

1.1 Senator moves to amend S.F. No. 3870 as follows:

1.2 Delete everything after the enacting clause and insert:

1.3 **"ARTICLE 1**

1.4 **ENERGY**

1.5 Section 1. **APPROPRIATIONS.**

1.6 The sums shown in the columns marked "Appropriations" are added to the appropriations
1.7 in Laws 2017, chapter 94, or appropriated to the agencies and for the purposes specified in
1.8 this article. The appropriations are from the general fund, or another named fund, and are
1.9 available for the fiscal year indicated for each purpose. The figures "2018" and "2019" used
1.10 in this article mean that the addition to the appropriations listed under them are available
1.11 for the fiscal year ending June 30, 2018, or June 30, 2019, respectively. "The first year" is
1.12 fiscal year 2018. "The second year" is fiscal year 2019. Appropriations for fiscal year 2018
1.13 are effective the day following final enactment.

1.14 **APPROPRIATIONS**

1.15 **Available for the Year**

1.16 **Ending June 30**

1.17 **2018**

2019

1.18 **Sec. 2. DEPARTMENT OF COMMERCE**

1.19 **Subdivision 1. Total Appropriation** \$ **-0-** \$ **150,000**

1.20 **Appropriations by Fund**

1.21 **2018** **2019**

1.22 **Special Revenue** **-0-** **150,000**

1.23 **Subd. 2. Energy Resources** \$ **-0-** \$ **150,000**

1.24 **Appropriations by Fund**

1.25 **2018** **2019**

1.26 **Special Revenue** **-0-** **150,000**

1.27 \$150,000 the second year is from the
1.28 renewable development account in the special
1.29 revenue fund established in Minnesota
1.30 Statutes, section 116C.779, subdivision 1, to
1.31 conduct an energy storage systems cost-benefit
1.32 analysis. This is a onetime appropriation.

2.1 **Sec. 3. PUBLIC UTILITIES COMMISSION \$ -0- \$ 50,000**
 2.2 \$50,000 the second year is from the renewable
 2.3 development account in the special revenue
 2.4 fund established in Minnesota Statutes, section
 2.5 116C.779, subdivision 1, to conduct the
 2.6 electrical grid vulnerability to geomagnetic
 2.7 disturbances and electromagnetic pulse study.
 2.8 This is a onetime appropriation.

2.9 **ARTICLE 2**

2.10 **ENERGY POLICY**

2.11 Section 1. Minnesota Statutes 2017 Supplement, section 116C.779, subdivision 1, is
 2.12 amended to read:

2.13 Subdivision 1. **Renewable development account.** (a) The renewable development
 2.14 account is established as a separate account in the special revenue fund in the state treasury.
 2.15 Appropriations and transfers to the account shall be credited to the account. Earnings, such
 2.16 as interest, dividends, and any other earnings arising from assets of the account, shall be
 2.17 credited to the account. Funds remaining in the account at the end of a fiscal year are not
 2.18 canceled to the general fund but remain in the account until expended. The account shall
 2.19 be administered by the commissioner of management and budget as provided under this
 2.20 section.

2.21 (b) On July 1, 2017, the public utility that owns the Prairie Island nuclear generating
 2.22 plant must transfer all funds in the renewable development account previously established
 2.23 under this subdivision and managed by the public utility to the renewable development
 2.24 account established in paragraph (a). Funds awarded to grantees in previous grant cycles
 2.25 that have not yet been expended and unencumbered funds required to be paid in calendar
 2.26 year 2017 under paragraphs ~~(f)~~ (e) and ~~(g)~~ (f), and sections 116C.7792 and 216C.41, are
 2.27 not subject to transfer under this paragraph.

2.28 (c) Except as provided in subdivision 1a, beginning January 15, 2018, and continuing
 2.29 each January 15 thereafter, the public utility that owns the Prairie Island and Monticello
 2.30 nuclear generating ~~plant~~ plants must transfer to the renewable development account ~~\$500,000~~
 2.31 ~~each year for each dry cask containing spent fuel that is located at the Prairie Island power~~
 2.32 ~~plant for~~ \$16,000,000 each year ~~the~~ either plant is in operation, and ~~\$7,500,000 each year~~
 2.33 ~~the plant is not in operation,~~ if ordered by the commission pursuant to paragraph ~~(i)~~ (h),

3.1 \$7,500,000 each year the Prairie Island plant is not in operation and \$5,250,000 each year
3.2 the Monticello plant is not in operation. The fund transfer must be made if nuclear waste is
3.3 stored in a dry cask at the independent spent-fuel storage facility at Prairie Island or
3.4 Monticello for any part of a year.

3.5 ~~(d) Except as provided in subdivision 1a, beginning January 15, 2018, and continuing~~
3.6 ~~each January 15 thereafter, the public utility that owns the Monticello nuclear generating~~
3.7 ~~plant must transfer to the renewable development account \$350,000 each year for each dry~~
3.8 ~~cask containing spent fuel that is located at the Monticello nuclear power plant for each~~
3.9 ~~year the plant is in operation, and \$5,250,000 each year the plant is not in operation if ordered~~
3.10 ~~by the commission pursuant to paragraph (i). The fund transfer must be made if nuclear~~
3.11 ~~waste is stored in a dry cask at the independent spent-fuel storage facility at Monticello for~~
3.12 ~~any part of a year.~~

3.13 ~~(e)~~ (d) Each year, the public utility shall withhold from the funds transferred to the
3.14 renewable development account under ~~paragraphs~~ paragraph (c) and (d) the amount necessary
3.15 to pay its obligations under paragraphs (e), (f) and (g), (j), and (n), and sections 116C.7792
3.16 and 216C.41, for that calendar year.

3.17 ~~(f)~~ (e) If the commission approves a new or amended power purchase agreement, the
3.18 termination of a power purchase agreement, or the purchase and closure of a facility under
3.19 section 216B.2424, subdivision 9, with an entity that uses poultry litter to generate electricity,
3.20 the public utility subject to this section shall enter into a contract with the city in which the
3.21 poultry litter plant is located to provide grants to the city for the purposes of economic
3.22 development on the following schedule: \$4,000,000 in fiscal year 2018; \$6,500,000 each
3.23 fiscal year in 2019 and 2020; and \$3,000,000 in fiscal year 2021. The grants shall be paid
3.24 by the public utility from funds withheld from the transfer to the renewable development
3.25 account, as provided in paragraphs (b) and ~~(e)~~ (d).

3.26 ~~(g)~~ (f) If the commission approves a new or amended power purchase agreement, or the
3.27 termination of a power purchase agreement under section 216B.2424, subdivision 9, with
3.28 an entity owned or controlled, directly or indirectly, by two municipal utilities located north
3.29 of Constitutional Route No. 8, that was previously used to meet the biomass mandate in
3.30 section 216B.2424, the public utility that owns a nuclear generating plant shall enter into a
3.31 grant contract with such entity to provide \$6,800,000 per year for five years, commencing
3.32 30 days after the commission approves the new or amended power purchase agreement, or
3.33 the termination of the power purchase agreement, and on each June 1 thereafter through
3.34 2021, to assist the transition required by the new, amended, or terminated power purchase

4.1 agreement. The grant shall be paid by the public utility from funds withheld from the transfer
4.2 to the renewable development account as provided in paragraphs (b) and ~~(e)~~ (d).

4.3 ~~(h)~~ (g) The collective amount paid under the grant contracts awarded under paragraphs
4.4 ~~(f)~~ (e) and ~~(g)~~ (f) is limited to the amount deposited into the renewable development account,
4.5 and its predecessor, the renewable development account, established under this section, that
4.6 was not required to be deposited into the account under Laws 1994, chapter 641, article 1,
4.7 section 10.

4.8 ~~(i)~~ (h) After discontinuation of operation of the Prairie Island nuclear plant or the
4.9 Monticello nuclear plant and each year spent nuclear fuel is stored in dry cask at the
4.10 discontinued facility, the commission shall require the public utility to pay \$7,500,000 for
4.11 the discontinued Prairie Island facility and \$5,250,000 for the discontinued Monticello
4.12 facility for any year in which the commission finds, by the preponderance of the evidence,
4.13 that the public utility did not make a good faith effort to remove the spent nuclear fuel stored
4.14 at the facility to a permanent or interim storage site out of the state. This determination shall
4.15 be made at least every two years.

4.16 ~~(j)~~ (i) The utility shall file annually with the commission a petition for the recovery of
4.17 all funds required to be transferred or withheld under paragraphs (c), (d), and (h), for the
4.18 next year through a rider mechanism. The commission shall approve a reasonable cost
4.19 recovery schedule for all such funds.

4.20 (j) On or before January 15 of each year, the utility shall file a petition with the
4.21 commission setting forth the amounts withheld by the utility in the prior year under paragraph
4.22 (d) and the amount actually paid in that year for obligations identified in paragraph (d). If
4.23 the amount actually paid is less than the amount withheld, the utility shall deduct the surplus
4.24 from the amount withheld for the current year under paragraph (d). If the amount actually
4.25 paid is more than the amount withheld, the utility shall add the deficit to the amount withheld
4.26 in the current year under paragraph (d). Any surplus at the end of all programs identified
4.27 in paragraph (d) shall be returned to the customers of the utility.

4.28 (k) Funds in the account may be expended only for any of the following purposes:

4.29 (1) to stimulate research and development of renewable electric energy technologies;

4.30 (2) to encourage grid modernization, including, but not limited to, projects that implement
4.31 electricity storage, load control, and smart meter technology; and

4.32 (3) to stimulate other innovative energy projects that reduce demand and increase system
4.33 efficiency and flexibility.

5.1 Expenditures from the fund must benefit Minnesota ratepayers receiving electric service
5.2 from the utility that owns a nuclear-powered electric generating plant in this state or the
5.3 Prairie Island Indian community or its members.

5.4 The utility that owns a nuclear generating plant is eligible to apply for grants under this
5.5 subdivision.

5.6 ~~(k)~~ (l) For the purposes of paragraph ~~(j)~~ (k), the following terms have the meanings
5.7 given:

5.8 (1) "renewable" has the meaning given in section 216B.2422, subdivision 1, paragraph
5.9 (c), clauses (1), (2), (4), and (5); and

5.10 (2) "grid modernization" means:

5.11 (i) enhancing the reliability of the electrical grid;

5.12 (ii) improving the security of the electrical grid against cyberthreats and physical threats;
5.13 and

5.14 (iii) increasing energy conservation opportunities by facilitating communication between
5.15 the utility and its customers through the use of two-way meters, control technologies, energy
5.16 storage and microgrids, technologies to enable demand response, and other innovative
5.17 technologies.

5.18 ~~(j)~~ (m) A renewable development account advisory group that includes, among others,
5.19 representatives of the public utility and its ratepayers, and includes at least one representative
5.20 of the Prairie Island Indian community appointed by that community's tribal council, shall
5.21 develop recommendations on account expenditures. Members of the advisory group shall
5.22 be chosen by the public utility unless another method of selection is provided under this
5.23 section. The advisory group must design a request for proposal and evaluate projects
5.24 submitted in response to a request for proposals. The advisory group must utilize an
5.25 independent third-party expert to evaluate proposals submitted in response to a request for
5.26 proposal, including all proposals made by the public utility. A request for proposal for
5.27 research and development under paragraph ~~(j)~~ (k), clause (1), may be limited to or include
5.28 a request to higher education institutions located in Minnesota for multiple projects authorized
5.29 under paragraph ~~(j)~~ (k), clause (1). The request for multiple projects may include a provision
5.30 that exempts the projects from the third-party expert review and instead provides for project
5.31 evaluation and selection by a merit peer review grant system. In the process of determining
5.32 request for proposal scope and subject and in evaluating responses to request for proposals,

6.1 the advisory group must strongly consider, where reasonable, potential benefit to Minnesota
6.2 citizens and businesses and the utility's ratepayers.

6.3 ~~(m)~~ (n) The cost of acquiring the services of the independent third-party expert described
6.4 in paragraph (m) and any other costs incurred in administering the advisory group and its
6.5 actions as required by this section shall be paid from funds withheld by the public utility
6.6 under paragraph (d).

6.7 (o) The advisory group shall submit funding recommendations to the public utility,
6.8 which has full and sole authority to determine which expenditures shall be submitted by
6.9 the advisory group to the ~~legislature~~ commission. The commission may approve proposed
6.10 expenditures, may disapprove proposed expenditures that it finds not to be in compliance
6.11 with this subdivision or otherwise not in the public interest, and may, if agreed to by the
6.12 public utility, modify proposed expenditures. The commission shall, by order, submit its
6.13 funding recommendations to the legislature as provided under paragraph ~~(n)~~ (m).

6.14 ~~(n)~~ (p) The commission shall present its recommended appropriations from the account
6.15 to the senate and house of representatives committees with jurisdiction over energy policy
6.16 and finance annually by February 15. Expenditures from the account must be appropriated
6.17 by law. In enacting appropriations from the account, the legislature:

6.18 (1) may approve or disapprove, but may not modify, the amount of an appropriation for
6.19 a project recommended by the commission; and

6.20 (2) may not appropriate money for a project the commission has not recommended
6.21 funding.

6.22 ~~(o)~~ (q) A request for proposal for renewable energy generation projects must, when
6.23 feasible and reasonable, give preference to projects that are most cost-effective for a particular
6.24 energy source.

6.25 ~~(p)~~ (r) The advisory group must annually, by February 15, report to the chairs and ranking
6.26 minority members of the legislative committees with jurisdiction over energy policy on
6.27 projects funded by the account for the prior year and all previous years. The report must,
6.28 to the extent possible and reasonable, itemize the actual and projected financial benefit to
6.29 the public utility's ratepayers of each project.

6.30 ~~(q)~~ (s) By February 1, 2018, and each February 1 thereafter, the commissioner of
6.31 management and budget shall submit a written report regarding the availability of funds in
6.32 and obligations of the account to the chairs and ranking minority members of the senate

7.1 and house committees with jurisdiction over energy policy and finance, the public utility,
7.2 and the advisory group.

7.3 ~~(t)~~ (t) A project receiving funds from the account must produce a written final report
7.4 that includes sufficient detail for technical readers and a clearly written summary for
7.5 nontechnical readers. The report must include an evaluation of the project's financial,
7.6 environmental, and other benefits to the state and the public utility's ratepayers.

7.7 ~~(s)~~ (u) Final reports, any mid-project status reports, and renewable development account
7.8 financial reports must be posted online on a public Web site designated by the commissioner
7.9 of commerce.

7.10 ~~(t)~~ (v) All final reports must acknowledge that the project was made possible in whole
7.11 or part by the Minnesota renewable development account, noting that the account is financed
7.12 by the public utility's ratepayers.

7.13 ~~(t)~~ (w) Of the amount in the renewable development account, priority must be given to
7.14 making the payments required under section 216C.417.

7.15 **EFFECTIVE DATE.** This section is effective June 1, 2018.

7.16 Sec. 2. Minnesota Statutes 2017 Supplement, section 116C.7792, is amended to read:

7.17 **116C.7792 SOLAR ENERGY INCENTIVE PROGRAM.**

7.18 The utility subject to section 116C.779 shall operate a program to provide solar energy
7.19 production incentives for solar energy systems of no more than a total nameplate capacity
7.20 of ~~20~~ 40 kilowatts direct current or less. The program shall be operated for eight consecutive
7.21 calendar years commencing in 2014. \$5,000,000 shall be allocated in each of the first four
7.22 years, \$15,000,000 in the fifth year, \$10,000,000 in each of the sixth and seventh years, and
7.23 \$5,000,000 in the eighth year from funds withheld from transfer to the renewable
7.24 development account under section 116C.779, subdivision 1, ~~paragraphs (b) and (c)~~ paragraph
7.25 (d), and placed in a separate account for the purpose of the solar production incentive
7.26 program operated by the utility and not for any other program or purpose. Any unspent
7.27 amount allocated in the fifth year is available until December 31 of the sixth year. Beginning
7.28 with the allocation in the sixth year and thereafter, any unspent amount remaining at the
7.29 end of an allocation year must be transferred to the renewable development account.
7.30 Applications submitted in the fifth year may be amended without reapplication for that
7.31 portion of a project over a nameplate capacity of 20 kilowatts. The solar system must be
7.32 sized to less than 120 percent of the customer's on-site annual energy consumption when
7.33 combined with other distributed generation resources and subscriptions provided under

8.1 section 216B.1641 associated with the premise. The production incentive must be paid for
8.2 ten years commencing with the commissioning of the system. The utility must file a plan
8.3 to operate the program with the commissioner of commerce. The utility may not operate
8.4 the program until it is approved by the commissioner. A change to the program to include
8.5 projects up to a nameplate capacity of 40 kilowatts or less does not require the utility to file
8.6 a plan with the commissioner. Any plan approved by the commissioner of commerce must
8.7 not provide an increased incentive scale over prior years unless the commissioner
8.8 demonstrates that changes in the market for solar energy facilities require an increase.

8.9 **EFFECTIVE DATE.** This section is effective June 1, 2018.

8.10 Sec. 3. Minnesota Statutes 2016, section 216B.16, is amended by adding a subdivision to
8.11 read:

8.12 **Subd. 13b. Pension rate base.** The commission must allow a public utility to include
8.13 in the rate base and recover from ratepayers the costs incurred to contribute to employee
8.14 pensions, including (1) accumulated contributions in excess of net periodic benefit costs,
8.15 and (2) contributions necessary to comply with the federal Pension Protection Act of 2006
8.16 and other applicable federal and state pension funding requirements. A public utility is
8.17 authorized to track for future recovery any unrecoverable return of pension rate base costs
8.18 and investments at the return on investment level established in the public utility's last
8.19 general rate case that have been incurred during the period between general rate cases.

8.20 Sec. 4. Minnesota Statutes 2016, section 216B.1645, is amended by adding a subdivision
8.21 to read:

8.22 **Subd. 2b. Energy storage system pilot projects.** (a) A public utility may petition the
8.23 commission as provided in subdivision 2a to recover costs associated with the implementation
8.24 of an energy storage system pilot project, provided the following conditions are met:

8.25 (1) the public utility has submitted a report to the commission containing, at a minimum,
8.26 the following information regarding the proposed energy storage system pilot project:

8.27 (i) the storage technology utilized;

8.28 (ii) the energy storage capacity and the duration of output at that capacity;

8.29 (iii) the proposed location;

8.30 (iv) the purchasing and installation costs;

9.1 (v) how the project will interact with existing distributed generation resources on the
9.2 utility's grid; and

9.3 (vi) the goals the project proposes to achieve, including controlling frequency or voltage,
9.4 mitigating transmission congestion, providing emergency power supplies during outages,
9.5 reducing curtailment of existing renewable energy generators, and reducing peak power
9.6 costs;

9.7 (2) the utility has adequately responded to any commission requests for additional
9.8 information regarding the energy storage system pilot project; and

9.9 (3) the commission has determined that the energy storage system pilot project is in the
9.10 public interest.

9.11 (b) The commission may modify a proposed energy storage system pilot project the
9.12 commission approves for rate recovery.

9.13 (c) For the purposes of this subdivision:

9.14 (1) "energy storage system" has the meaning given in section 216B.2422, subdivision
9.15 1, paragraph (f); and

9.16 (2) "pilot project" means a project deployed at a limited number of locations in order to
9.17 assess the technical and economic effectiveness of its operations.

9.18 Sec. 5. Minnesota Statutes 2017 Supplement, section 216B.1691, subdivision 2f, is amended
9.19 to read:

9.20 Subd. 2f. **Solar energy standard.** (a) In addition to the requirements of subdivisions 2a
9.21 and 2b, each public utility shall generate or procure sufficient electricity generated by solar
9.22 energy to serve its retail electricity customers in Minnesota so that by the end of 2020, at
9.23 least 1.5 percent of the utility's total retail electric sales to retail customers in Minnesota is
9.24 generated by solar energy.

9.25 (b) For a public utility with more than 200,000 retail electric customers, at least ten
9.26 percent of the 1.5 percent goal must be met by solar energy generated by or procured from
9.27 solar photovoltaic devices with a nameplate capacity of ~~20~~ 40 kilowatts or less.

9.28 (c) A public utility with between 50,000 and 200,000 retail electric customers:

9.29 (1) must meet at least ten percent of the 1.5 percent goal with solar energy generated by
9.30 or procured from solar photovoltaic devices with a nameplate capacity of 40 kilowatts or
9.31 less; and

10.1 (2) may apply toward the ten percent goal in clause (1) individual customer subscriptions
10.2 of 40 kilowatts or less to a community solar garden program operated by the public utility
10.3 that has been approved by the commission.

10.4 (d) The solar energy standard established in this subdivision is subject to all the provisions
10.5 of this section governing a utility's standard obligation under subdivision 2a.

10.6 (e) It is an energy goal of the state of Minnesota that, by 2030, ten percent of the retail
10.7 electric sales in Minnesota be generated by solar energy.

10.8 (f) For the purposes of calculating the total retail electric sales of a public utility under
10.9 this subdivision, there shall be excluded retail electric sales to customers that are:

10.10 (1) an iron mining extraction and processing facility, including a scam mining facility
10.11 as defined in Minnesota Rules, part 6130.0100, subpart 16; or

10.12 (2) a paper mill, wood products manufacturer, sawmill, or oriented strand board
10.13 manufacturer.

10.14 Those customers may not have included in the rates charged to them by the public utility
10.15 any costs of satisfying the solar standard specified by this subdivision.

10.16 (g) A public utility may not use energy used to satisfy the solar energy standard under
10.17 this subdivision to satisfy its standard obligation under subdivision 2a. A public utility may
10.18 not use energy used to satisfy the standard obligation under subdivision 2a to satisfy the
10.19 solar standard under this subdivision.

10.20 (h) Notwithstanding any law to the contrary, a solar renewable energy credit associated
10.21 with a solar photovoltaic device installed and generating electricity in Minnesota after
10.22 August 1, 2013, but before 2020 may be used to meet the solar energy standard established
10.23 under this subdivision.

10.24 (i) Beginning July 1, 2014, and each July 1 through 2020, each public utility shall file
10.25 a report with the commission reporting its progress in achieving the solar energy standard
10.26 established under this subdivision.

10.27 **EFFECTIVE DATE.** This section is effective June 1, 2018.

10.28 Sec. 6. Minnesota Statutes 2017 Supplement, section 216B.241, subdivision 1d, is amended
10.29 to read:

10.30 Subd. 1d. **Technical assistance.** (a) The commissioner shall evaluate energy conservation
10.31 improvement programs on the basis of cost-effectiveness and the reliability of the
10.32 technologies employed. The commissioner shall, by order, establish, maintain, and update

11.1 energy-savings assumptions that must be used when filing energy conservation improvement
11.2 programs. The commissioner shall establish an inventory of the most effective energy
11.3 conservation programs, techniques, and technologies, and encourage all Minnesota utilities
11.4 to implement them, where appropriate, in their service territories. The commissioner shall
11.5 describe these programs in sufficient detail to provide a utility reasonable guidance
11.6 concerning implementation. The commissioner shall prioritize the opportunities in order of
11.7 potential energy savings and in order of cost-effectiveness. The commissioner may contract
11.8 with a third party to carry out any of the commissioner's duties under this subdivision, and
11.9 to obtain technical assistance to evaluate the effectiveness of any conservation improvement
11.10 program. The commissioner may assess up to \$850,000 annually for the purposes of this
11.11 subdivision. The assessments must be deposited in the state treasury and credited to the
11.12 energy and conservation account created under subdivision 2a. An assessment made under
11.13 this subdivision is not subject to the cap on assessments provided by section 216B.62, or
11.14 any other law.

11.15 (b) Of the assessment authorized under paragraph (a), the commissioner may expend
11.16 ~~up to \$400,000 annually~~ \$800,000 each biennium for the purpose of developing, operating,
11.17 maintaining, and providing technical support for a uniform electronic data reporting and
11.18 tracking system available to all utilities subject to this section, in order to enable accurate
11.19 measurement of the cost and energy savings of the energy conservation improvements
11.20 required by this section. ~~This paragraph expires June 30, 2018.~~

11.21 (c) The commissioner must establish a utility stakeholder group to direct development
11.22 and maintenance of the tracking system available to all utilities. The utility stakeholder
11.23 group will direct 50 percent of the biennium expenditures. The utility stakeholder group
11.24 shall include, but is not limited to, stakeholders representative of the Minnesota Rural
11.25 Electric Association, the Minnesota Municipal Utility Association, investor-owned utilities,
11.26 energy conservation organizations, and businesses that work in energy efficiency. One of
11.27 the stakeholder members must serve as chair. The utility stakeholder group must develop
11.28 and submit its workplan to the commissioner. The utility stakeholder group must meet
11.29 regularly at the call of the chair. Meetings of the utility stakeholder group are subject to
11.30 chapter 13D.

11.31 Sec. 7. Minnesota Statutes 2016, section 216B.2422, subdivision 1, is amended to read:

11.32 Subdivision 1. **Definitions.** (a) For purposes of this section, the terms defined in this
11.33 subdivision have the meanings given them.

12.1 (b) "Utility" means an entity with the capability of generating 100,000 kilowatts or more
12.2 of electric power and serving, either directly or indirectly, the needs of 10,000 retail
12.3 customers in Minnesota. Utility does not include federal power agencies.

12.4 (c) "Renewable energy" means electricity generated through use of any of the following
12.5 resources:

12.6 (1) wind;

12.7 (2) solar;

12.8 (3) geothermal;

12.9 (4) hydro;

12.10 (5) trees or other vegetation;

12.11 (6) landfill gas; or

12.12 (7) predominantly organic components of wastewater effluent, sludge, or related
12.13 by-products from publicly owned treatment works, but not including incineration of
12.14 wastewater sludge.

12.15 (d) "Resource plan" means a set of resource options that a utility could use to meet the
12.16 service needs of its customers over a forecast period, including an explanation of the supply
12.17 and demand circumstances under which, and the extent to which, each resource option
12.18 would be used to meet those service needs. These resource options include using,
12.19 refurbishing, and constructing utility plant and equipment, buying power generated by other
12.20 entities, controlling customer loads, and implementing customer energy conservation.

12.21 (e) "Refurbish" means to rebuild or substantially modify an existing electricity generating
12.22 resource of 30 megawatts or greater.

12.23 (f) "Energy storage system" means commercially available technology capable of
12.24 absorbing and storing energy, and delivering stored energy for use at a later time. For
12.25 purposes of this section, energy storage systems must be from a stationary source. For
12.26 purposes of this section:

12.27 (1) an energy storage system may be:

12.28 (i) either centralized or distributed; or

12.29 (ii) owned by a load-serving entity or local publicly owned electric utility, a customer
12.30 of a load-serving entity or local publicly owned electric utility, a third party, or jointly owned
12.31 by two or more of the entities under this item or any other entity;

13.1 (2) an energy storage system must:

13.2 (i) reduce demand for peak electrical generation;

13.3 (ii) defer or substitute for an investment in generation, transmission, or distribution

13.4 assets; or

13.5 (iii) improve the reliable operation of the electrical transmission or distribution grid;

13.6 and

13.7 (3) an energy storage system must:

13.8 (i) use mechanical, chemical, or thermal processes to store energy that was generated

13.9 at one time for use at a later time;

13.10 (ii) store thermal energy for direct use for heating or cooling at a later time in a manner

13.11 that reduces the demand for electricity at that later time;

13.12 (iii) use mechanical, chemical, or thermal processes to store energy generated from

13.13 renewable resources for use at a later time; or

13.14 (iv) use mechanical, chemical, or thermal processes to store energy generated from

13.15 mechanical processes that would otherwise be wasted for delivery at a later time.

13.16 (g) "Investor-owned utility" means a utility, as defined in paragraph (b), that is owned

13.17 by private persons.

13.18 Sec. 8. Minnesota Statutes 2016, section 216B.2422, is amended by adding a subdivision

13.19 to read:

13.20 Subd. 7. **Energy storage systems assessment.** (a) Each investor-owned utility must

13.21 include as part of an integrated resource plan or plan modification filed by the investor-owned

13.22 utility an assessment of energy storage systems. The assessment must:

13.23 (1) consider energy storage systems as both transmission and distribution-interconnected

13.24 resources;

13.25 (2) analyze energy storage systems both as an alternative for and as an adjunct to

13.26 generation resources for ancillary services and resource adequacy; and

13.27 (3) require that in any prudence determination for a new resource acquisition that resource

13.28 options analysis must include a storage alternative.

13.29 (b) In approving a resource plan, the commission must determine, with respect to the

13.30 assessment required in paragraph (a), whether:

14.1 (1) the utility's forecast requirements are based on substantially accurate data and an
14.2 adequate forecasting method;

14.3 (2) the plan identifies and takes into account any present and projected reductions in
14.4 energy demand that may result from measures to improve energy efficiency in the industrial,
14.5 commercial, residential, and energy-producing sectors of the area being served; and

14.6 (3) the plan includes appropriate and up-to-date methods for modeling resources,
14.7 including the modeling and valuing of flexible operations.

14.8 Sec. 9. Minnesota Statutes 2017 Supplement, section 216B.62, subdivision 3b, is amended
14.9 to read:

14.10 Subd. 3b. **Assessment for department regional and national duties.** In addition to
14.11 other assessments in subdivision 3, the department may assess up to \$500,000 per fiscal
14.12 year for performing its duties under section 216A.07, subdivision 3a. The amount in this
14.13 subdivision shall be assessed to energy utilities in proportion to their respective gross
14.14 operating revenues from retail sales of gas or electric service within the state during the last
14.15 calendar year and shall be deposited into an account in the special revenue fund and is
14.16 appropriated to the commissioner of commerce for the purposes of section 216A.07,
14.17 subdivision 3a. An assessment made under this subdivision is not subject to the cap on
14.18 assessments provided in subdivision 3 or any other law. For the purpose of this subdivision,
14.19 an "energy utility" means public utilities, generation and transmission cooperative electric
14.20 associations, and municipal power agencies providing natural gas or electric service in the
14.21 state. This subdivision expires June 30, ~~2018~~ 2019.

14.22 Sec. 10. Minnesota Statutes 2016, section 216B.813, subdivision 1, is amended to read:

14.23 Subdivision 1. **Road map.** The Department of Commerce shall coordinate and administer
14.24 directly or by contract the Minnesota renewable hydrogen initiative. If the department
14.25 decides to contract for its duties under this section, it must contract with a nonpartisan,
14.26 nonprofit organization within the state to develop the road map. The initiative may be run
14.27 as a public-private partnership representing business, academic, governmental, and
14.28 nongovernmental organizations. The initiative must oversee the development and
14.29 implementation of a renewable hydrogen road map, including appropriate technology
14.30 deployments, that achieve the hydrogen goal of section 216B.8109. The road map should
14.31 be compatible with the United States Department of Energy's National Hydrogen Energy
14.32 Roadmap and be based on an assessment of marketplace economics and the state's
14.33 opportunities in hydrogen, fuel cells, and related technologies, so as to capitalize on strengths.

15.1 The road map should establish a vision, goals, general timeline, strategies for working with
15.2 industry, and measurable milestones for achieving the state's renewable hydrogen goal. The
15.3 road map should describe how renewable hydrogen and fuel cells fit in Minnesota's overall
15.4 energy system, and should help foster a consistent, predictable, and prudent investment
15.5 environment. ~~The department must report to the legislature on the progress in implementing~~
15.6 ~~the road map by November 1 of each odd-numbered year.~~

15.7 Sec. 11. Minnesota Statutes 2016, section 216D.03, is amended by adding a subdivision
15.8 to read:

15.9 Subd. 5. **Contact information database.** The notification center must create a database
15.10 to collect, maintain, and annually update the contact information for each operator in
15.11 Minnesota. At a minimum, the contact information stored in the database must include the
15.12 name, telephone number, mailing address, and e-mail address, if available, for the operator
15.13 responsible for emergency response related to each underground facility 24 hours per day
15.14 and seven days per week. The information contained in the database must be made available
15.15 to an excavator upon request.

15.16 Sec. 12. **COST-BENEFIT ANALYSIS OF ENERGY STORAGE SYSTEMS.**

15.17 (a) The commissioner of commerce must contract with an independent consultant selected
15.18 through a request for proposal process to produce a report analyzing the potential costs and
15.19 benefits of energy storage systems, as defined in Minnesota Statutes, section 216B.2422,
15.20 subdivision 1, in Minnesota. In examining the cost-effectiveness of energy storage systems,
15.21 the study must analyze:

15.22 (1) cost savings to ratepayers from the provision of services, including, but not limited
15.23 to, energy price arbitrage, ancillary services, resource adequacy, and transmission and
15.24 distribution asset deferral or substitution;

15.25 (2) direct-cost savings to customers that deploy energy storage systems;

15.26 (3) an improved ability to integrate renewable resources;

15.27 (4) improved reliability and power quality;

15.28 (5) the effect on retail electric rates over the useful life of a given energy storage system
15.29 compared to the impact on retail electric rates using nonenergy storage system alternative
15.30 over the useful life of the nonenergy storage system alternative;

15.31 (6) reduced greenhouse gas emissions; and

16.1 (7) any other value reasonably related to the application of energy storage system
16.2 technology.

16.3 (b) By December 31, 2018, the commissioner of commerce shall submit the study to
16.4 the chairs and ranking minority members of the legislative committees with jurisdiction
16.5 over energy policy and finance.

16.6 **Sec. 13. STUDY; ELECTRICAL GRID VULNERABILITY TO GEOMAGNETIC**
16.7 **DISTURBANCES AND ELECTROMAGNETIC PULSE.**

16.8 (a) The Public Utilities Commission and the Department of Public Safety must conduct
16.9 a joint study analyzing the Minnesota electrical grid's vulnerability to geomagnetic
16.10 disturbances caused by solar storms and electromagnetic pulse, and include information
16.11 regarding how any vulnerability may be reduced. Information must be gathered from a
16.12 variety of stakeholders, including but not limited to (1) electric utilities, (2) the Midcontinent
16.13 Independent System Operator, (3) scientists and others with expertise in the field of solar
16.14 disturbances, electromagnetic pulses, and the impact of each on the electrical grid, and (4)
16.15 emergency hazard planners.

16.16 (b) At a minimum, the report must contain information regarding:

16.17 (1) potential disturbances that may impact Minnesota's electrical grid as a result of solar
16.18 storms and electromagnetic pulse;

16.19 (2) the existing system for predicting solar storms;

16.20 (3) steps utilities and the private and public sectors could take to minimize grid
16.21 vulnerability to geomagnetic disturbances and electromagnetic pulse;

16.22 (4) how to maintain and restore communications systems after grid damage from
16.23 geomagnetic disturbances and electromagnetic pulse; and

16.24 (5) how current emergency planning efforts may incorporate concerns regarding grid
16.25 damage and long-term power outage resulting from geomagnetic disturbances and
16.26 electromagnetic pulse.

16.27 (c) By February 15, 2019, the Public Utilities Commission and the Department of Public
16.28 Safety must submit a report to the chairs and ranking minority members of the senate and
16.29 house of representatives committees with jurisdiction over energy policy and public safety.

16.30 (d) For the purposes of this section, "solar storms" means the ejection of particles, plasma,
16.31 flares, or electromagnetic radiation from the sun's surface or corona that travel through

17.1 space and reach the surface of the earth, where the ejection may damage the electric power
17.2 grid and other critical infrastructure.

17.3 (e) For the purposes of this section, "electromagnetic pulse" means one or more pulses
17.4 of electromagnetic energy capable of disabling, disrupting, or destroying an electric
17.5 transmission and distribution system."

17.6 Amend the title accordingly