack or otherwise causing harm
16 to the infrastructure.

17 378-A:3 Assessment Requirements.

18 I. Each covered entity shall, no later than January 1, 2027, conduct a technical assessment
19 of all covered equipment to determine vulnerability to GICs.

20 II. The assessment shall:

21 (a) Utilize the waveform in Figure A.5 of IEC 61000-2-9, Edition 2.0 (2025-05), modeling
22 a peak magnetic field strength of 20,000 nT and corresponding electric field of 85 V/km.

23 (b) Assume transformers are fully loaded during GIC exposure.

24 (c) Account for transformer age and condition using ANSI/IEEE Standard C57.110 and
25 IEEE Standard C57.91.

26 (d) Identify susceptibility to half-cycle saturation, GIC-induced harmonics, reactive
27 power consumption, hot spot generation, and insulation degradation.

28 378-A:4 Reporting Requirements.

29 I. No later than 180 days after passage of this act, each covered entity shall submit a report
30 to the department of energy, with copies to the public utilities commission, the governor, the chief of
31 homeland security, and the legislature.

32 II. The report shall include, for each susceptible transformer and substation:

33 (a) Transformer brand; transformer place of origin, including nation where
34 manufactured; transformer design specifications, including windings and core configuration, winding
35 impedances, winding DC resistances (specify whether assumed or measured), and phase type
36 (single-phase or 3-phase); transformer capacity in megavolt-amperes (MVA); transformer voltage
37 level in kilovolts (kV); transformer age; transformer site location, redacted for CEII; transformer

HB 1723 - AS INTRODUCED

- Page 3 -

1 purpose (e.g., generator step-up, autotransformer, step-down, converter), redacted for CEII;
2 transformer replacement lead time; and transformer replacement cost.

3 (b) Spreadsheet-formatted data and narrative analysis.

4 (c) Recommended solutions to protect the grid against GIC by preventing or reducing the
5 half cycle saturation of transformers.

6 (d) Total cost to implement GIC protection.

7 (e) Priority list of transformers by damage risk and critical infrastructure impact.

8 (f) Funding recommendations, including potential grant sources and rate recovery
9 mechanisms.

10 378-A:5 Operational Standards. Covered entities shall not rely solely on operational procedures
11 such as load shedding or reactive power supply to mitigate GIC risk. Such procedures shall not be
12 considered sufficient protection under this chapter.

13 378-A:6 Confidentiality. All data submitted under this chapter shall be handled in accordance
14 with CEII protocols as defined in RSA 378-A:2. Location and purpose data shall be redacted from
15 public reports.

16 4 Effective Date. This act shall take effect July 1, 2026.