

HOUSE No. 2836**The Commonwealth of Massachusetts**

PRESENTED BY:

Marjorie C. Decker and Sean Garballey*To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts in General Court assembled:*

The undersigned legislators and/or citizens respectfully petition for the adoption of the accompanying bill:

An Act re-powering Massachusetts with 100 percent renewable energy.

PETITION OF:

NAME:	DISTRICT/ADDRESS:	DATE ADDED:
<i>Marjorie C. Decker</i>	<i>25th Middlesex</i>	<i>1/17/2019</i>
<i>Sean Garballey</i>	<i>23rd Middlesex</i>	<i>1/24/2019</i>
<i>Ruth B. Balser</i>	<i>12th Middlesex</i>	<i>1/24/2019</i>
<i>Frank A. Moran</i>	<i>17th Essex</i>	<i>1/18/2019</i>
<i>Dylan A. Fernandes</i>	<i>Barnstable, Dukes and Nantucket</i>	<i>1/18/2019</i>
<i>Louis L. Kafka</i>	<i>8th Norfolk</i>	<i>1/18/2019</i>
<i>Mike Connolly</i>	<i>26th Middlesex</i>	<i>1/22/2019</i>
<i>Steven Ultrino</i>	<i>33rd Middlesex</i>	<i>1/22/2019</i>
<i>Jack Patrick Lewis</i>	<i>7th Middlesex</i>	<i>1/22/2019</i>
<i>Denise Provost</i>	<i>27th Middlesex</i>	<i>1/22/2019</i>
<i>David Paul Linsky</i>	<i>5th Middlesex</i>	<i>1/22/2019</i>
<i>Jason M. Lewis</i>	<i>Fifth Middlesex</i>	<i>1/23/2019</i>
<i>John J. Lawn, Jr.</i>	<i>10th Middlesex</i>	<i>1/23/2019</i>
<i>Bud L. Williams</i>	<i>11th Hampden</i>	<i>1/23/2019</i>
<i>James Arciero</i>	<i>2nd Middlesex</i>	<i>1/29/2019</i>
<i>Bruce J. Ayers</i>	<i>1st Norfolk</i>	<i>2/1/2019</i>
<i>Christine P. Barber</i>	<i>34th Middlesex</i>	<i>1/25/2019</i>
<i>John Barrett, III</i>	<i>1st Berkshire</i>	<i>1/31/2019</i>

<i>Jennifer E. Benson</i>	<i>37th Middlesex</i>	<i>1/29/2019</i>
<i>Natalie M. Blais</i>	<i>1st Franklin</i>	<i>1/28/2019</i>
<i>Joseph A. Boncore</i>	<i>First Suffolk and Middlesex</i>	<i>1/30/2019</i>
<i>Michael D. Brady</i>	<i>Second Plymouth and Bristol</i>	<i>2/1/2019</i>
<i>Paul Brodeur</i>	<i>32nd Middlesex</i>	<i>2/1/2019</i>
<i>Antonio F. D. Cabral</i>	<i>13th Bristol</i>	<i>1/31/2019</i>
<i>Peter Capano</i>	<i>11th Essex</i>	<i>1/28/2019</i>
<i>Daniel R. Carey</i>	<i>2nd Hampshire</i>	<i>1/31/2019</i>
<i>Gerard J. Cassidy</i>	<i>9th Plymouth</i>	<i>1/30/2019</i>
<i>Harriette L. Chandler</i>	<i>First Worcester</i>	<i>2/1/2019</i>
<i>Michelle L. Ciccolo</i>	<i>15th Middlesex</i>	<i>1/31/2019</i>
<i>Edward F. Coppinger</i>	<i>10th Suffolk</i>	<i>1/30/2019</i>
<i>Brendan P. Crighton</i>	<i>Third Essex</i>	<i>1/30/2019</i>
<i>Daniel R. Cullinane</i>	<i>12th Suffolk</i>	<i>1/31/2019</i>
<i>Josh S. Cutler</i>	<i>6th Plymouth</i>	<i>1/29/2019</i>
<i>Sal N. DiDomenico</i>	<i>Middlesex and Suffolk</i>	<i>1/30/2019</i>
<i>Mindy Domb</i>	<i>3rd Hampshire</i>	<i>1/30/2019</i>
<i>Daniel M. Donahue</i>	<i>16th Worcester</i>	<i>1/29/2019</i>
<i>Paul J. Donato</i>	<i>35th Middlesex</i>	<i>1/25/2019</i>
<i>Michelle M. DuBois</i>	<i>10th Plymouth</i>	<i>1/30/2019</i>
<i>Carolyn C. Dykema</i>	<i>8th Middlesex</i>	<i>2/1/2019</i>
<i>Lori A. Ehrlich</i>	<i>8th Essex</i>	<i>1/31/2019</i>
<i>James B. Eldridge</i>	<i>Middlesex and Worcester</i>	<i>1/31/2019</i>
<i>Nika C. Elugardo</i>	<i>15th Suffolk</i>	<i>1/31/2019</i>
<i>Tricia Farley-Bouvier</i>	<i>3rd Berkshire</i>	<i>1/31/2019</i>
<i>Paul R. Feeney</i>	<i>Bristol and Norfolk</i>	<i>1/31/2019</i>
<i>Cindy F. Friedman</i>	<i>Fourth Middlesex</i>	<i>2/1/2019</i>
<i>William C. Galvin</i>	<i>6th Norfolk</i>	<i>1/31/2019</i>
<i>Denise C. Garlick</i>	<i>13th Norfolk</i>	<i>1/29/2019</i>
<i>Carmine Lawrence Gentile</i>	<i>13th Middlesex</i>	<i>1/25/2019</i>
<i>Carlos González</i>	<i>10th Hampden</i>	<i>1/31/2019</i>
<i>Kenneth I. Gordon</i>	<i>21st Middlesex</i>	<i>1/30/2019</i>
<i>Tami L. Gouveia</i>	<i>14th Middlesex</i>	<i>1/29/2019</i>
<i>Richard M. Haggerty</i>	<i>30th Middlesex</i>	<i>1/31/2019</i>
<i>James K. Hawkins</i>	<i>2nd Bristol</i>	<i>1/29/2019</i>
<i>Stephan Hay</i>	<i>3rd Worcester</i>	<i>1/28/2019</i>
<i>Jonathan Hecht</i>	<i>29th Middlesex</i>	<i>1/31/2019</i>
<i>Christopher Hendricks</i>	<i>11th Bristol</i>	<i>1/29/2019</i>
<i>Natalie M. Higgins</i>	<i>4th Worcester</i>	<i>1/24/2019</i>

<i>Russell E. Holmes</i>	<i>6th Suffolk</i>	<i>2/1/2019</i>
<i>Kevin G. Honan</i>	<i>17th Suffolk</i>	<i>1/29/2019</i>
<i>Patricia D. Jehlen</i>	<i>Second Middlesex</i>	<i>1/31/2019</i>
<i>Patrick Joseph Kearney</i>	<i>4th Plymouth</i>	<i>2/1/2019</i>
<i>Mary S. Keefe</i>	<i>15th Worcester</i>	<i>1/28/2019</i>
<i>Kay Khan</i>	<i>11th Middlesex</i>	<i>1/29/2019</i>
<i>Kathleen R. LaNatra</i>	<i>12th Plymouth</i>	<i>1/30/2019</i>
<i>David Henry Argosky LeBoeuf</i>	<i>17th Worcester</i>	<i>1/31/2019</i>
<i>Jay D. Livingstone</i>	<i>8th Suffolk</i>	<i>1/29/2019</i>
<i>Adrian C. Madaro</i>	<i>1st Suffolk</i>	<i>1/28/2019</i>
<i>John J. Mahoney</i>	<i>13th Worcester</i>	<i>1/28/2019</i>
<i>Elizabeth A. Malia</i>	<i>11th Suffolk</i>	<i>1/25/2019</i>
<i>Paul W. Mark</i>	<i>2nd Berkshire</i>	<i>1/25/2019</i>
<i>Joseph W. McGonagle, Jr.</i>	<i>28th Middlesex</i>	<i>1/26/2019</i>
<i>Paul McMurtry</i>	<i>11th Norfolk</i>	<i>1/30/2019</i>
<i>Christina A. Minicucci</i>	<i>14th Essex</i>	<i>1/25/2019</i>
<i>Liz Miranda</i>	<i>5th Suffolk</i>	<i>1/30/2019</i>
<i>Rady Mom</i>	<i>18th Middlesex</i>	<i>2/1/2019</i>
<i>James M. Murphy</i>	<i>4th Norfolk</i>	<i>1/31/2019</i>
<i>Brian W. Murray</i>	<i>10th Worcester</i>	<i>2/1/2019</i>
<i>Harold P. Naughton, Jr.</i>	<i>12th Worcester</i>	<i>2/1/2019</i>
<i>Tram T. Nguyen</i>	<i>18th Essex</i>	<i>1/27/2019</i>
<i>Patrick M. O'Connor</i>	<i>Plymouth and Norfolk</i>	<i>2/1/2019</i>
<i>Marc R. Pacheco</i>	<i>First Plymouth and Bristol</i>	<i>2/1/2019</i>
<i>Sarah K. Peake</i>	<i>4th Barnstable</i>	<i>1/29/2019</i>
<i>Alice Hanlon Peisch</i>	<i>14th Norfolk</i>	<i>1/31/2019</i>
<i>Angelo J. Puppolo, Jr.</i>	<i>12th Hampden</i>	<i>1/25/2019</i>
<i>Rebecca L. Rausch</i>	<i>Norfolk, Bristol and Middlesex</i>	<i>1/30/2019</i>
<i>David Allen Robertson</i>	<i>19th Middlesex</i>	<i>2/1/2019</i>
<i>Maria Duaime Robinson</i>	<i>6th Middlesex</i>	<i>1/24/2019</i>
<i>David M. Rogers</i>	<i>24th Middlesex</i>	<i>1/28/2019</i>
<i>Jeffrey N. Roy</i>	<i>10th Norfolk</i>	<i>1/27/2019</i>
<i>Daniel J. Ryan</i>	<i>2nd Suffolk</i>	<i>1/29/2019</i>
<i>Lindsay N. Sabadosa</i>	<i>1st Hampshire</i>	<i>1/24/2019</i>
<i>Jon Santiago</i>	<i>9th Suffolk</i>	<i>1/31/2019</i>
<i>Thomas M. Stanley</i>	<i>9th Middlesex</i>	<i>1/24/2019</i>
<i>José F. Tosado</i>	<i>9th Hampden</i>	<i>2/1/2019</i>
<i>Chynah Tyler</i>	<i>7th Suffolk</i>	<i>2/1/2019</i>
<i>Andres X. Vargas</i>	<i>3rd Essex</i>	<i>1/31/2019</i>

<i>Aaron Vega</i>	<i>5th Hampden</i>	<i>1/31/2019</i>
<i>John C. Velis</i>	<i>4th Hampden</i>	<i>1/28/2019</i>
<i>RoseLee Vincent</i>	<i>16th Suffolk</i>	<i>1/29/2019</i>
<i>Tommy Vitolo</i>	<i>15th Norfolk</i>	<i>1/29/2019</i>
<i>Joseph F. Wagner</i>	<i>8th Hampden</i>	<i>1/31/2019</i>
<i>Thomas P. Walsh</i>	<i>12th Essex</i>	<i>1/31/2019</i>

HOUSE No. 2836

By Representatives Decker of Cambridge and Garballey of Arlington, a petition (accompanied by bill, House, No. 2836) of Marjorie C. Decker, Sean Garballey and others relative to renewable energy. Telecommunications, Utilities and Energy.

The Commonwealth of Massachusetts

In the One Hundred and Ninety-First General Court
(2019-2020)

An Act re-powering Massachusetts with 100 percent renewable energy.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

1 SECTION 1. Chapter 25C of the General Laws, as appearing in the 2016 Official
2 Edition, is hereby amended by inserting after said chapter the following chapter:-

3 CHAPTER 25D.

4 100 Percent Renewable Energy Act

5 Section 1. The purpose of this chapter is to steadily transition the commonwealth to 100
6 per cent clean, renewable energy by 2045 in order to (1) protect the health and safety of all
7 residents of the commonwealth; (2) eliminate pollution that is contaminating our air, water and
8 land, and changing our climate in dangerous ways; (3) improve quality of life and economic
9 well-being for all, with an emphasis on environmental justice communities and other populations
10 that have been disproportionately affected by pollution and energy costs; (4) increase energy
11 security by reducing our reliance on imported fuels and maximizing renewable energy
12 production in our region; and (5) stimulate investment and create local jobs by harnessing

Massachusetts’ skilled workforce, business leadership, and academic institutions to advance renewable energy technologies across the commonwealth.

Section 2. As used in this chapter the following words shall have the following meanings unless the context clearly requires otherwise:-

“Building sector,” the energy consumed to heat, cool, provide hot water for, and provide electricity for buildings in the commonwealth. The building sector shall not include energy used for heavy industrial activities.

“Commissioner,” the commissioner of the department of energy resources

“Department,” the department of energy resources

“Emission,” as defined in chapter 21N of the General Laws.

“Environmental justice communities,” neighborhoods identified as Environmental Justice Populations under the Environmental Justice Policy of the executive office of energy and environmental affairs.

“Greenhouse gas,” as defined in chapter 21N of the General Laws.

“Non-emitting,” produced from clean, renewable sources without emitting greenhouse gas emissions or other harmful pollutants at the time of energy generation. Examples of non-emitting renewable energy include solar, wind, tidal, and geothermal energy.

“Non-renewable energy,” energy produced from any source that fails to meet one or more of the criteria for renewable energy.

“Renewable energy,” energy produced from sources that meet all of the following criteria:

- (1) Virtually pollution-free, producing little to no global warming pollution or health-threatening pollution;

- (2) Inexhaustible, coming from natural sources that are regenerative or practically unlimited;

- (3) Safe, having minimal impacts on the environment, community safety and public health; and

- (4) Efficient, a wise use of resources.

Electricity generated by Class I or Class II renewable energy generating sources, as defined in section 11F of chapter 25A of the General Laws, shall be considered renewable energy for the purposes of this section. Electricity generated with any other technology shall not be considered renewable energy, unless the department of energy resources has added that technology to the list of Class I or Class II eligible technologies under subsection (f) of section 11F of chapter 25A of the General Laws.

Energy usage sectors that have historically relied on the on-site combustion of fossil fuels, including but not limited to heating and transportation, shall be considered to be powered with renewable energy to the extent that they: (1) are powered with electricity generated by Class I or Class II renewable energy generating sources, as defined in section 11F of chapter 25A of the General Laws; (2) are powered with other forms of renewable energy, such as solar thermal

or geothermal energy; or (3) make use of non-motorized or passive technologies to avoid the consumption of energy.

“Secretary,” the secretary of energy and environmental affairs

“Sector,” a major category of energy usage in the Commonwealth of Massachusetts.

Sectors shall include electricity generation, heating, transportation, and industry, and may include other major categories as identified by the department of energy resources.

“Subsector,” a subcategory within a sector of energy usage, characterized by a common energy generation technology, industry, application, end-use sector, or type of consumer.

“Transportation sector,” the technologies and uses of energy that are applied to move people, goods, and services within, into, and out of the Commonwealth of Massachusetts, including non-motorized forms of transportation such as walking and bicycling.

“Zero net energy building,” an energy-efficient building where, on a source energy basis, the actual annual delivered energy is less than or equal to the on-site renewable exported energy.

Section 3. (a) It shall be the goal of the commonwealth to meet 100 per cent of Massachusetts’ energy needs with renewable energy by 2045, including the energy consumed for electricity, heating and cooling, transportation, agricultural uses, industrial uses, and all other uses by all residents, institutions, businesses, state and municipal agencies, and other entities operating within its borders.

(b) It shall be the goal of the commonwealth to obtain 100 per cent of the electricity consumed by all residents, institutions, businesses, state and municipal agencies, and other entities operating within its borders from renewable energy sources by 2035.

(c) In meeting these goals, the commonwealth and its agencies shall prioritize (1) models for local and community ownership of renewable energy generation, (2) sources of renewable energy that are located in Massachusetts or elsewhere in New England, (3) sources of renewable energy that represent additional renewable generation capacity added to the grid, (4) non-emitting sources of renewable energy, (5) reducing energy consumption through efficiency measures to the greatest extent practicable. In all of its plans to achieve 100 percent renewable energy, the commonwealth and its agencies shall prioritize bringing direct health and financial benefits to environmental justice communities.

Section 4. (a) In order to integrate the goal of 100 per cent renewable energy throughout state government operations, the secretary shall establish an administrative council for the clean energy transition not later than 90 days from the passage of this act.

(b) The council shall be chaired by the secretary or the secretary's designee; and shall include a representative from the department of environmental protection, the department of energy resources, the department of public utilities, the Massachusetts Clean Energy Center, the office of the governor, and the executive offices of administration and finance, education, health and human services, housing and economic development, labor and workforce development, public safety and security, and transportation and public works. The council shall also include a representative designated by the attorney general, the treasurer and receiver general, the secretary of the commonwealth, the state auditor, and the President of the University of Massachusetts. The council shall also include a member designated by the secretary of education to represent the community college system and a member designated by the secretary of education to represent the the state university system. The governor may appoint additional representatives from state agencies or quasi-public agencies to the council.

(c) The council shall identify all existing laws, regulations, and programs of the Commonwealth with an impact on energy production and consumption, and evaluate them based on (1) their potential to accelerate or hinder the state's transition to 100 per cent renewable energy and (2) their ability to maximize the environmental and economic benefits of the transition for Massachusetts residents and businesses, particularly but not exclusively for environmental justice communities and communities that have been impacted by energy-related pollution.

(d) Each executive department and quasi-public agency shall conduct a review of the laws, regulations, and programs in its jurisdiction, and submit a report to the council describing how these laws, regulations, and programs can be modified in order to accelerate the transition to 100 per cent renewable energy. Each executive department and quasi-public agency shall further consider how modifying its programs to accelerate the transition to 100 per cent renewable energy can help achieve the department or agency's other objectives.

(e) The secretary shall publish the council's findings under subsections (c) and (d) of this section within 6 months of the formation of the council. The secretary and the council shall review and update these findings every 3 years from the date of initial publication.

(f) Within one year from the passage of this act, the council shall determine a date by which the operations of state government will be powered with 100 percent renewable energy, provided that the date is not later than January 1, 2035. Within eighteen months of the passage of this act, each executive department and quasi-public agency shall present a plan to achieve this goal for the facilities and activities in its jurisdiction. Each executive department and quasi-public agency shall report on its progress to the council and update its plan annually.

(g) The council shall meet at least once per quarter to review progress in modifying laws, regulations, and programs to accelerate the transition to 100 per cent renewable energy. These meetings shall be open to members of the public and shall provide opportunities for public comment. At least one of these meetings shall be held in an environmental justice community each year.

Section 5. (a) The commonwealth shall establish a clean energy center of excellence at a public institution of higher education to conduct and sponsor research on (1) renewable energy and energy efficiency technologies; (2) effective practices for renewable energy adoption by residents, institutions, businesses, state and municipal agencies, and other entities; (3) barriers preventing access to renewable energy, particularly but not exclusively for environmental justice communities; and (4) community outreach models and other tools to increase the adoption of renewable energy, particularly for environmental justice communities.

(b) The center shall be advised by a 15-member committee composed of experts knowledgeable in (1) renewable energy, energy efficiency, and energy storage technologies; (2) architecture, building engineering, and construction; (3) transportation; (4) affordable housing; (5) environmental justice; and (6) other relevant fields.

Section 6. (a) The commonwealth shall establish a council for clean energy workforce development. The council shall be co-chaired by the commissioner of the department of energy resources and the secretary of labor and workforce development. The council shall include at least one representative from each of the following: the Massachusetts AFL-CIO, the Massachusetts Building Trades Council, organizations serving environmental justice populations, renewable energy businesses, occupational training organizations, economic

development organizations, community development organizations, the Massachusetts Clean Energy Center, the executive office of education, the University of Massachusetts, the state universities, and the community colleges.

(b) The council shall identify those workers currently working in the energy sector, their current wage and benefits packages, and their current training requirements. The council shall further identify the employment potential of the energy efficiency and renewable energy industry and the skills and training needed for workers in those fields, and make recommendations to the governor and the general court for policies to promote employment growth and access to jobs in those fields. No recommendation of the council shall reduce the training required for clean energy jobs, and the council shall seek to ensure that clean energy employment will provide middle class wages, as provided in sections 26 through 27F of chapter 149 of the General Laws, along with high-quality health insurance and pensions. The council shall prioritize maximizing employment opportunities for residents of environmental justice communities, minorities, women and workers displaced in the transition to clean, renewable energy. Said employment opportunities shall comply with the provisions of chapter 151B and be in line with minority and women workforce participation goals established by the Equal Opportunity, Non-discrimination and Affirmative Action program of Massachusetts.

(c) No later than January 1, 2021, the council shall establish a target for the number of Massachusetts residents working in the clean energy industry by 2025. The council shall also establish a target for the number of those jobs held by residents of environmental justice communities, proportional to the percentage of Massachusetts residents who live in environmental justice communities, and the number of those jobs held by workers displaced in

the transition to clean, renewable energy. The council shall create similar targets for each subsequent five-year period.

(d) At least annually, the council shall submit a report to the general court and the governor recommending changes to existing state policies and programs to meet the targets set in subsection (c).

(e) The council shall meet at least once per quarter to review progress in expanding renewable energy employment. These meetings shall be open to members of the public and shall provide opportunities for public comment. At least one of these meetings shall be held in an environmental justice community each year.

Section 7. (a) In consultation with the administrative council for the clean energy transition and the clean energy center of excellence, the department shall conduct a study identifying pathways towards 100 percent renewable energy for the building sector, and the policies necessary for all new buildings to be zero net energy buildings by 2030 and for non-renewable energy consumption to be reduced for existing buildings by 50 percent by 2030.

(b) The study shall consider how to expand access to non-emitting renewable energy technologies for heating, cooling, and electricity, increase access to energy efficiency programs, and minimize costs, particularly but not exclusively for residents of environmental justice communities

(c) The department shall hold at least two public meetings to seek input on the design of the study. At least one of these meetings shall be held in an environmental justice community.

(d) The department shall present the results of this study to the administrative council for the clean energy transition not later than one year from the passage of this act. The department shall review and update this study every five years, considering technological developments, demographic changes, the effectiveness of existing programs and policies, and other factors.

Section 8. (a) The department shall determine the overall quantity of energy consumed statewide in the calendar year 2018 across all sectors and the percentage of energy consumed that came from renewable energy sources, using the best available data. This determination shall include an analysis of the percentage of renewable energy consumed in Massachusetts that was produced (1) in Massachusetts; (2) in Maine, New Hampshire, Connecticut, Rhode Island, and Vermont; and (3) in states not previously listed or in other countries or territories.

(b) The department shall also determine (1) the amount of energy consumed in any individual sector or subsector representing more than 1 percent of total statewide energy consumption, (2) the types and sources of energy consumed in that sector or subsector, and (3) the percentage of the overall energy consumed in that sector or subsector that came from renewable energy sources.

(c) The department shall publish a similar analysis of renewable and non-renewable energy consumption on at least a triennial basis and for the years 2030, 2040, and 2045. This analysis shall include the amount, percentage, types, and sources of renewable and non-renewable energy consumed across all sectors statewide and in the individual sectors and subsectors identified under subsection (b), as well as any additional sectors or subsectors that have since come to represent at least 1 percent of total statewide energy consumption.

(d) The department shall establish interim limits for the overall percentage of Massachusetts' energy to come from non-renewable sources: (1) in 2030, no more than 50 percent non-renewable energy; and (2) in 2040, no more than 20 percent non-renewable energy. The department shall also establish interim limits on non-renewable energy in the individual sectors and subsectors identified under subsections (b) and (c). These interim limits shall maximize the ability of the Commonwealth to achieve 100 percent renewable energy by 2045.

(e) The department shall establish interim non-renewable energy limits for 2030 and 2040 concurrently with the department of environmental protection's establishment of interim 2030 and 2040 limits on greenhouse gas emissions pursuant to subsection (b) of section 3 of chapter 21N of the General Laws. The department of environmental protection and the department of energy resources shall establish interim limits on non-renewable energy and greenhouse gas emissions for 2030 and 2040 no later than December 31, 2020.

(f) The interim limit on greenhouse gas emissions for 2030 shall reduce emissions by at least 50 per cent below the 1990 level, and the interim limit on greenhouse gas emissions for 2040 shall reduce emissions by at least 80 per cent below the 1990 level, as determined by the department of environmental protection under subsection (a) of section 3 of said chapter 21N.

(g) The interim limits on non-renewable energy consumption and greenhouse gas emissions for 2030 and 2040 shall be considered binding caps and shall be legally enforceable by any citizen of the Commonwealth.

Section 9. (a) The department and other state agencies overseeing sectors or subsectors of energy consumption shall promulgate regulations establishing declining annual limits on the percentage of non-renewable energy consumed by the sectors and subsectors identified in

subsections (b) and (c) of section 8 of this chapter. These regulations shall reduce the use of non-renewable energy at a rate sufficient to meet the interim 2030 and 2040 limits on non-renewable energy consumption, as well as the 2045 goal of 100 percent renewable energy. In adopting these regulations, the department and other state agencies shall consider how to minimize costs and maximize economic, social, public health, and environmental benefits for fossil fuel workers displaced in the transition to renewable energy and residents of environmental justice communities.

(b) The department and other state agencies shall develop these regulations concurrent with the department of environmental protection's development of regulations to reduce greenhouse gas emissions under subsection (d) of section 3 of chapter 21N of the General Laws.

(c) Concurrent with any regulations promulgated under subsection (a), the department and other relevant state agencies shall issue and adopt standards for the impermissible disproportionate distribution of environmental and economic burdens and benefits for any class of protection identified by the Environmental Justice Policy of the executive office of energy and environmental affairs. No regulation promulgated under subsection (a) may promote an impermissible disproportionate distribution of environmental or economic burdens or benefits, as prohibited under the standards set forth under this paragraph.

(d) The department of energy resources and the department of environmental protection, along with other agencies that oversee sectors or subsectors of energy consumption or greenhouse gas emissions, shall promulgate regulations under subsection (a) of section 9 of this chapter and subsection (d) of section 3 of chapter 21N of the General Laws not later than December 31, 2020, to meet the 2030 interim limits on greenhouse gas emissions and non-

renewable energy consumption; and not later than December 31, 2028, to meet the 2040 interim limits on greenhouse gas emissions and non-renewable energy consumption; and not later than December 31, 2038, to achieve 100 percent renewable energy by 2045.

(e) The department of energy resources, the department of environmental protection, and other state agencies may jointly promulgate regulations to satisfy limits on greenhouse gas emissions and non-renewable energy consumption.

(f) The regulations promulgated under subsection (a) of section 9 of this chapter and subsection (d) of section 3 of chapter 21N of the General Laws are intended to result in real, permanent reductions in greenhouse gas emissions and the use of non-renewable energy resulting from activities in the commonwealth. These regulations shall remain in effect indefinitely, until repealed or unless otherwise specified in the regulation.

Section 10. Municipal lighting plants shall be required to purchase 100 percent of their electricity from renewable energy sources by 2035, and in each subsequent year thereafter. Each municipal light plant shall file a plan with the department no later than December 31, 2021, indicating how it will achieve this target, including year-by-year benchmarks. For the purposes of this section, a municipal lighting plant may not count renewable electricity it has generated or purchased toward this requirement if the renewable attributes of that electricity have been claimed by another utility, individual, institution, business, state or municipal agency, or other entity.

Section 11. The department shall establish a renewable heating trust fund to subsidize the conversion of residential and commercial buildings from fossil fuel heating to non-emitting heating technologies powered by renewable energy. The department shall designate a dedicated

funding source for the trust fund, shall establish procedures to disburse funds to building owners and tenants, and shall develop a public education and outreach program to educate building owners and tenants about non-emitting heating technologies powered by renewable energy.

Section 12. (a) The department, together with the Massachusetts Clean Energy Center, the executive office for administration and finance, the division of capital asset management and maintenance, and other state agencies, shall identify opportunities to expand solar and other renewable energy generation capacity on state-owned facilities and land. The department and the division of capital asset management and maintenance, in consultation with other state agencies, shall install an additional 100 megawatts of solar and other renewable energy generation capacity on state properties by December 31, 2022. If there is insufficient state-owned land available to install 100 megawatts of renewable energy generation capacity without negatively affecting the commonwealth's natural and historic resources, the commonwealth shall purchase, lease, or otherwise obtain the right to install solar energy on enough privately-owned land and buildings to install 100 megawatts of renewable energy generation capacity. Renewable energy facilities installed under this section shall not cause undue harm to the commonwealth's natural and historic resources.

(b) The department and the division of capital asset management and maintenance, together with other state agencies, shall establish a goal for the amount of additional renewable energy generation capacity installed on state-owned facilities and lands in each subsequent five-year period beginning in 2022. The goal for each five-year period shall be not less than 25 megawatts of renewable energy generation capacity. The department and the division of capital asset management and maintenance, together with other state agencies, shall install enough renewable energy generation capacity to meet the goal for each five-year period.

(c) Renewable energy generation facilities installed under the provisions of this section shall be exempt from limits on the aggregate net metering capacity of net metering facilities of a municipality or other government entity, and from limits on the maximum amount of generating capacity eligible for net metering by a municipality or other governmental entity, under subsection (f) of section 139 of chapter 164 of the General Laws.

(d) On an annual basis, the division of capital asset management and maintenance shall track the upfront cost of renewable energy projects installed under the provisions of this section, and the revenue and energy cost savings accruing to the state and its agencies from those projects through net metering credits, electricity sales, the sale of renewable energy credits, other state, regional, or federal incentive programs, and other sources of revenue or energy cost savings.

(e) Annually, the division of capital asset management and maintenance shall determine which renewable energy projects have paid back their initial costs with revenue and energy cost savings. These projects shall be known as revenue positive projects. Once this determination has been made, any future revenue or energy cost savings from revenue positive projects, less the ongoing cost of maintaining these projects, shall be credited into a clean energy workforce development account at the Massachusetts Clean Energy Center. Such funds shall be held in an account separate from other accounts of the Massachusetts Clean Energy Center. In any year in which revenue from renewable energy projects on state properties is not sufficient to credit at least \$5 million into the clean energy workforce development account, the department shall direct funds from alternative compliance payments under subsection (h) of section 11F of the General Laws to bring the total contribution to \$5 million.

(f) The executive office of energy and environmental affairs and the executive office of labor and workforce development shall direct the use of funds from the clean energy workforce development account, in consultation with the council for clean energy workforce development. These funds shall be used to provide job training, education, and job placement assistance for Massachusetts residents to work in the clean energy and energy efficiency industry.

(g) At least half of the funds spent from the clean energy workforce development account on an annual basis shall be spent on programs and initiatives that primarily benefit fossil fuel workers displaced in the transition to renewable energy or residents of environmental justice communities.

(h) The department and the division of capital asset management and maintenance shall submit an annual report to the governor, the general court, and the council for clean energy workforce development, describing progress towards meeting goals for renewable energy installations on state properties, the costs and revenue associated with each project, and the amount of revenue generated for the clean energy workforce development account.

(i) The executive office of energy and environmental affairs and the executive office of labor and workforce development shall submit a report annually to the governor, the general court, and the council for clean energy workforce development, describing the expenditure of funds from the clean energy workforce development account.

SECTION 2. Chapter 6C of the General Laws, as appearing in the 2016 Official Edition, is hereby amended by inserting after section 76 the following section:-

Section 77. (a) The department of transportation shall conduct a study identifying pathways towards 100 percent renewable energy for the transportation sector and the policies necessary to power the transportation sector with at least 50 percent renewable energy by 2030.

(b) The study shall give preference to transportation options that (1) increase access to mass transportation and non-motorized transportation across all income levels; (2) minimize costs, particularly for environmental justice communities; and (3) maximize access to employment centers.

(c) Without limitations on the department of transportation's evaluation of effective statewide transportation options, the study shall consider the feasibility, cost effectiveness, and environmental and economic benefits of high-speed rail service between major urban centers in Massachusetts, including Boston, Worcester, and Springfield.

(d) The department shall hold at least two public meetings to seek input on the design of the study. At least one of these meetings shall be held in an environmental justice community.

(e) The department of transportation shall publish the findings from this study not later than 1 year from the passage of this act. The department shall review and update this study every 5 years, considering technological developments, demographic changes, the effectiveness of existing programs and policies, and other factors.

SECTION 3. Section 1 of chapter 32 of the General Laws, as appearing in the 2016 Official Edition, is hereby amended by inserting after the definition of "Buyback interest" the following definition:-

“Climate-related financial risk,” risk that may include material financial risk posed to the fund by the effects of the changing climate, such as intense storms, rising sea levels, higher global temperatures, economic damages from carbon emissions, and other financial and transition risks due to public policies to address climate change, shifting consumer attitudes, and changing economics of traditional carbon-intense industries.

SECTION 4. Chapter 32 of the General Laws, as appearing in the 2016 Official Edition, is hereby amended by inserting after section 105 the following section:-

Section 106. The PRIM board shall take climate-related financial risk, among other risks, into account when making investment decisions. The public shall be informed whether the PRIM board will continue to consider climate-related financial risk in investment decisions.

SECTION 5. Subsection (a) of section 11F of chapter 25A of the General Laws, as appearing in the 2016 Official Edition, is hereby amended by striking out the third sentence and inserting in place thereof the following words:- Every retail supplier shall provide a minimum percentage of kilowatt-hours sales to end-use customers in the commonwealth from Class I renewable energy generating sources, according to the following schedule: (1) an additional 1 per cent of sales by December 31, 2003, or 1 calendar year from the final day of the first month in which the average cost of any renewable technology is found to be within 10 per cent of the overall average spot-market price per kilowatt-hour for electricity in the commonwealth, whichever is sooner; (2) an additional one-half of 1 per cent of sales each year thereafter until December 31, 2009; (3) an additional 1 per cent of sales every year thereafter until December 31, 2018; (4) an additional 2 per cent of sales every year thereafter until December 31, 2019; (5) an additional 3 per cent of sales every year thereafter until December 31, 2020; (6) an additional 4

per cent of sales every year thereafter until December 31, 2022; (7) an additional 5 per cent of sales every year thereafter until December 31, 2025; and (8) an additional 6 per cent of sales every year thereafter.

SECTION 6. Section 11F of chapter 25A of the General Laws, as appearing in the 2016 Official Edition, is hereby amended by striking out subsection (b) and inserting in place thereof the following words:- (b) For the purposes of this subsection, a renewable energy generating source is one which generates electricity using any of the following: (1) solar photovoltaic or solar thermal electric energy; (2) wind energy; (3) ocean thermal, wave or tidal energy; (4) fuel cells utilizing renewable fuels; (5) landfill gas; (6) naturally flowing water and hydroelectric; (7) low emission advanced biomass power conversion technologies using fuels such as by-products or waste from agricultural crops, food or animals, energy crops, biogas, liquid biofuel including but not limited to biodiesel, organic refuse-derived fuel, or algae; or (8) geothermal energy. A renewable energy generating source may be located behind the customer meter within the ISO-NE, as defined in section 1 of chapter 164, control area if the output is verified by an independent verification system participating in the New England Power Pool Generation Information System, in this section called NEPOOL GIS, accounting system and approved by the department.

SECTION 7. Section 11F of chapter 25A of the General Laws, as appearing in the 2016 Official Edition, is hereby amended by striking out subsection (c) and inserting in place thereof the following words:- (c) New renewable energy generating sources meeting the requirements of this subsection shall be known as Class I renewable energy generating sources. For the purposes of this subsection, a Class I renewable energy generating source is one that began commercial operation after December 31, 1997, or represents the net increase from incremental new

generating capacity after December 31, 1997 at an existing facility, where the facility generates electricity using any of the following: (1) solar photovoltaic or solar thermal electric energy; (2) wind energy; (3) ocean thermal, wave or tidal energy; (4) fuel cells utilizing renewable fuels; (5) landfill gas; (6) energy generated by new hydroelectric facilities, or incremental new energy from increased capacity or efficiency improvements at existing hydroelectric facilities; provided, however, that (i) each such new facility or increased capacity or efficiency at each such existing facility must meet appropriate and site-specific standards that address adequate and healthy river flows, water quality standards, fish passage and protection measures and mitigation and enhancement opportunities in the impacted watershed as determined by the department in consultation with relevant state and federal agencies having oversight and jurisdiction over hydropower facilities; (ii) only energy from new facilities having a capacity up to 30 megawatts or attributable to improvements that incrementally increase capacity or efficiency by up to 30 megawatts at an existing hydroelectric facility shall qualify; and (iii) no such facility shall involve pumped storage of water or construction of any new dam or water diversion structure constructed later than January 1, 1998; (7) low emission advanced biomass power conversion technologies using fuels such as by-products or waste from agricultural crops, food or animals, energy crops, biogas, liquid biofuel including but not limited to biodiesel, organic refuse-derived fuel, or algae; (8) marine or hydrokinetic energy as defined in section 3; or (9) geothermal energy. A Class I renewable generating source may be located behind the customer meter within the ISO-NE control area if the output is verified by an independent verification system participating in the NEPOOL GIS accounting system and approved by the department.

SECTION 8. Section 11F of chapter 25A of the General Laws, as appearing in the 2016 Official Edition, is hereby amended by striking out subsection (d) and inserting in place thereof

the following words:- (d) Every retail electric supplier providing service under contracts executed or extended on or after January 1, 2009, shall provide a minimum percentage of kilowatt-hour sales to end-use customers in the commonwealth from Class II renewable energy generating sources. For the purposes of this section, a Class II renewable energy generating source is one that began commercial operation before December 31, 1997 and generates electricity using any of the following: (1) solar photovoltaic or solar thermal electric energy; (2) wind energy; (3) ocean thermal, wave or tidal energy; (4) fuel cells utilizing renewable fuels; (5) landfill gas; (6) energy generated by existing hydroelectric facilities, provided that such existing facility shall meet appropriate and site-specific standards that address adequate and healthy river flows, water quality standards, fish passage and protection measures and mitigation and enhancement opportunities in the impacted watershed as determined by the department in consultation with relevant state and federal agencies having oversight and jurisdiction over hydropower facilities; and provided further, that only energy from existing facilities up to 7.5 megawatts shall be considered renewable energy and no such facility shall involve pumped storage of water nor construction of any new dam or water diversion structure constructed later than January 1, 1998; (7) low emission advanced biomass power conversion technologies using fuels such as by-products or waste from agricultural crops, food or animals, energy crops, biogas, liquid biofuel including but not limited to biodiesel, organic refuse-derived fuel, or algae; (8) marine or hydrokinetic energy as defined in section 3; or (9) geothermal energy. A Class II renewable generating source may be located behind the customer meter within the ISO-NE control area provided that the output is verified by an independent verification system participating in the NEPOOL GIS accounting system and approved by the department.

443 SECTION 9. The provisions of this act shall become effective 90 days from the passage
444 of this act, except where otherwise specified.