

Bill as
Introduced

HB 183 - AS AMENDED BY THE HOUSE

14Mar2019... 0561h

2019 SESSION

19-0136

10/05

HOUSE BILL

183

AN ACT

establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.

SPONSORS:

Rep. P. Schmidt, Straf. 19; Rep. Moffett, Merr. 9

COMMITTEE:

Science, Technology and Energy

AMENDED ANALYSIS

This bill establishes a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electricity supply.

Explanation:

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

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Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.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

AN ACT establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.

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

1 1 Committee Established. There is established a committee to study the applications of
2 microgrids in New Hampshire and changes in law necessary to allow for microgrids in electricity
3 supply.

4 2 Membership and Compensation.

5 I. The members of the committee shall be as follows:

6 (a) Four members of the house of representatives, appointed by the speaker of the house
7 of representatives.

8 (b) One member of the senate, appointed by the president of the senate.

9 II. Members of the committee shall receive mileage at the legislative rate when attending to
10 the duties of the committee.

11 3 Duties. The committee shall study the applications of microgrids in New Hampshire and
12 changes in law necessary to allow for microgrids in electricity supply, with a view to both near-term
13 and long-term applications in the state. For this purpose, the committee shall consult with
14 representatives of utility companies, companies involved with microgrid development, and members
15 of the general public with specific knowledge regarding microgrids and their benefits, as well as
16 obstacles to their deployment.

17 4 Chairperson; Quorum. The members of the study committee shall elect a chairperson from
18 among the members. The first meeting of the committee shall be called by the first-named house
19 member. The first meeting of the committee shall be held within 45 days of the effective date of this
20 section. Three members of the committee shall constitute a quorum.

21 5 Report. The committee shall report its findings and any recommendations for proposed
22 legislation to the speaker of the house of representatives, the president of the senate, the house
23 clerk, the senate clerk, the governor, and the state library on or before November 1, 2019.

24 6 Effective Date. This act shall take effect upon its passage.

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23 clerk, the senate clerk, the governor, and the state library on or before November 1, 2019.

24 6 New Paragraph; Preservation and Use of Renewable Generation to Provide Fuel Diversity;
25 Definitions. Amend RSA 362-H:1 by inserting after paragraph VI the following new paragraph:

26 VII. "Real-time market price" means the average real-time locational marginal price at the
27 pricing node applicable to the eligible facility in the independent system operator of New England

1 (ISO-NE) real-time energy market for the applicable period used in the invoice submitted under RSA
2 362-H:3, IV.

3 7 New Sections; Baseload Renewable Generation Credits; Commission Authority. Amend RSA
4 362-H by inserting after section 2 the following new sections:

5 362-H:3 Baseload Renewable Generation Credits.

6 I. In addition to the requirements in RSA 362-F and notwithstanding any other law to the
7 contrary, to promote retention of baseload or non-intermittent renewable generation, all net energy
8 output generated by an eligible facility shall also produce baseload renewable generation credits for
9 the eligible facility at the rate of one credit per net megawatt-hour generated by the eligible facility,
10 provided that credits shall be produced only during the period commencing with the date the first
11 credit is produced for purchase as stated in the invoice submitted under paragraph IV and ending 3
12 years thereafter. No baseload generation credits will be produced by any megawatt-hours purchased
13 under RSA 362-H:2 or generated prior to the effective date of this section.

14 II. In this section, an "eligible facility" shall not include any facility combusting municipal
15 solid waste.

16 III. Each electric distribution company subject to the commission's approval regarding
17 procurement of default service shall directly purchase all baseload generation credits offered for sale
18 to it from eligible facilities located in its service territory based on the invoice submitted to it by the
19 eligible facility. Each credit shall be purchased at a rate, expressed in dollars, equal to the positive
20 difference between: (a) the adjusted energy rate applicable to the invoice period, and (b) the greater
21 of the average energy rate, expressed in dollars per megawatt-hour, received in the month or
22 applicable invoice period by the eligible facility for the sale of its energy, or the real-time market
23 price. If the adjusted energy rate is no longer calculable due to a change in law or default service
24 procurement, then the adjusted energy rate in (a) shall be the average of the last 2 adjusted energy
25 rates. The purchase of credits shall not convey title to, or be deemed to be a purchase of, any
26 electrical energy or capacity.

27 IV. The eligible facility shall invoice the purchasing electric distribution company monthly
28 for the purchase of the credits produced in the prior month or other applicable period. Each invoice
29 shall contain the net energy output generated (in megawatt-hours), the number of credits to be sold
30 under the invoice, the average energy rate received by the eligible facility for the sale of energy in
31 that month, or applicable invoice period, and the real-time market price. The invoice shall provide
32 reasonable supporting detail to verify the invoice information. The invoice information and
33 supporting detail shall be confidential information under all applicable laws. The electric
34 distribution company shall calculate the amount due under the invoice, provide the calculation
35 details to the eligible facility monthly, and pay the invoice within 15 days of receipt of the invoice.

36 V. Notwithstanding any law to the contrary, each electric distribution company shall
37 recover, and the commission shall order the recovery of, the cost of purchasing credits and any

1 reasonable costs incurred by the distribution company under this section through a nonbypassable
2 delivery services charge applicable to all customers in the distribution company's service territory.
3 The costs to be recovered under the charge shall be allocated among the electric distribution
4 company's customer classes using the allocation percentages and process applicable to the particular
5 distribution company as stated in RSA 362-H:2, V.

6 362-H:4 Commission Authority, Tolling, and Severability.

7 I. Any dispute arising under this chapter may be referred to the commission by the
8 applicable electric distribution company or eligible facility for adjudication, and the commission is
9 authorized to resolve any such dispute. Notwithstanding any law to the contrary, the commission
10 shall order rate recovery under RSA 362-H:2, V.

11 II. If for any reason, the rights and obligations under any section of this chapter do not
12 commence on the applicable effective date or are otherwise interrupted at any time, then any
13 affected time period stated in the chapter shall be deemed tolled and automatically extended for the
14 tolled period.

15 III. If any provision of this chapter shall be determined to be invalid or unenforceable by a
16 court of competent jurisdiction, such determination shall not affect the validity or enforceability of
17 any other provision, including, without limitation, the allocation percentages and processes stated in
18 RSA 362-H:2, V and any definitions applicable to the remaining provisions.

19 8 Effective Date. This act shall take effect upon its passage.

HB 183- FISCAL NOTE
 AS AMENDED BY THE SENATE (AMENDMENT #2019-1981s)

AN ACT establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply, and relative to baseload renewable generation credits for biomass energy facilities.

FISCAL IMPACT: State County Local None

STATE:	Estimated Increase / (Decrease)			
	FY 2020	FY 2021	FY 2022	FY 2023
Appropriation	\$0	\$0	\$0	\$0
Revenue	\$0	\$0	\$0	\$0
Expenditures	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase
<i>Funding Source:</i>	<input checked="" type="checkbox"/> General Various Governmental Funds	<input type="checkbox"/> Education	<input checked="" type="checkbox"/> Highway	<input checked="" type="checkbox"/> Other

COUNTY:

Revenue	\$0	\$0	\$0	\$0
Expenditures	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase

LOCAL:

Revenue	Indeterminable	Indeterminable	Indeterminable	Indeterminable
Expenditures	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase

METHODOLOGY:

This bill establishes a new section to RSA 362-H, 362-H:3 creating a Baseload Renewable Generation Credit. One credit is created by the production of one net megawatt-hour from an eligible facility produced in accordance with RSA 362-H:3. The credits would remain in effect for three years from the effective date of the bill. Each electric distribution company that procures default service subject to the review and approval of the Public Utilities Commission (PUC) must purchase all the baseload generation credits offered and produced by the eligible facilities located in its service territory. Since the definition of "eligible facility" in the bill does not include any facility combusting municipal solid waste, Eversource would be the only electric distribution company affected. The Public Utilities Commission provided the following information concerning the fiscal impact of the bill.

The PUC assumes this bill would allow all six wood burning facilities under 25 MW that began operations before January 1, 2006 to create Baseload Renewable Generation Credits. The six biomass facilities will operate during the 3-year period at a 90% capacity factor based upon 101.2 MW of total capacity using the summer seasonal claimed capability of the plants. Based on futures prices, the NH Locational Marginal Price averages \$50 per MWh over the 36-month period, the default service rate averages \$95 per MWh and avoided Renewable Portfolio Standards (RPS) compliance is \$4 per MWh.

- The adjusted rate paid to the eligible biomass facilities would be the difference between 80% of the default service rate minus the avoided RPS compliance, and the NH Locational Marginal Price. $[(\$95 - \$4) \times 80\%] - \$50 = \$22.80/\text{MWh}$
- The above market energy cost is estimated to be \$18.19 million as follows:
 $(101.2 \text{ MW total capacity} \times 8,760 \text{ hours per year} \times 90\% \text{ factor} \times \$22.80/\text{MWh} = \$18.19\text{M})$

The above market cost will be recovered through a non-bypassable charge in accordance with the 2015 PSNH Restructuring and Rate Stabilization Agreement (Rate Agreement). The Rate Agreement specifies that stranded costs will be recovered from customer classes in the following proportions: Residential 48.75%; General Service 25%; Primary General Service 20%; Large General Service 5.75%; and Outdoor Lighting 0.50%. The General Service class, which comprises the class most of New Hampshire government is billed, would be allocated approximately \$4.55 million or \$0.00263 per kWh based on 2018 class sales of 1,730,019,178 kWh. New Hampshire state government consumes approximately 107 million kWh per year, but only a portion of that consumption will be affected by the increase, because Eversource is the only electric utility that will be affected by the bill. A significant portion of state government is not located in Eversource's service territory and will not be subject to the increased costs. Based on the 2018 data and the projected over-market payments, the bill will increase state government electricity costs by approximately \$206,500 per year (78.5 million kWh consumed by state government located in Eversource service territory \times \$0.00263 per kWh). County and local government facilities located in the service territory of PSNH can expect to pay an additional \$0.00263 per kWh over the 36-month period the baseload renewable generation credits are in effect. Actual consumption amounts for county and municipal government located in PSNH's service territory are unknown.

The wood-burning power plants have a capacity value to the region and to New Hampshire. The actual capacity value of their collective 101.2MW, depends on the amount of capacity the wood-burning power plants bid into the Forward Capacity Auction, the level and type of resources participating in the auction and the bids of those resources at the margin during each

of the four rounds of the ISO-NE annual descending clock auction. All else equal, loss of 100 MW will result in a slightly higher clearing price for capacity in the region for that auction and higher capacity costs allocated to New Hampshire starting three years later when the capacity values take effect. The effect of this bill on Forward Capacity Market values for region and New Hampshire, therefore, is zero since the eligible facilities have already committed their capacity for the three-year period of this bill. Assuming the plants would shut down permanently in the absence of this bill, New Hampshire would lose some indeterminate amount of tax revenues associated with the facilities. Consequently, this amendment may have positive revenue effects for state and local governments.

AGENCIES CONTACTED:

Public Utilities Commission

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19 8 Effective Date. This act shall take effect upon its passage.

20
21 VETOED August 2, 2019

22 Veto Sustained September 18, 2019

23

HB 183- FISCAL NOTE
AS AMENDED BY THE SENATE (AMENDMENT #2019-1981s)

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Funding Source:	<input checked="" type="checkbox"/> General Various Governmental Funds	<input type="checkbox"/> Education	<input checked="" type="checkbox"/> Highway	<input checked="" type="checkbox"/> Other -

COUNTY:

Revenue	\$0	\$0	\$0	\$0
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LOCAL:

Revenue	Indeterminable	Indeterminable	Indeterminable	Indeterminable
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METHODOLOGY:

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- The adjusted rate paid to the eligible biomass facilities would be the difference between 80% of the default service rate minus the avoided RPS compliance, and the NH Locational Marginal Price. $[(\$95-\$4) \times 80\%] - \$50 = \$22.80/\text{MWh}$
- The above market energy cost is estimated to be \$18.19 million as follows:
(101.2 MW total capacity x 8,760 hours per year x 90% factor x \$22.80/MWh = \$18.19M)

The above market cost will be recovered through a non-bypassable charge in accordance with the 2015 PSNH Restructuring and Rate Stabilization Agreement (Rate Agreement). The Rate Agreement specifies that stranded costs will be recovered from customer classes in the following proportions: Residential 48.75%; General Service 25%; Primary General Service 20%; Large General Service 5.75%; and Outdoor Lighting 0.50%. The General Service class, which comprises the class most of New Hampshire government is billed, would be allocated approximately \$4.55 million or \$0.00263 per kWh based on 2018 class sales of 1,730,019,178 kWh. New Hampshire state government consumes approximately 107 million kWh per year, but only a portion of that consumption will be affected by the increase, because Eversource is the only electric utility that will be affected by the bill. A significant portion of state government is not located in Eversource's service territory and will not be subject to the increased costs. Based on the 2018 data and the projected over-market payments, the bill will increase state government electricity costs by approximately \$206,500 per year (78.5 million kWh consumed by state government located in Eversource service territory x \$0.00263 per kWh). County and local government facilities located in the service territory of PSNH can expect to pay an additional \$0.00263 per kWh over the 36-month period the baseload renewable generation credits are in effect. Actual consumption amounts for county and municipal government located in PSNH's service territory are unknown.

The wood-burning power plants have a capacity value to the region and to New Hampshire. The actual capacity value of their collective 101.2MW, depends on the amount of capacity the wood-burning power plants bid into the Forward Capacity Auction, the level and type of resources participating in the auction and the bids of those resources at the margin during each

of the four rounds of the ISO-NE annual descending clock auction. All else equal, loss of 100 MW will result in a slightly higher clearing price for capacity in the region for that auction and higher capacity costs allocated to New Hampshire starting three years later when the capacity values take effect. The effect of this bill on Forward Capacity Market values for region and New Hampshire, therefore, is zero since the eligible facilities have already committed their capacity for the three-year period of this bill. Assuming the plants would shut down permanently in the absence of this bill, New Hampshire would lose some indeterminate amount of tax revenues associated with the facilities. Consequently, this amendment may have positive revenue effects for state and local governments.

AGENCIES CONTACTED:

Public Utilities Commission

Amendments

Sen. Bradley, Dist 3
Sen. Feltes, Dist 15
Sen. Giuda, Dist 2
Sen. Watters, Dist 4
Sen. Fuller Clark, Dist 21
April 30, 2019
2019-1737s
10/05

Amendment to HB 183

1 Amend the title of the bill by replacing it with the following:

2

3 AN ACT establishing a committee to study the applications of microgrids in New Hampshire
4 and changes in law necessary to allow for microgrids in electrical supply, and
5 relative to baseload renewable generation credits for biomass energy facilities.
6

7 Amend the bill by replacing all after section 5 with the following:

8

9 6 New Paragraph; Preservation and Use of Renewable Generation to Provide Fuel Diversity;
10 Definitions. Amend RSA 362-H:1 by inserting after paragraph VI the following new paragraph:

11 VII. "Real-time market price" means the average real-time locational marginal price at the
12 pricing node applicable to the eligible facility in the independent system operator of New England
13 (ISO-NE) real-time energy market for the applicable period used in the invoice submitted under
14 RSA 362-H:3, III.

15 7 New Sections; Baseload Renewable Generation Credits; Commission Authority. Amend RSA
16 362-H by inserting after section 2 the following new sections:

17 362-H:3 Baseload Renewable Generation Credits.

18 I. In addition to the requirements in RSA 362-F and notwithstanding any other law to the
19 contrary, to promote retention of baseload or non-intermittent renewable generation, all net energy
20 output generated by an eligible facility shall also produce baseload renewable generation credits for
21 the eligible facility at the rate of one credit per net megawatt-hour generated by the eligible facility,
22 provided that credits shall be produced only during the period commencing with the date the first
23 credit is produced for purchase as stated in the invoice submitted under paragraph III and ending 3
24 years thereafter. No baseload generation credits will be produced by any megawatt-hours
25 purchased under RSA 362-H:2 or generated prior to the effective date of this section.

26 II. Each electric distribution company subject to the commission's approval regarding
27 procurement of default service shall directly purchase all baseload generation credits offered for
28 sale to it from eligible facilities located in its service territory based on the invoice submitted to it by
29 the eligible facility. Each credit shall be purchased at a rate, expressed in dollars, equal to the
30 positive difference between: (a) the adjusted energy rate applicable to the invoice period, and (b) the

Amendment to HB 183

- Page 2 -

1 greater of the average energy rate, expressed in dollars per megawatt-hour, received in the month
2 or applicable invoice period by the eligible facility for the sale of its energy, or the real-time market
3 price. If the adjusted energy rate is no longer calculable due to a change in law or default service
4 procurement, then the adjusted energy rate in (a) shall be the average of the last 2 adjusted energy
5 rates. The purchase of credits shall not convey title to, or be deemed to be a purchase of, any
6 electrical energy or capacity.

7 III. The eligible facility shall invoice the purchasing electric distribution company monthly
8 for the purchase of the credits produced in the prior month or other applicable period. Each invoice
9 shall contain the net energy output generated (in megawatt-hours), the number of credits to be sold
10 under the invoice, the average energy rate received by the eligible facility for the sale of energy in
11 that month, or applicable invoice period, and the real-time market price. The invoice shall provide
12 reasonable supporting detail to verify the invoice information. The invoice information and
13 supporting detail shall be confidential information under all applicable laws. The electric
14 distribution company shall calculate the amount due under the invoice, provide the calculation
15 details to the eligible facility monthly, and pay the invoice within 15 days of receipt of the invoice.

16 IV. Notwithstanding any law to the contrary, each electric distribution company shall
17 recover, and the commission shall order the recovery of, the cost of purchasing credits and any
18 reasonable costs incurred by the distribution company under this section through a nonbypassable
19 delivery services charge applicable to all customers in the distribution company's service territory.
20 The costs to be recovered under the charge shall be allocated among the electric distribution
21 company's customer classes using the allocation percentages and process applicable to the
22 particular distribution company as stated in RSA 362-H:2, V.

23 362-H:4 Commission Authority, Tolling, and Severability.

24 I. Any dispute arising under this chapter may be referred to the commission by the
25 applicable electric distribution company or eligible facility for adjudication, and the commission is
26 authorized to resolve any such dispute. Notwithstanding any law to the contrary, the commission
27 shall order rate recovery under RSA 362-H:2, V.

28 II. If for any reason, the rights and obligations under any section of this chapter do not
29 commence on the applicable effective date or are otherwise interrupted at any time, then any
30 affected time period stated in the chapter shall be deemed tolled and automatically extended for the
31 tolled period.

32 III. If any provision of this chapter shall be determined to be invalid or unenforceable by a
33 court of competent jurisdiction, such determination shall not affect the validity or enforceability of
34 any other provision, including, without limitation, the allocation percentages and processes stated
35 in RSA 362-H:2, V and any definitions applicable to the remaining provisions.

36 8 Effective Date. This act shall take effect upon its passage.

2019-1737s

AMENDED ANALYSIS

This bill establishes a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electricity supply. The bill also requires electric distribution companies to purchase baseload renewable generation credits from eligible biomass facilities.

UNAPPROVED

Sen. Feltes, Dist 15
Sen. Fuller Clark, Dist 21
Rep. Oxenham, Sull. 1
May 13, 2019
2019-1920s
10/05

Amendment to HB 183

1 Amend the title of the bill by replacing it with the following:

2

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4 and changes in law necessary to allow for microgrids in electrical supply, and
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9 6 New Paragraph; Preservation and Use of Renewable Generation to Provide Fuel Diversity;
10 Definitions. Amend RSA 362-H:1 by inserting after paragraph VI the following new paragraph:

11 VII. "Real-time market price" means the average real-time locational marginal price at the
12 pricing node applicable to the eligible facility in the independent system operator of New England
13 (ISO-NE) real-time energy market for the applicable period used in the invoice submitted under
14 RSA 362-H:3, IV.

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18 I. In addition to the requirements in RSA 362-F and notwithstanding any other law to the
19 contrary, to promote retention of baseload or non-intermittent renewable generation, all net energy
20 output generated by an eligible facility shall also produce baseload renewable generation credits for
21 the eligible facility at the rate of one credit per net megawatt-hour generated by the eligible facility,
22 provided that credits shall be produced only during the period commencing with the date the first
23 credit is produced for purchase as stated in the invoice submitted under paragraph IV and ending 3
24 years thereafter. No baseload generation credits will be produced by any megawatt-hours
25 purchased under RSA 362-H:2 or generated prior to the effective date of this section.

26 II. In this section, an "eligible facility" shall not include any facility combusting municipal
27 solid waste.

28 III. Each electric distribution company subject to the commission's approval regarding
29 procurement of default service shall directly purchase all baseload generation credits offered for
30 sale to it from eligible facilities located in its service territory based on the invoice submitted to it by
31 the eligible facility. Each credit shall be purchased at a rate, expressed in dollars, equal to the
32 positive difference between: (a) the adjusted energy rate applicable to the invoice period, and (b) the

Amendment to HB 183

- Page 2 -

1 greater of the average energy rate, expressed in dollars per megawatt-hour, received in the month
2 or applicable invoice period by the eligible facility for the sale of its energy, or the real-time market
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19 delivery services charge applicable to all customers in the distribution company's service territory.
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25 applicable electric distribution company or eligible facility for adjudication, and the commission is
26 authorized to resolve any such dispute. Notwithstanding any law to the contrary, the commission
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30 affected time period stated in the chapter shall be deemed tolled and automatically extended for the
31 tolled period.

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33 court of competent jurisdiction, such determination shall not affect the validity or enforceability of
34 any other provision, including, without limitation, the allocation percentages and processes stated
35 in RSA 362-H:2, V and any definitions applicable to the remaining provisions.

36 8 Effective Date. This act shall take effect upon its passage.

2019-1920s

AMENDED ANALYSIS

This bill establishes a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electricity supply. The bill also requires electric distribution companies to purchase baseload renewable generation credits from eligible biomass facilities.

UNAPPROVED

Amendment to HB 183

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32 positive difference between: (a) the adjusted energy rate applicable to the invoice period, and (b) the
33 greater of the average energy rate, expressed in dollars per megawatt-hour, received in the month

Amendment to HB 183

- Page 2 -

1 or applicable invoice period by the eligible facility for the sale of its energy, or the real-time market
2 price. If the adjusted energy rate is no longer calculable due to a change in law or default service
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35 8 Effective Date. This act shall take effect upon its passage.

Amendment to HB 183

- Page 3 -

2019-1981s

AMENDED ANALYSIS

This bill establishes a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electricity supply. The bill also requires electric distribution companies to purchase baseload renewable generation credits from eligible biomass facilities.

Committee Minutes

SENATE CALENDAR NOTICE

Energy and Natural Resources

Sen Martha Fuller Clark, Chair
Sen Dan Feltes, Vice Chair
Sen David Watters, Member
Sen Jeb Bradley, Member
Sen Bob Giuda, Member

Date: March 28, 2019

HEARINGS

Tuesday		04/02/2019
(Day)		(Date)
Energy and Natural Resources		SH 103
		9:00 a.m.
(Name of Committee)		(Place)
9:00 a.m.	HB 365	relative to net energy metering limits for customer generators.
10:00 a.m.	HB 166	relative to funding energy efficiency programs.
10:20 a.m.	HB 156	establishing a commission to study the establishment of a state department of energy.
10:40 a.m.	HB 183	establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.
11:00 a.m.	HB 496	establishing a committee to identify the requirements needed to commit New Hampshire to a goal of at least 50 percent renewable energy for electricity by 2040.

EXECUTIVE SESSION MAY FOLLOW

Sponsors:

HB 365

Rep. Moffett
Rep. Danielson
Rep. Hennessey

Rep. Backus
Rep. Wolf
Sen. Bradley

Rep. Suzanne Smith
Rep. McWilliams

Rep. P. Schmidt
Rep. O'Connor

HB 166

Rep. Mann

HB 156

Rep. Backus

Rep. Mann

Rep. Oxenham

Rep. McConnell

HB 183

Rep. P. Schmidt

Rep. Moffett

HB 496

Rep. Cali-Pitts

Rep. Somssich

Griffin Roberge 271-7875

Martha Fuller Clark
Chairman

Senate Energy and Natural Resources Committee
Griffin Roberge 271-7875

HB 183, establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.

Hearing Date: April 2, 2019.

Time Opened: 10:40 a.m.

Time Closed: 10:49 a.m.

Members of the Committee Present: Senators Feltes, Watters and Giuda.

Members of the Committee Absent: Senators Fuller Clark and Bradley.

Bill Analysis: This bill establishes a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electricity supply.

Sponsors:

Rep. P. Schmidt

Rep. Moffett

Who supports the bill: Representative Peter Schmidt (Strafford - District 19), Representative Howard Moffett (Merrimack - District 9), Representative Robert Backus (Hillsborough - District 19), Deborah Jakobowski, Paul Nickerson (NH Audubon), Melissa Birchard (Conservation Law Foundation), Mindi Messmer, Patricia Martin, Representative Rebecca McWilliams (Merrimack - District 27), Dorothy Currier, Richard Spence, Cheri Falk, Liz-Anne Platt, Sarah Thorne, Bill Baber (Dover, NH), Julie Thompson, Jeanne Torpey, Maura Willing, Dennis Jakobowski, Louise Spencer, Bob Hayden (Standard Power).

Who opposes the bill: None.

Who is neutral on the bill: None.

Summary of testimony presented in support:

Representative Peter Schmidt
Strafford - District 19

- A smooth and continuous supply of electricity is crucial to society due to an increased need of technological devices.
- However, the electrical grid is fragile due to weather and other factors. People in cities can count on continuous supply and rapid repair. People outside of cities, who have an equal demand, cannot rely on such rapid repair in the event of a electrical disruption, leading to long wait times for electrical restoration. Microgrids are a way to address such a scenario.
- Microgrids are a localized group of electricity sources that operate connected to the region's electrical grid, but can also disconnect from the grid to function autonomously as conditions dictate. Representative Schmidt visited a house in Maine that is connected to the grid, but exists on its own solar production, allowing for it to produce its own electricity in the event of a grid-wide disruption.
- HB 183 would allow for a thorough study of microgrids and possible changes in law to allow for microgrids in electrical supply.

Representative Howard Moffett

Merrimack – District 9

- HB 238 (2019) was merged with HB 183 by the House Science, Technology, and Energy Committee to create a study committee to review the changes in law necessary to allow for microgrids in the electrical supply.
- It should not be controversial to look into ways to make the electrical grid more flexible and adaptable.
- The study committee would be made up of four representatives and one senator with a report of its findings completed on or before November 1st, 2019.
- By becoming a microgrid, certain entities in NH would be allowed to run essential communities or buildings even when the grid is down. Energy produced behind the meter is helpful when the grid is down because of how hard it is to restart the grid from a black start, or restoring an electric power source or part of an electric grid to operation without relying on the external electric power transmission network.
- The Public Utilities Commission (PUC) has not explored whether or not there are legal obstacles to the development of microgrids in NH.
- Senator Watters asked if Representative Moffett was aware the Canterbury Shaker Village had the first microgrid in NH.
 - Representative Moffett said he was aware, as he was a former Board Chair of the Canterbury Shaker Village.

Summary of testimony presented in opposition: None.

Neutral Information Presented: None.

GJR, edited by Cameron Lapine.

Date Hearing Report completed: April 2, 2019.

SENATE CALENDAR NOTICE
Energy and Natural Resources

Sen Martha Fuller Clark, Chair
Sen Dan Feltes, Vice Chair
Sen David Watters, Member
Sen Jeb Bradley, Member
Sen Bob Giuda, Member

Date: May 2, 2019

HEARINGS

Tuesday	05/07/2019
(Day)	(Date)
Energy and Natural Resources	SH 103
(Name of Committee)	(Place)
	9:00 a.m.
	(Time)

9:00 a.m.

Hearing on proposed Amendment #2019-1737, relative to baseload renewable generation credits for biomass energy facilities, to **HB 183**, establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.

EXECUTIVE SESSION ON PENDING LEGISLATION

Sponsors:

HB 183

Rep. P. Schmidt

Rep. Moffett

Griffin Roberge 271-7875

Martha Fuller Clark
Chairman

Senate Energy and Natural Resources Committee

Griffin Roberge 271-7875

Amendment 2019-1737s, relative to baseload renewable generation credits for biomass energy facilities, to **HB 183**, establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.

Hearing Date: May 7, 2019.

Time Opened: 9:00 a.m.

Time Closed: 12:05 p.m.

Members of the Committee Present: Senators Fuller Clark, Feltes, Watters, Bradley and Giuda.

Members of the Committee Absent: None.

Bill Analysis: This bill establishes a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electricity supply.

Sponsors:

Rep. P. Schmidt

Rep. Moffett

Who supports the bill: Contact Griffin Roberge for the sign-in sheet.

Who opposes the bill: Contact Griffin Roberge for the sign-in sheet.

Who is neutral on the bill: Contact Griffin Roberge for the sign-in sheet.

Summary of testimony presented in support:

Senator Jeb Bradley

NH Senate District 3

- SB 365 (2018) requires electric distribution companies subject to the Public Utilities Commission's (PUC) approval regarding procurement of default service to offer to purchase the net energy output of eligible biomass and waste-to-energy facilities located in its service territory.
 - The NH General Court passed SB 365 on a bipartisan basis. SB 365 was ultimately vetoed by Governor Sununu, but the veto was overridden, making SB 365 law.
 - After passage of SB 365, the New England Ratepayers Association (NERA) filed litigation at the Federal Energy Regulatory Commission (FERC). The litigation continues and remains unresolved. There is also litigation at the PUC before the NH Supreme Court. There has been debate over the possibility for distribution utilities to adequately recover their costs.
- The implementation of SB 365 cannot take effect due to this litigation. Because SB 365 has not been implemented, NH's six independent biomass plants are in shutdown.
 - The shutdown, and possible closure of these plants, will impact roughly 1,000 direct jobs, a \$250 million-dollar forest products industry, and many secondary jobs.
 - The loss of markets for low-grade wood will impact wood lot landowners, harming their ability to effectively manage their property to engage in sustainable forestry and prevent forest fires. The loss of these markets will also impact a wood lot landowner's ability to keep their lands open for recreational activities for snowmobiles and OHRVs. The closure of biomass plants will encourage landowners to sell or develop their open land, impacting NH's recreational trails and an industry

that amounts to \$600 million dollars.

- The closure of biomass facilities will impact wood-ash producers, who supply fertilizer for farms.
- The closure of biomass plants and the Wheelabrator waste-to-energy facility will mean less energy diversity, a greater reliance on natural gas, a greater potential for brownouts and blackouts as warned by ISO-NE, and less NH generation assets.
- While there are costs to keep the facilities open, there is also a future avoided cost that balances out of the costs of amendment 2019-1737s.
- Introduced amendment 2019-1737s, relative to baseload renewable generation credits for biomass energy facilities.
 - SB 365 created a new chapter, RSA 362-H, to preserve and use renewable generation to provide fuel diversity. RSA 362-H:2 required distribution utilities with biomass facilities and waste-to-energy facilities in their service territory to purchase the net energy output of those facilities.
 - Amendment 2019-1737s creates two new sections, RSA 362-H:3 and RSA 362-H:4.
 - These new sections create a new option to preserve NH's biomass industry by requiring distribution utilities with biomass facilities and waste-to-energy facilities in their service territory to purchase baseload renewable generation credits. Each credit will be equal to one net megawatt-hour generated by the eligible facility. Those credits will be purchased at the adjusted energy rate, which is 80% of the default service rate, versus the differential in the spot market price of power.
 - Under amendment 2019-1737s, the distribution utility purchases the credit, whereas SB 365 (2018) requires the distribution utility to purchase facility's power directly. The power from the biomass plants is sold at the real-time market price as defined in amendment 2019-1737s on page 1, lines 11-14.
 - An eligible facility cannot take part simultaneously in both options outlined in RSA 362-H:2 and RSA 362-H:3 as indicated on page 1, lines 24-25 of amendment 2019-1737s.
 - Both options outlined in RSA 362-H:2 and RSA 362-H:3 last for a period of three years once an eligible facility participates.
 - Page 2, lines 7-15 outline the process by which eligible facilities receive payment for the baseload renewable generation credits they sell.
 - Page 2, lines 16-22 outline the process by which a distribution utility recovers the cost of purchasing baseload renewable generation credits. Both SB 365 and amendment 2019-1737s allow for utilities to recover their costs. The recovery of costs would follow the rate design as outlined in the divestiture agreement to protect large energy users like manufacturers.
 - Page 2, lines 22-35 give the PUC clear instruction to provide recovery of costs and the ability to resolve disputes. If any litigation arises, the three-year period under RSA 362-H:2 and RSA 362-H:3 is paused.
- Other states have enacted policies that require the purchase of similar credits. Those policies have been adjudicated before federal appeals courts and were deemed legal and constitutional.
- There will be a great deal of concern about the cost of amendment 2019-1737s.
 - SB 365's fiscal note indicated a cost of \$20-21 million dollars to ratepayers. There was testimony heard during SB 365's public hearing that there is a future cost that balances those costs to ratepayers by \$17 million dollars for capacity. Regardless if capacity costs go up or down, capacity costs would be lower if the biomass industry survived.
 - Some may argue that SB 365 and amendment 2019-1737s are subsidies. The energy market is one of the most highly subsidized and regulated sectors in the US – there is the oil depletion allowance, favorable leasing, and education and insurance protections for nuclear power. There are many costs that go into NH's electric rates – the system benefits charge, the costs of compliance with the Renewable Portfolio Standard (RPS), and NH's electric consumption tax until it was repealed. Ratepayers also pay for a rate of return for transmission utilities and their projects. Ratepayers also pay for a rate of return for distribution utilities. Eversource Energy has recently filed a request for a rate case to seek recovery of \$70 million dollars. Ratepayers also pay for oversight by the PUC and the Office of the Consumer Advocate (OCA). Each of these costs could also be viewed as a subsidy. Opponents of SB 365 and amendment 2019-1737s should look at value. The NH General Court believed eligible facilities have real value to NH when it passed SB 365.
- Senator Fuller Clark asked if Senator Bradley could speak about the costs of amendment 2019-1737s.
 - Senator Bradley said SB 365's fiscal note indicated a cost of compliance of \$18 million for Eversource Energy and \$2.5 million for Unitil. These costs are balanced against future capacity costs. There are auctions for capacity. When there are more baseload generation assets, there are

lower capacity costs. Removing baseload generation assets increases capacity costs. Though the capacity market has been stable in New England, losing roughly 100 MWs of power will lead NH's ratepayers to pay higher capacity costs in the future.

- Senator Fuller Clark asked about the current status of NH's six independent biomass plants.
 - Senator Bradley said the six biomass plants were in economic shutdown. The biomass plants could potentially be reactivated during times of peak demand. However, absent more direct action, the biomass plants will go into direct shutdown. Jobs will be lost. There will be no outlet for low-grade wood. Property owners who derive income from their ability to sell low-grade wood and harvest high-grade wood will sell their land.
- Senator Fuller Clark asked if any biomass plants have shut down since SB 365 entered litigation and if amendment 2019-1737s would allow those plants to reopen.
 - Senator Bradley said SB 365 aimed to preserve NH's biomass plants, but SB 365's implantation was delayed due to litigation. Amendment 2019-1737s would allow the biomass plants to successfully operate.

Senator Dan Feltes

NH Senate District 15

- Litigation at FERC has delayed the implementation of SB 365. Opponents of SB 365 have claimed that SB 365 interfered with FERC's jurisdiction in the wholesale market. Such action is federally preempted and cannot take place by states. There is also an argument that SB 365 violates the commerce clause, which gives the federal government the ability to regulate interstate commerce. Any action by a state to regulate interstate purchase of electricity is unconstitutional.
- Amendment 2019-1737s addresses these complaints – it does not deal with the purchase of power, but the purchase of baseload renewable generation credits within state authority. Other states like Illinois and New York have established zero emissions credits (ZECs). Those policies were challenged on federal preemption and the dormant commerce clause in the 2nd Circuit Court and the 7th Circuit Court. Those appeals courts ruled Illinois and New York could adopt ZEC policies. Amendment 2019-1737s is drafted in a similar way. The US Supreme Court also turned down a writ of certiorari, or a process whereby a superior court directs a lower court to send the record of a proceeding for a review, for those cases, effectively letting the appeals court decisions stand. Therefore, NH is on solid legal footing to move forward with amendment 2019-1737s.
- Senator Watters asked if amendment 2019-1737s was an important commitment to renewable energy in NH.
 - Senator Feltes said amendment 2019-1737s offered support for baseload renewable energy facilities in NH.
- Senator Watters asked if amendment 2019-1737s supported local jobs.
 - Senator Bradley said many people attended the public hearing on amendment 2019-1737s to show their support because their jobs and livelihood were at risk. The threat is real and imminent on many fronts – jobs, energy diversity, sustainable forestry, etc.
- Senator Fuller Clark wanted to clarify that baseload generation is electric generation that is available 24/7. She asked if that was an important consideration for electric reliability.
 - Senator Feltes said Senator Fuller Clark was correct. ISO-NE has warned of potential brownouts and blackouts in the future. Amendment 2019-1737s would preserve 100 MWs of baseload renewable generation.
- Senator Giuda asked what New England's future looked like in terms of baseload generation.
 - Senator Bradley said there have been closures of important generation facilities – nuclear, coal, oil. New natural gas plants filled the void left by other plant closures. ISO-NE has warned of an overreliance of natural gas in New England. There have been efforts underway by ISO-NE to preserve Mystic Station in MA because it was essential for reliability. ISO-NE has also warned of potential blackouts and brownouts in the 2024-2025 period if generation assets do not develop or more closures occur. Therefore, it is important to preserve 100 MWs of baseload generation in NH where the fuel is locally produced. The future capacity costs, along with all the ancillary benefits, balance out providing the necessary financial support to NH's biomass industry under amendment 2019-1737s.

James A. Ginnetti – provided written testimony

Principal, Jim Ginnetti Consulting, LLC

- The closure of NH's biomass facilities would mean the loss of 100 MWs in the ISO-NE Forward Capacity

Auctions (FCAs). The loss of 100 MWs would increase capacity costs to NH by roughly \$17 million annually. This increase would be permanent. The same capacity cost increase situation currently existed due to delays in implementing SB 365.

- The final cost in FCAs is a function of supply and demand. Less supply led to a higher price in the FCAs, meaning higher costs to consumers. The loss of 100 MWs of supply will lead a higher final auction price-increasing costs to NH ratepayers.
- Function of an FCA:
 - Prior to each FCA, ISO-NE developed a demand curve, which showed the amount of capacity that it will purchase at various prices. At lower prices, ISO-NE will purchase additional capacity which has an incremental reliability benefit.
 - At a high price, more than enough resources will be offered to meet capacity requirements of the electric grid and local capacity zones.
 - During the process, prices drop:
 - Participants are provided information as to how close the auction is to obtaining its goal.
 - As prices drop, some resources remove themselves from the auction based upon the revenue they believe they will need from the capacity market to make their resource profitable.
 - Prices continue to drop until the point at which the demand curve and the remaining supply cross. The amount of excess capacity is reduced and approaches zero, which is where the auction ends. The excess capacity is the amount of capacity greater than the amount that ISO-NE will procure at that price.

Round	Start of Round Price (\$/kW-MO)	End of Round Price (\$/kW-MO)	End of Round Resource Offers (MW)	Demand Curve MW at End of Round	Excess Capacity (MW)
1	\$18.00	\$15.00	38,000	33,750	4,250
2	\$14.99	\$12.00	37,000	34,500	2,500
3	\$11.99	\$10.00	36,250	35,000	1,250
4	\$9.99	\$5.51	36,250	36,123	127
5	\$5.50	\$4.00	36,150	36,500	-350
Clearing Price/ Quantity		\$5.20	36,200		

- FCA example provided in written testimony:
 - The FCA ended at a clearing price, or final auction price, of \$5.20 per kW- MO and a quantity of 36,200 MWs.
 - If there were 127 fewer MWs in the FCA, the FCA would have ended at Round 4 with a clearing price of \$5.51 per kW-MO and 36,123 MWs would have cleared the auction and been purchased by ISO-NE.
 - Though the price difference between \$5.20 and \$5.51 may seem small, the difference was significant when multiplied by the large amount of capacity that ISO-NE needs to purchase, amounting to a difference of \$129,572,760. This is the increase that New England consumers would pay in a year due to the 127 MWs of less supply in the auction.
 - Since NH's load is roughly 10% of New England's load, NH consumers would pay roughly \$12,957,276 more due to 127 MWs fewer being in the FCA example.
- While the numbers in the example are representative of ones used in the FCAs, the cost impact to NH consumers could vary in any given auction. There are scenarios where the loss of 100 MWs can lead to increased capacity costs for NH consumers of as much as \$23 million based on a clearing price of \$7.03 per kW per month in FCA 10 for the year June 2019 to May 2020.
- Capacity costs will continue to vary in the future due to various factors – future generator retirements, new capacity entering the market, the variation of peak loads as new behind the meter generation is installed, etc.
- The estimate of \$17 million per year is a reasonable estimate of cost increase to NH due to the loss of 100 MWs participating in the FCA over the long term. The loss of biomass plants and their 100 MWs would cause FCAs to close sooner at a higher capacity price that will increase capacity costs.
- Senator Fuller Clark asked how much NH currently paid in capacity costs.
 - Mr. Ginnetti said he did not have specific figures, but on average, New England's capacity cost were around \$2 billion. Because NH carries 10% of the regional load, it would be roughly \$200 million a year.
- Senator Fuller Clark asked if the estimated \$17 million capacity cost increase would be added to the

original \$200 million a year in capacity costs.

- Mr. Ginnetti said Senator Fuller Clark was correct. The eligible facilities under SB 365 and amendment 2019-1737s have been in previous FCAs. If those eligible facilities did not take part in the FCA, the capacity costs would increase.
- Senator Bradley asked Mr. Ginnetti to comment on Mr. Brown's testimony.
 - Mr. Ginnetti said he heard Mr. Brown say that a certain region of southeastern MA had a higher capacity price that led to higher costs to NH ratepayers. Mr. Ginnetti said that was not how FCAs worked. Certain areas of New England can have a higher or lower capacity cost than the rest of the region. However, if there are higher costs in a specific region, those costs are allocated to customers within that region. Mr. Ginnetti was not sure how Mr. Brown reached his conclusions, but stood by his own conclusions.
- Senator Bradley clarified that Mr. Ginnetti was a former Northeast Utilities executive with Northeast Utilities where he oversaw the pricing of the company's wholesale and retail sales for more than ten years.

David L. Schwartz – provided written testimony

Partner, Latham & Watkins LLP

- There were no federal constitutional concerns associated with the new renewable credit mechanism proposed under amendment 2019-1737s.
- FERC has exclusive jurisdiction over wholesale power rates. However, states have the authority over utility purchases, resource procurement, and are permitted to favor certain generation over others based on state policy considerations.
- The US Supreme Court heard a case about field preemption that involved a program in Maryland that guaranteed a winning bidder a higher rate than the rate in the PJM (Mid-Atlantic regional transmission organization) capacity market, but only if the winning bidder offered and cleared its capacity in the PJM markets.
 - The US Supreme Court, in *Hughes v. Talen Energy Marketing, LLC* (2016) held that “so long as a State does not condition payment of funds on capacity clearing the auction, the state’s program would not suffer from the fatal defect that renders Maryland’s program unacceptable.” The Court also held that “nothing in this opinion should be read to foreclose Maryland and other States from encouraging production of new or clean generation through measures untethered to a generator’s wholesale market participation.” The most important concept is whether there is a condition in a state’s program for a generator to bid and clear in the FCAs.
- NERA filed a Petition for Declaratory Order at FERC in November 2018, arguing that the adjusted energy rate in SB 365 was preempted by FERC’s authority over the wholesale markets. The eligible facilities under SB 365 argued that preemption did not apply – the only rate that was determined was the default energy rate, which was not being challenged and FERC still has jurisdiction over that. There was no requirement in SB 365 for anyone to bid and clear in the ISO-NE markets. Even if FERC acted on the petition for declaratory order, FERC’s order would be advisory and not binding.
- The constitutional issues raised with respect to energy credits have been resolved in two recent federal court cases involving ZECs in Illinois and New York – *Coalition for Competitive Elec. V. Zibelman* in the 2nd Circuit Court, 2018 and *Elec. Power Supply Ass’n v. Star* in the 7th Circuit Court in 2018.
 - The federal courts of appeals held that ZECs were not FERC jurisdictional and could not be preempted. They also did not raise dormant commerce clause concerns. The US Supreme Court denied writs of certiorari in April 2019, meaning the cases were settled law.
 - Plaintiffs in both cases argued that the “practical effect” of the rate credit programs is that generators will bid and clear in the FCAs, making it effectively no different than the situation in *Hughes*. However, the courts noted that Illinois and New York did not require parties to bid and clear in FCAs: “The decision to sell power into the wholesale markets is a business decision that does not give rise to preemption concerns. Accordingly, there is not support for plaintiffs’ assertion that state action tethers the receipt of zero emissions credits to participation in the wholesale markets.” FERC filed an amicus brief in the 7th Circuit Court, arguing the same concept.
- Dormant commerce clause arguments have not been successful in cases of this nature. The 7th Circuit Court determined conclusively that there was no interstate commerce discrimination that justified the plaintiffs’ arguments. The 2nd Circuit Court held that the plaintiffs had no standing to argue there was interstate discrimination because they did not own out-of-state generation plants that were harmed by such alleged discrimination.
- Senator Fuller Clark asked Mr. Schwartz to comment on Mr. Kreis's testimony.
 - Mr. Schwartz addressed two of Mr. Kreis's points:

- Mr. Kreis indicated that the legal counsel for NH's biomass plants have not raised a preemption challenge in court. That is not typically how preemption challenges have been raised. In the *Hughes*, *Zibelman*, and *Star* cases, preemption challenges were raised by entities that were seeking to have a court find certain state programs unlawful. In none of those cases did defendants that supported the constitutionality of state programs initiate court actions.
- Mr. Kreis suggested amendment 2019-1737s did not resolve preemption concerns. However, Mr. Kreis did not explain how amendment 2019-1737s could raise any preemption issues because FERC does not regulate the sale of a REC. That issue was resolved in the 2nd and 7th Circuit Courts in the *Zibelman* and *Star* cases. Additionally, FERC filed an amicus brief in the 7th Circuit Court, arguing that FERC lacked jurisdiction and the case lacked preemption concerns.
- Given that the US Supreme Court did not offer a writ of certiorari in the 2nd and 7th Circuit Court cases and FERC's own argument that they lack jurisdiction in cases involving RECs or ZECs, it is unlikely the 1st Circuit Court would find that there are preemption concerns with amendment 2019-1737s.

Tom Thomson – provided written testimony
 Owner, Thomson Family Tree Farm

- On any timber harvest, 60-65% of all wood harvested is low-grade wood, which ends up as pulp or wood chips for biomass plants. Forests are no different from one's home garden – gardens must be weeded and thinned out if one wants a productive garden.
- NH is the second most forested state in the US. Forested land covers 84% of the NH, just under 5 million acres. A total of 76% of forest land in NH is privately owned.
- NH has four of the largest and oldest landowner organizations supporting NH's forest products industry and recognizing the important value biomass plants have in low-grade wood markets. These organizations include the NH Farm Bureau Federation, NH Audubon, the Society for the Protection of NH Forests, and the NH Timberland Owners Association.
- NH's biomass plants was not just a North Country issue. Based on 2017 data from the NH Department of Revenue Administration's (DRA) Timber Tax Division, Merrimack County produced 261,910 tons of wood chips, followed by Grafton County with 199,985 tons, and Hillsborough County with 163,170 tons.
- Most equipment dealers who serve the industry are in southern counties. When SB 365 was vetoed by Governor Sununu, nearly \$10 million in equipment sales were halted 24 hours after the veto.
- In January 1998, NH was hit with a devastating ice storm that impacted 700,000 acres and nine counties in NH. During that time, biomass plants were running at full capacity to assist in cleaning up debris. Without the biomass plants, there would have been no appropriate outlet for low-grade wood in serious weather events. Biomass plants are appropriate markets to move low-grade wood to, ensuring sustainable forestry practices continue.
- Without a market for low-grade wood, landowners like Thomson Family Tree Farm would look to develop house lots instead of trees.

Mark Driscoll – provided written testimony
 Plant Manager, ENGIE North America

- ENGIE North America owned and operated the 15 MW Pinetree Power Plant in Bethlehem and the 22 MW Pinetree Power Plant in Tamworth.
- The failure of amendment 2019-1737s would close the two biomass plants, leading to a loss of jobs and economic harm to NH families.
- Due to litigation delays on SB 365, NH's biomass plants have obtained no benefit from the law and are now in economically induced shutdown. Amendment 2019-1737s was the difference between the biomass plants returning to full-time operations or plant closure and job loss.
- The Bethlehem and Tamworth plants have been in operation since 1986 and 1987, respectively. ENGIE North America employed 40 people in direct power plant operations. Based on a study from Plymouth State University ("Economic Contribution of the Biomass Electric Power Generation Industry in New Hampshire, Calendar Year 2016," dated March 1st, 2017), the two plants supported another 250 jobs in wood fuel procurement for the plants and related businesses.
- Plants employees were holding off purchases of new vehicles. Many were worried about their ability to feed their families and pay their mortgages. Some employees faced too much anxiety and stress from uncertain continued employment, so they quit.

*Michael O'Leary - provided written testimony
Asset Manager, Bridgewater Power Company*

- The Bridgewater biomass facility has been in operation since 1987, employs 20 people, and supports another 100 jobs in wood chip procurement and other sectors.
- Due to the low price of energy and renewable energy credits (RECs) under the RPS, the Bridgewater biomass facility shut down. The plant could not sustain itself and the wood fuel related jobs.
- Due to litigation delays, SB 365 has not been implemented, leaving plant operations and continued employment of plant personnel and wood-supply businesses at risk. The facility is unsure when the plant could restart operations. Operating seasonally is not a viable option.
- The facility tried to cut costs to manage through the past two years of uncertainty. Employees have not had raises in two years. Maintenance and investment in the facility has been deferred. The wood fuel purchase price has dropped - another factor impacting the logging community.
- NH's biomass facilities offer economic and environmental benefits to NH that significantly outweigh the costs from SB 365 or amendment 2019-1737s.
- Senator Fuller Clark said it was her understanding that SB 365, if implemented, and amendment 2019-1737s would last for three years. She asked if that time period offered stability and predictability for NH's biomass plants.
 - Mr. O'Leary said the energy sector, like any other sector, was a risk business. Three year legislation was a viable option for NH's biomass facilities. Energy market conditions could change after three years.

Representative Howard Moffett

Merrimack - District 9, Vice Chair of the House Science, Technology, and Energy Committee

- The sponsors of HB 183 were in support of attaching amendment 2019-1737s to HB 183.

Representative Lee Oxenham

Sullivan - District 1

- Renewable energy sources was the way of the future, motivated by public health and environmental concerns. However, waste generation, by burning trash, is not environmental friendly, protective of the public health, and is not sustainable.
- Waste-to-energy facilities should not be classified as an eligible facility under RSA 362-H:1, V. Subsidizing waste generation is not in line with NH's renewable energy goals.
- Amendment 2019-1737s should be exclude waste-to-energy facilities. The facilities polluted the air and important water resources by emitting contaminants. The best way to reduce waste was to reduce, reuse, and recycle.
- Senator Giuda asked if waste-to-energy facilities were subject to the same air emissions requirements as any other facility in NH. He also asked if the Wheelabrator waste-to-energy facility in Penacook was subject to administrative rules from the NH Department of Environmental Services (NHDES).
 - Representative Oxenham said she was not familiar with any specifics for incineration. She said she was sure that Wheelabrator was subject to NHDES' administrative rules.

Joseph Kenney

Former Executive Councilor, District 1

- Biomass facilities were important for the forest products industry.
- The NERA failed to address any value added by NH's biomass facilities in protecting forests, protecting jobs, and providing a hedge against volatile natural gas prices. The only values addressed by NERA was workforce and electricity rates.
- NH offered support for the biomass industry through the Renewable Energy Fund (REF) rebate program under the RPS - NH should look to build upon that.

Councilor Michael Cryans

Executive Councilor, District 1

- Reiterated testimony in support of amendment 2019-1737s.

Gasen Stock - provided written testimony

Executive Director, NH Timberland Owners Association

- The total forest products industry in NH employed more than 7,700 people directly, and contributed nearly

\$1.4 billion dollars to the state's economy.

- Losing NH's biomass plants would negatively impact hundreds of jobs, economic activity in many NH communities, NH's forest products industry, sustainable forestry and timberland/stumpage values.
- Based on a 2016 Plymouth State University study:
 - The grand total of jobs impacted - direct, indirect, and induced - 932 jobs, or \$50.9 million in payroll. The total economic output to the state's economy is \$254.5 million each year.
 - NH's six biomass plants contribute \$7.3 million in tax revenues to state and local governments.
 - Based on information from DRA during the 2014/2015 tax year, 1,349,018 tons of biomass was harvested in 209 towns across New Hampshire.
- Biomass facilities provided a crucial outlet for sawmill wastes, improved forest management for future saw log operations, and improved overall logging operations/output.
- According to the US Forest Service's Forest Inventory Analysis, nearly 2/3 of standing timber in NH was low-grade. Without markets for low-grade wood, landowners and land managers would be unable to economically improve forest health and vigor, impacting common practices like:
 - Watershed management projects.
 - Wildlife habitat work.
 - Recreation management.
 - Pest management.

Dennis D. McKenney - provided written testimony

Consulting Forester/Land Surveyor, New England Forestry Consultants, Inc. (NEFC)

- Reiterated testimony in support of amendment 2019-1737s.

Matt Magoon - provided written testimony

Magoon Logging

- Biomass plants were vital in dealing with low-grade wood that was produced during a harvesting operation.
- In 2018, Magoon Logging produced 6,840.08 tons of wood waste. In a normal year, 9,000 tons of wood waste was produced. Because the forest products industry has been unstable for the past few years, production was scaled back. The failure of biomass plants will lead to the use of secondary markets that will drive up costs considerably. These secondary markets include selling wood chips to local schools or greenhouses who use wood chips on a seasonal basis.

Rocky Bunnell

Rocky Bunnell Logging

- Reiterated testimony in support of amendment 2019-1737s.

Jeff Eames - provided written testimony

Fort Mountain Companies

- Reiterated testimony in support of amendment 2019-1737s.

Robert J. Berti - provided written testimony

Chair of the Board of Selectmen, Rumney, NH

- Reiterated testimony in support of amendment 2019-1737s.
- Senator Fuller Clark said there were two sides to the debate in protecting NH's biomass plants - one side argued that the forest products industry provided important economic activity and value for NH, while the other side argued that the costs to preserve NH's biomass facilities came at a significant cost in energy rates to large electric users like manufacturers. She asked how Mr. Berti would weigh those arguments.
 - Mr. Berti said large businesses in NH were doing well. Large manufacturers and their employees have the benefit of a quality of life that NH provided.

Ben Crowell

Durgin & Crowell Lumber Company

- Reiterated testimony in support of amendment 2019-1737s.

Shelagh Connelly

President, Resource Management, Inc. (RMI)

- Biomass facilities produced wood ash as a waste product. Wood ash was used as a potassium fertilizer on NH farms. The failure of NH's biomass plants meant 100 farms would not receive wood ash.

- RMI employed 30 individuals. Amendment 2019-1737s will impact a 1/3 of RMI.
- During 2016-2017, RMI recycled 13,170 tons of wood ash, or 526 truck loads. Over 400 farmers received wood ash fertilizer. From 2018-April 2019, RMI only recycled 5,649 tons of wood ash, a 57% decrease.
- There needs to be policy certainty for NH's biomass facilities.

Matt Leahy - provided written testimony

Public Policy Manager, Society for the Protection of NH Forests

- Reiterated testimony in support of amendment 2019-1737s.

Summary of testimony presented in opposition:

Marc Brown

President, New England Ratepayers Association (NERA)

- Disputed the \$17 million in capacity costs. In FCA 9, which covered 2019-2020, the southeastern region of Massachusetts had a shortage of 283 MWs. Due to that shortage, the region paid \$17.73 per kW-MO for capacity. That resulted in \$2 million worth of capacity costs for NH. In order to get \$17 million in capacity costs, the capacity price needed to be \$120 per kW-MO, which was eight times higher than the highest capacity cost ever recorded.
- There was concern about the loss of generation facilities as a result of divestiture. Increasing capacity costs was not a concern when those plants closed. The retired plants offered more MWs than NH's six biomass plants do.
- NH businesses were concerned about two issues: workforce development and electricity rates. Amendment 2019-1737s removed highly skilled people in the forest products industry from the workforce and increased electric rates. Higher electric rates also impacted the low-income community to the tune of \$1-1.5 million.
- Biomass facilities required constant financial assistance because they are not economically sustainable. A three year time limit in SB 365 and amendment 2019-1737s will not be enough. The point of restructuring was to make markets more competitive - amendment 2019-1737s went against NH's restructuring policy.
- Any support for NH's biomass facilities should come from NH's general fund. Support for the forest products industry should not be offered on the backs of NH's ratepayers because NH's electric rates are already high. Other states like Maine offer assistance to their biomass facilities through the general fund.
- Senator Watters clarified Mr. Brown's comments - that workers in the forest products industry should make themselves available to manufacturers for work in southern NH?
 - Mr. Brown said jobs were lost every day in NH. It was impossible to protect every job in NH.
- Senator Watters asked how many ratepayers there are in NH.
 - Mr. Brown said there were around 1.3 million ratepayers in NH.
- Senator Watters said each ratepayer could potentially pay an additional \$17 a year to preserve the biomass industry. He asked if ratepayers would be willing to pay that amount to save jobs.
 - Mr. Brown said that ratepayers may be willing to protect jobs, but it will also come at a significant cost to NH's businesses who employed others.
- Senator Giuda asked what the monthly cost would be to preserve NH's biomass facilities.
 - Senator Watters said the cost would roughly \$1.40.
 - Mr. Brown said the number offered by Senator Watters was accurate.
- Senator Giuda asked Mr. Brown to estimate what NH's ratepayers would say if they were asked to pay an extra \$1.40 a month to preserve 1,000 jobs in NH and protect NH's forest products industry.
 - Mr. Brown said some people are unwilling to pay anything more to promote renewable energy. However, he was sure a lot of people would be willing to pay an extra \$1.40 a month. However, amendment 2019-1737s lets the government choose winners and losers in the energy sector. No one is arguing that NH's forests should not be maintained, but the cost to preserve NH's forest products industry should not be placed on the backs of ratepayers.
- Senator Giuda asked how NH will preserve its forests without an outlet for low grade wood.
 - Mr. Brown said that Maine was using its general fund to offer grants to find alternative outlets for low-grade wood. NH could look into similar methods.
- Senator Giuda asked if Maine had an income tax that supported its general fund.
 - Senator Fuller Clark said that Maine had an income tax.
- Senator Giuda said the NH General Court was charged with balancing the need of individuals and businesses. Biomass plants should be preserved while the study committee outlined in HB 183 examines the potential to use biomass facilities in microgrids, which could reduce the need for transmission projects.

The growth of transmission costs was greater than the cost of preserving biomass facilities. He asked if Mr. Brown agreed.

- o Mr. Brown said the policy amounted to a death by a thousand cuts. All the policies adopted to preserve biomass facilities come at a cost to ratepayers. All those policies added up would amount to more than a cup of coffee, or \$1.40.
- Senator Giuda asked if there were other policies in SB 365 or amendment 2019-1737s that promoted biomass facilities.
 - o Mr. Brown said there were none.
- Senator Bradley said Eversource Energy, NH's largest public utility, filed a request for a \$70 million rate increase in a rate case before the PUC. He asked if the NERA would file testimony against Eversource Energy's request for a rate increase.
 - o Mr. Brown said the NERA would look into it.
- Senator Bradley asked if the NERA would sue Eversource Energy if the utility got a rate increase.
 - o Mr. Brown asked if the rate increase was in violation of the Federal Power Act.
- Senator Bradley asked if the NERA was saying they would not sue Eversource Energy.
 - o Mr. Brown said the NERA would sue if Eversource Energy violated the law.
- Senator Bradley asked if the NERA would file testimony at Eversource Energy's rate case.
 - o Mr. Brown said that the NERA would file testimony at Eversource Energy's rate case.
- Senator Bradley asked if the NERA would file testimony in favor of Eversource Energy's rate increase.
 - o Mr. Brown said he doubted the NERA would file testimony in support of a rate increase.

*Katie Lajoie - provided written testimony
Charlestown, NH*

- Waste-to-energy generation resources should be excluded from amendment 2019-1737s. Those resources are not sustainable and pollute surrounding areas through air emissions, impacting the public health. Administrative rules from NHDES are not protective of the public health. The more pollution put out by biomass and waste-to-energy facilities, the more revenue NHDES collected. Waste-to-energy facilities were a significant source of greenhouse gas emissions, meaning they were not a renewable source.
- Efforts need to be made to reduce, reuse, and recycle waste and promote sustainable energy resources.

*John Tuthill
Acworth, NH*

- RSA 362-H:1, V should be amended to exclude waste-to-energy facilities.
- NH should look to move away from industries that emit air pollution.

*Michael Vose
Former Representative, Rockingham - District 9*

- Does not oppose supporting the biomass industry, but opposes putting the cost of supporting the industry on NH's electric ratepayers.
- Raising electric rates affected all businesses in NH. While \$1.40 may amount to a cup of coffee for a residential ratepayer, the costs were greater for larger energy users. Those costs could make a significant difference to businesses.
- If all the 2019 energy legislation proposed by the House and Senate passed, the legislation would create an additional \$65-270 million per year in additional energy costs to NH's ratepayers. This would impact a business's ability to be competitive, expand, and provide jobs.
- Electricity markets were restructured in the late 1990s. To maintain a free market in the energy sector, there cannot be specific carveouts for specific interests. The way to support NH's biomass facilities is through NH's budget rather than on electric ratepayers.
- Senator Bradley noted Representative Vose's concern about energy costs to businesses. He asked if Representative Vose was familiar with RSA 362-H:2, V.
 - o Representative Vose said he was not familiar with it.
- Senator Bradley clarified that RSA 362-H:2, V was created in SB 365, which stated that the recovery of costs for the implementation of SB 365 would be allocated among Eversource Energy's customer classes using the allocation percentages approved by the PUC in its docket DE 14-238 order 25,920. That order was used in the divestiture agreement. He asked if Representative Vose was familiar with order 25,920.
 - o Representative Vose said he recalled the order 25,920.
- Senator Bradley asked if Representative Vose recalled that order 25,920 created a rate design where a smaller percentage of the overall costs of divestiture would be borne by large users.

- o Representative Vose said he was referring to the other cumulative effects of other legislation.
- Senator Bradley asked if any of the cumulative effects from other legislation were in amendment 2019-1737s. He clarified that none of the cumulative effects from other legislation were in amendment 2019-1737s because the amendment dealt exclusively with biomass.
 - o Representative Vose said he understood that. He wanted to clarify that amendment 2019-1737s, in addition to all the other pieces of legislation considered by the House and Senate, would be bad for NH's ratepayers and businesses in the long term.
- Senator Bradley asked if Representative Vose was aware that the annual cost for SB 365 was \$20-21 million cost, but that based on the rate design, roughly \$1 million would be borne by large users. He asked if that would impact all the jobs in NH.
 - o Representative Vose said he was aware of that. Any additional costs to businesses impact them.
- Senator Watters referenced Representative Vose's testimony that indicated that the cumulative effect of other legislation passed by the House and the Senate was \$65-\$270 million a year. He asked if Representative Vose could provide any independent analysis of those figures.
 - o Representative Vose said he would provide those figures to the committee.

Neutral Information Presented:

Don Maurice Kreis - provided written testimony

Consumer Advocate, Office of the Consumer Advocate (OCA)

- The OCA represents the interest of NH's residential utility customers.
- History:
 - o Governor Hugh Gallen signed into law NH's anti-CWIP statute, meaning a utility could not put "construction work in progress" into utility rates. The statute eventually drove Public Service of NH (PSNH) to bankruptcy. The NH Supreme Court rejected PSNH's challenge to the anti-CWIP statute, arguing that a bailout was not what the state or federal constitution required.
 - o In 1978, Section 210 of PURPA compelled utilities to purchase power from non-utility producers - so-called PURPA qualifying facilities. These facilities had to be less than 80 MWs, new technologies as opposed to nuclear or fossil fuel, and were entitled to rates based on the utility's avoided cost. NH's PURPA qualifying facilities thrived under avoided cost calculations set by the PUC. These costs amounted to \$2 billion beyond what otherwise would have been paid.
 - o Due to restructuring, PURPA qualifying facilities not longer received avoided cost rates, but market rates. PURPA qualifying facilities cannot compete in a competitive wholesale marketplace. Those facilities have asked for help and got it in 2018 of SB 365 and amendment 2019-1737s.
- The OCA made the argument that SB 365, specifically RSA 362-H, was preempted by certain provisions of the Federal Power Act.
 - o The OCA's advisory board supported the motion of arguing that RSA 362-H was preempted.
 - o The OCA has supported NERA's position at the NH Supreme Court and at FERC.
 - o Disagreed with claims that the OCA was exceeding its authority in arguing that a state statute is preempted by federal law.
- NH's biomass facilities know they have a preemption issue. Legal counsel for those facilities have acquiesced to the delay of implementing RSA 362-H - they did not ask the PUC to address the preemption issue, but asked the PUC not to address it. They have not filed a lawsuit in state or federal court to compel Eversource Energy to act under RSA 362-H.
- Mr. Ginnetti's findings need to be tested. The OCA welcomes the opportunity to test them.
- The implicit assumption that bidding into the capacity market is essential undermines the argument that there is no "tethering" under the Supreme Court's decision in *Hughes v. Talen Energy*.
- The 1st Circuit Court may not necessarily agree with the findings of the 2nd and 7th Circuit Courts, meaning the US Supreme Court may need to resolve the differences.
- Regardless as to the legality of amendment 2019-1737s, the costs will be passed to ratepayers. Based on information from Eversource Energy, those costs amount to \$10 million a year for residential ratepayers alone. The only costs that should go in nonbypassable rates relate to that which is actually "used and useful" in the provision of utility service.

JJR, edited by Marie Marston.

Date Hearing Report completed: May 7, 2019.

Speakers

Senate Energy & Natural Resources Committee

SIGN-IN SHEET

Date: Tuesday, April 2nd, 2019 Time: 10:40 a.m.

HB 183 AN ACT establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.

Name/Representing (please print neatly)

Name/Representing	Support	Oppose	Speaking?	Yes	No
✓ Bob Hayden Standard Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Louise Spencer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Dennis Jalcabowski self	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Maura Willing self	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Jeanne Torpey self	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Julie Thompson self	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Bill Baker "	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Sarah Thorne self	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Liz-Anne Platt self	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Cheri Falk Self	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Richard Spence self	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Dorothy Currier self	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Rep. Rebecca McWilliams, Merr 27	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Patricia Martin self	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Mendi Messner self	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Melissa Birchard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✓ Paul R Nickerson NH Audubon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✗ Rep. Howard Moffatt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Rep Bob Backus	<input type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Rep. Schmidt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Deborah Jalcabowski ✓

but need to leave at 10:55 for 574E ✓

Senate Energy & Natural Resources Committee

SIGN-IN SHEET

Date: Tuesday, May 7th, 2019 Time: 9:00 a.m.

2019-1737s PROPOSED AMENDMENT #2019-1737s, relative to baseload renewable generation credits for biomass energy facilities, to HB 183, establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.

Name/Representing (please print neatly)

Name/Representing	Support	Oppose	Speaking?	Yes	No
Rep Suzanne Smith ^{grd}	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Senator David Starr SD#1	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
DON KREIS, QEA	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Rep Erin Hennessey Grafton 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Shaun Laguerre	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Susan Bryant Kimball	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ann W. Davis	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Joseph H. March	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Michael Lewis	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
MARC PROSEN New England Petroleum Assoc.	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Kat Lehmann / BIA	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ROBERT LUSSIER PINETREE POWER	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
MATT MILNIE	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Randy Conyer Pinetree Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Rodney Wilson Pinetree Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
JASON JOUBERT PINETREE POWER	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Kevin Bowen Pinetree Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
HUNTER CARSEE NCP	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
SEVE STERKIE NHTOA	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Paul Bull	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Rep. Ned Andron	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Senate Energy & Natural Resources Committee

SIGN-IN SHEET

Date: Tuesday, May 7th, 2019 Time: 9:00 a.m.

2019-1737s PROPOSED AMENDMENT #2019-1737s, relative to baseload renewable generation credits for biomass energy facilities, to HB 183, establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.

Name/Representing (please print neatly)

	Support	Oppose	Speaking?	Yes	No
Rep. Edith TUCKER, Coos	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
MARCS DAVIS	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Enrol. Peter	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Berue Languer	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Kyle McBee	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Rob Swift	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
DAN VANIER	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Spencer Cottle	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Michelle Rogers	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
HENRY HOONKSTER	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Rep Tray Merner Coos	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Christopher Stevens	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Christopher Fife - Weyerhaeuser	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cheri Birch - NHTOA	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Karen Dow - CMD Logging	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
May Dow CMD Logging	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Jeremiah Chartier Jr	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
David Dulong - Springfield Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
James A Cole - Bridgewater Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Scott Portier "	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

~~Speaking~~

Senate Energy & Natural Resources Committee SIGN-IN SHEET

Date: Tuesday, May 7th, 2019 Time: 9:00 a.m.

2019-1737s PROPOSED AMENDMENT #2019-1737s, relative to baseload renewable generation credits for biomass energy facilities, to HB 183, establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.

Name/Representing (please print neatly)

	Support	Oppose	Speaking?	Yes	No
✓ Matt Magoon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Robert Berti Town of Rumney	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Michael O'Leary	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ MUA Driscoll	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Bradley SD#3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Jason Stock NH/CA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Jim Ginnetti	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Tom Thomson	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Dave Schwarz	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ JEFF EAMES	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Shelagh Connolly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input type="checkbox"/>
Patrick Lagore (unclear)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
John Tuttle	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Rep. Howard Moffatt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Dennis D. McKenney	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Michael Coyne	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Ben Crowell	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
✓ Matt Lesky	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	Speaking?	<input type="checkbox"/>	<input type="checkbox"/>

Testimony

TITLE XXXIV

PUBLIC UTILITIES

CHAPTER 362-H

THE PRESERVATION AND USE OF RENEWABLE GENERATION TO PROVIDE FUEL DIVERSITY

Section 362-H:1

362-H:1 Definitions. --

In this chapter:

- I. "Adjusted energy rate" means 80 percent of the rate, expressed in dollars per megawatt-hour, resulting from the default energy rate minus, if applicable, the rate component for compliance with the renewable energy portfolio standards law, RSA 362-F, if that rate component is included in the approved default energy rate.
- II. "Biomass" means plant-derived fuel including clean and untreated wood such as brush stumps, lumber ends and trimmings, wood pallets, bark, wood chips or pellets, shavings, sawdust and slash, agricultural crops, biogas, or liquid biofuels, but shall exclude any materials derived in whole or in part from construction and demolition debris.
- III. "Commission" means the public utilities commission.
- IV. "Default energy rate" means the default service energy rate applicable to residential class customers, expressed in dollars per megawatt-hour, as approved by the commission from time to time, and which is available to retail electric customers who are otherwise without an electricity supplier.
- V. (a) "Eligible facility" means any facility which produces electricity for sale by the use, as a primary energy source, of biomass, or municipal solid waste; provided that: (1) the facility's power production capacity is not greater than 25 megawatts excluding station service needs; (2) the facility is interconnected with an electric distribution or transmission system located in New Hampshire; and (3) the facility began operation prior to January 1, 2006, or if the facility ceased operation and then later returned to service after that date then prior to January 1, 2006 the facility operated for at least 5 years regardless of the current operational status of the facility.
(b) "Eligible facility" shall not include: (1) any facility, while selling its electrical output at long-term rates established before January 1, 2007 by orders of the commission under RSA 362-A:4; and, (2) any municipal solid waste facility less than 10 megawatts in size and which was not in operation on January 1, 2018.
- VI. "Primary energy source" means a fuel or fuels, or energy resource either singly or in combination, that comprises at least 90 percent of the total energy input into a generating unit. A fuel or energy source other than the primary fuel or energy source may be used only for start-up, maintenance, or other required internal needs of the facility.

Source. 2018, 379:2, eff. Sept. 13, 2018.

**THE TESTIMONY OF JAMES A. GINNETTI
BEFORE THE SENATE ENERGY AND NATURAL RESOURCES COMMITTEE
ON BEHALF OF WHEELABRATOR TECHNOLOGIES, INC.
ON NH HB 183, AMENDMENT No. 2019-1737, RELATIVE TO BASELOAD
RENEWABLE GENERATION CREDITS FOR BIOMASS ENERGY FACILITIES
MAY 7, 2019**

Good morning, my name is Jim Ginnetti¹ and I appear before you today on behalf of Wheelabrator Technologies, Inc. (Wheelabrator) to speak in support of Amendment No. 2019-1737, relative to baseload renewable generation credits for biomass energy facilities. As you have heard, this amendment adds two new provisions to Senate Bill 365 (SB 365).

I appeared before you last year to testify in support of SB 365, which upon its passage became RSA 362-H. That law provided for the purchase of approximately 100 megawatts of renewable power from certain eligible facilities. My testimony on that bill focused on the capacity cost increase that would be incurred by New Hampshire residents and businesses if SB 365 did not become law and those renewable power plants closed and no longer participated in the ISO-NE Forward Capacity Auctions. In my prior testimony, I estimated that the result of the loss of the 100 megawatts would increase capacity costs to New Hampshire by about \$17 million annually, starting three years in the future. This increase would be permanent. Substantially the same capacity cost increase situation exists today, given the delay in implementing SB 365 due to litigation, and the potential closure of these power plants.

The cost increase to New Hampshire (and the rest of the ISO-NE region) occurs because the final Forward Capacity Auction price is a function of supply and demand. Less supply leads to a higher price result in the Forward Capacity Auction and higher costs to consumers. If those plants covered by SB 365 and this amendment close, the auction will lose 100 megawatts of supply and the final auction prices will be higher than otherwise, as will the cost to New Hampshire customers.

¹ Jim Ginnetti, the Principal of Jim Ginnetti Consulting, LLC, has over 42 years of experience in New England's electricity business. He has held executive positions with competitive generators as well as with Northeast Utilities, where he oversaw the pricing of the company's wholesale and retail sales for more than 10 years. He also spent the early part of his career at what became ISO-NE, where he held executive positions in system planning, engineering, and system operations. Jim holds Bachelor and Master Degrees in Electrical Engineering from Northeastern University and Iowa State University, respectively. He also holds a MBA from Western New England College.

To explain how more supply lowers the final auction price result I refer you to the two attachments to my testimony, both of which are slides from ISO-NE training materials explaining how the Forward Capacity Auction works. Prior to each Forward Capacity Auction, ISO-NE develops a Demand Curve, which shows the amount of capacity that it will purchase at various prices. At lower prices, ISO-NE will purchase additional capacity which has an incremental reliability benefit.

Attachment 1 (page 18 of the ISO-NE training material) explains that power plants leave the auction based on changes in price as the auction proceeds:

- “At a high price, you find more than enough resources to meet capacity requirements of the system and local capacity zones
- During the process, prices drop
 - Participants are provided information as to how close the auction is to obtaining its goal
- As prices drop, some resources remove themselves from auction based upon the revenue they believe they need from the capacity market to make their resource profitable
- Prices continue to drop until the point at which the demand curve and remaining supply cross.” or in other words the point at which the demand for capacity is met at a particular price.

Attachment 2 is slide #22 from the same ISO-NE training presentation. This slide shows the result of each of the rounds of an auction and how as the price drops, the amount of “Excess Capacity” (as shown on the attachment) is reduced and approaches zero, which is where the auction ends. The “Excess Capacity” is the amount of capacity greater than the amount that the ISO will procure at that price.

In this training example, the auction ended at a Clearing Price (final auction price) of \$5.20 per kilowatt per month and a quantity of 36,200 megawatts.

I use this example to show that if there were 127 MWs fewer in the auction, it would have ended at the end of Round 4 at a Clearing Price of \$5.51 per kilowatt per month and 36,123 MWs would have cleared in the auction and been purchased by ISO-NE.

Although the price difference between \$5.20 and \$5.51 per kilowatt per month seems to be small, when multiplied by the large amount of capacity that the ISO-NE needs to purchase, the difference to consumers in New England of these two possible outcomes is significant.

The total cost to consumers is calculated as follows:

- $36,123 \text{ MWs} \times \$5.51/\text{kW-month} \times 1,000 \text{ kW/MW} \times 12 \text{ months/year} = \$2,388,452,760$
- $36,200 \text{ MWs} \times \$5.20/\text{kW-month} \times 1,000 \text{ kW/MW} \times 12 \text{ months/year} = \$2,258,880,000$

The difference between those two annual costs is \$129,572,760, which is the increase that New England consumers would pay in a year due to the 127 MWs of less supply being in the auction. Since New Hampshire's load is approximately 10% of New England's load, New Hampshire's consumers would pay approximately \$12,957,276 more due to the 127 MWs fewer being in the auction in this training example.

While the numbers in the training example are representative of the ones used in the actual Forward Capacity Auctions, the cost impact to New Hampshire consumers can be more or less in any given auction. There are scenarios where the loss of 100 MWs can lead to increased capacity costs for New Hampshire consumers of as much as \$23 million². But, I believe that an estimate of \$17 million per year based on the more recent Forward Capacity Auctions is a reasonable estimate of cost increase to New Hampshire due to the loss of 100 MWs participating in the auction over the long term³.

In closing, I do want to clarify that I am not testifying that capacity prices won't continue to vary in the future due to a myriad of factors including future generator retirements, new capacity entering the market, the variation in peak loads as new behind-the-meter generation, including solar, is installed, etc. But, as shown in the ISO-NE training example, in each auction, the reduction in supply due to the retirement of the biomass generators will cause the auction to end sooner than otherwise at a higher capacity price that will increase costs to consumers in New Hampshire.

This completes my testimony.

James A. Ginnetti

May 7, 2019

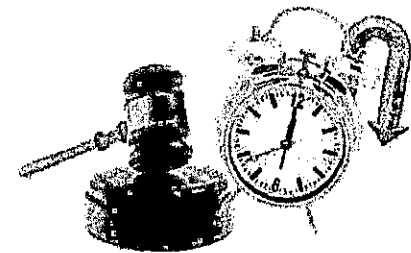
Exhibits (2)

² I estimate that the loss of 100 MWs in FCA 10 for the year June 2019-May 2020 could have cost New Hampshire consumers as much as \$23 million based on the final Rest of Pool clearing price of \$7.03/kilowatt per month.

³ I estimate that the loss of 100 MWs in FCA 11, 12, and 13 could have cost New Hampshire consumers between \$17-18 million where auction clearing prices were \$5.30, \$4.63, and \$3.80/kilowatt per month, respectively.

Basic Concept of Descending Clock Auction

- At a high price, you find more than enough resources to meet capacity requirements of the system and local capacity zones
- During the process, prices drop
 - Participants are provided information as to how close the auction is to obtaining its goal
- As prices drop, some resources remove themselves from auction based upon the revenue they believe they need from the capacity market to make their resource profitable
- Prices continue to drop until the point at which the demand curve and remaining supply cross



Example: Descending Clock Auction

Assumptions: (Starting Price = \$18)	
Installed Capacity Requirement (NICR)	33,750 MW
Existing Capability	34,000 MW
Participating New Capacity	4,000 MW

Round	Start of Round Price (\$/kW-MO)	End of Round Price (\$/kW-MO)	End-of-Round Resource Offers (MW)	Demand Curve MW at End-of-Round	Excess Capacity (MW)
1	\$18.00	\$15.00	38,000	33,750	4,250
2	\$14.99	\$12.00	37,000	34,500	2,500
3	\$11.99	\$10.00	36,250	35,000	1,250
4	\$9.99	\$5.51	36,250	36,123	127
5	\$5.50	\$4.00	36,150	36,500	-350
Clearing Price/Quantity		\$ 5.20	36,200		

(If there were 127 MW's fewer, the FCA would have ended at the end of Round 4 at a price of \$5.51 instead of \$5.20/kW-month. In this example, this change would increase capacity costs to NH by \$13M.)

**Testimony of David L. Schwartz before New Hampshire Senate Energy and Natural
Resources Committee
Hearing on proposed Amendment #2019-1737 to HB 183
May 7, 2019**

Good morning, Madam Chair and Senators. My name is David Schwartz from the law firm of Latham & Watkins LLP in Washington, D.C. Thank you for inviting me to speak this morning. I have been asked whether there are any federal constitutional concerns associated with this new renewable credit mechanism being proposed in this amendment. The short answer is that they do not.

The Federal Energy Regulatory Commission (FERC) has exclusive jurisdiction over wholesale power rates. But states also have the authority over utility purchases, and resource procurement, and are permitted to favor certain generation over others, based upon state policy considerations.

The most important Supreme Court case in recent years about field preemption involved a program in Maryland that guaranteed a winning bidder a higher rate than the rate in the PJM capacity market, but only if the winning bidder offers and clears its capacity in the PJM markets. The Supreme Court in the *Hughes* case held that “So long as a State does not condition payment of funds on capacity clearing the auction, the state’s program would not suffer from the fatal defect that renders MD’s program unacceptable.” *Hughes v. Talen Energy Marketing, LLC*, 136 S. Ct. 1288, 1299 (2016). The Supreme Court also held that “nothing in this opinion should be read to foreclose Maryland and other States from encouraging production of new or clean generation through measures untethered to a generator’s wholesale market participation.” *Id.*

The New England Ratepayers’ Association filed a Petition for Declaratory Order at FERC last November arguing that the adjusted energy rate in SB 365 was preempted by FERC’s authority over the wholesale markets. The New Hampshire generators responded that preemption did not

apply (the only rate that is determined here is the default energy rate, which is not being challenged and FERC still has jurisdiction over that, as it always has had, and there is no requirement in SB 365 for anyone to bid and clear in the ISO-NE markets). FERC has not yet acted, and there is no guarantee FERC will ever act. Even if FERC does act on this petition for declaratory order, its order would be advisory and not binding.

This proposed amendment does not break new ground. The constitutional issues raised with respect to energy credits have already been resolved in two recent federal court cases involving zero emissions rate credits in Illinois and New York. *See Coalition for Competitive Elec. v. Zibelman*, 906 F.3d 41 (2d Cir. 2018) (hereinafter “*Zibelman*”); *Elec. Power Supply Ass’n v. Star*, 904 F.3d 518 (7th Cir. 2018) (hereinafter “*Star*”). The federal courts of appeals in both cases (Second and Seventh Circuits) held that zero emissions rate credits are not FERC jurisdictional and cannot be preempted and do not raise dormant commerce clause concerns. The Supreme Court denied certiorari last month (April 15, 2019), which means that these cases are now settled law.

The plaintiffs in both cases argued that the “practical effect” of the rate credit programs is that generators will bid and clear in the regional electricity markets, making it effectively “no different” than the situation in Hughes. But the courts held otherwise, noting that there is nothing in those state statutes requiring parties to bid and clear in those regional markets and that a “decision to sell power into the wholesale markets is a business decision that does not give rise to preemption concerns. Accordingly, there is no support for plaintiffs’ assertion that the state action tethers the receipt of zero emissions credits to participation in the wholesale markets.” *Zibelman*, 906 F.3d at 53; *see also Star*, 904 F.3d at 523.

FERC also spoke on this issue in a brief to the Seventh Circuit, and said the same thing: that “a business decision to sell at the auction is irrelevant from a preemption perspective and not equivalent to a state directive.” Amicus Brief of the United States and the Federal Energy

Regulatory Commission, Case Nos. 1:17-CV-01163 & 1:17-CV-01164 at 12 (filed May 29, 2018), citing *Coal. For Competitive Elec. v. Zibelman*, 272 F. Supp. 3d 554, 570 (S.D.N.Y. 2017), on appeal, 2d Cir. No. 17-925. Accordingly, there should be no preemption concern with this amendment – either at FERC or in federal court.

Finally, dormant commerce clause arguments have not been successful in cases of this nature. The Supreme Court's *Hughes* case did not turn on the dormant commerce clause arguments. And both the Seventh and Second Circuits rejected dormant commerce clause challenges against the Illinois and New York zero emissions credit programs. The Seventh Circuit determined conclusively that there was no interstate commerce discrimination that justified the plaintiffs' arguments. And the Second Circuit held that plaintiffs had no standing to argue there was interstate discrimination because they did not own out-of-state plants that were harmed by such alleged discrimination.

That concludes my testimony. I am happy to answer any questions.

**Supplemental Testimony of David L. Schwartz before New Hampshire Senate Energy and
Natural Resources Committee
Hearing on proposed Amendment #2019-1737 to HB 183
May 7, 2019**

Madam Chair and Senators, you asked me to respond to the comments of D. Maurice Kries, the Consumer Advocate.

First, Mr. Kries indicated that the wood plants have not raised a preemption challenge itself in court. However, that is not typically how preemption challenges have been raised. In the *Hughes* case, as well as the zero emissions credit cases in New York and Illinois, for example, preemption challenges in federal district court were raised by entities that were seeking to have a court find that the state programs were unlawful. In none of those cases did defendants that supported the constitutionality of the state programs initiate court actions.

Second, Mr. Kries suggested that the proposed amendment may not resolve the preemption concerns. However, Mr. Kries does not explain how the amendment could raise any preemption issues because FERC does not regulate the sale of a renewable energy credit. And that was precisely the issue that was resolved, with finality, in the Second Circuit and the Seventh Circuit zero emission credit cases. Furthermore, FERC has spoken on this issue in a brief in the Seventh Circuit zero emission credit case, explaining to the court that FERC lacked jurisdiction over zero emission credits and that that case lacked preemption concerns.

Given that the Supreme Court has denied certiorari in the Second and Seventh Circuit cases last month, as well as the lack of FERC jurisdiction over renewable energy credits (and FERC's own statements that it lacks jurisdiction over zero emissions credits), it is highly unlikely that any court, including the First Circuit, would ever find that there are preemption concerns with the proposed amendment.

Thomson Family Tree Farm

173 Strawberry Hill Road, Orford, NH 03777

Phone: (603) 353-4488

May 7, 2019

Senator Martha Fuller Clark, Chairman
Senate Energy and Natural Resources Committee
Room 103 New Hampshire State House
Concord, NH 03301

Dear Madam Chairman and Committee Members,

My name is Tom Thomson; I am a NH Private Forest Landowner and Certified Tree Farmer. My wife Sheila and I own and manage the Thomson Family Tree Farm in Orford, NH, which consist of a total of 2600 acres.

We support HB 183 Biomass Amendment, which will assure the critical market for our low-grade wood. On any timber harvest 60 to 65% of all wood harvested is low-grade wood which ends up as pulp or wood chips for the biomass plants. Our forest is no different than the garden in your back yard, we both have to weed and thin it if we want a productive garden or in my case a sustainable forest for all to enjoy.

The Forest Industry is one of the oldest continuous industries in NH. Our state is the 2nd most forested state in the US, Maine is #1 and Vermont is #3; while our natural renewable forest covers 84% of the state just under 5 million acres. A total of 76% of forest land is privately owned while the State and Federal Government (White Mt. National Forest) own a much smaller per-cent of NH land base.

NH has four of the largest and oldest Landowner Organizations who have gone on record in supporting the Forest Industry in general and specifically has supported the importance of the Biomass low-grade markets. These Landowner Organizations each have been helping their members in NH for over 100 years, they are: 1. Society for the Protection of NH Forest 2. New Hampshire Timberland Owners Association 3. New Hampshire Farm Bureau and 4. New Hampshire Audubon.

Over the past year SB 365, the Biomass Bill received major support in both the NH House and Senate, it was Vetoed by the Governor and on Sept. 13, 2018 both the House and Senate voted to override and were successful in doing so.



"A Working Sustainable Tree Farm"

During this time there was much discussion, some factual and some not. Many were suggesting this was just a North Country issue, and therefore it wasn't as big a problem as we in the Forestry Industry or in my case a Forest Landowner were stating. So today I would like to share with you some facts from the NH Dept. of Revenue, Timber Tax Division, which clearly shows this is not just a North Country issue. We looked at the 2017 records of the total green tons produced of Biomass Wood Chips for each County in NH and found that the number one County was Merrimack producing 261,910 tons, followed by Grafton with 199,985 tons and third is Hillsborough with 163,170 tons. We also learned that most of the equipment dealers for this industry are in the southern counties. (Documents are provided)

In January of 1998 the Thomson Family Tree Farm was hit like many others by a devastating Ice Storm, when we lost 800 acres. In NH a total of 700,000 acres were impacted and nine counties were declared disaster areas. Thankfully at the time we had all Biomass plants running at capacity to help clean up the mess in nine NH counties. Ask yourself, what if we had another natural disaster in our forest and all the Biomass plants were closed, what would the State do? If it was like the 1998 Ice Storm with the huge amounts of debris and slash of destroyed trees that were snapped off, twisted or blown down in every direction and no market like the Biomass, I believe we would witness forest fires like we've never seen.

I have been a forest landowner for 63 years and I hope to continue as an active Tree Farmer and pass our land base on to our son and two grandkids, but if we don't have low grade markets such as pulp and biomass we will be growing house lots instead of trees and that would be a sad day for me.

I hope you will help us by passing the HB 183 Amendment you have before you to resolve this matter once and for all; Biomass must be one of our energy policies we have in NH. I believe if we don't we could see the Forest Industry go the way the NH Shoe Industry did. Thank you for your consideration.

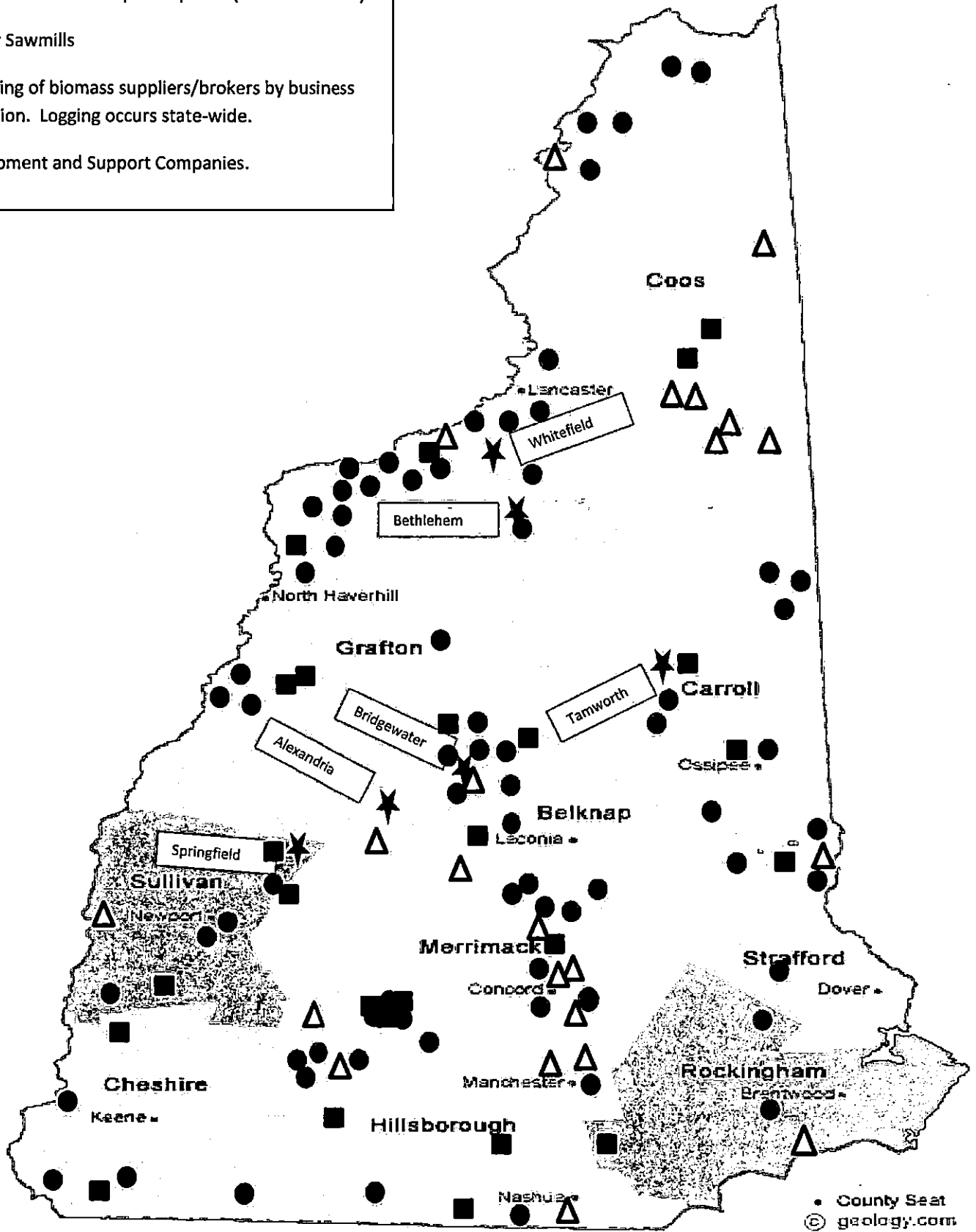
Sincerely yours,



Thomas Thomson

Survey of 6 independent biomass power plants, biomass suppliers, and sawmills

- ★ = Independent biomass power plants (25 MWs or less)
- = Larger Sawmills
- = Sampling of biomass suppliers/brokers by business office location. Logging occurs state-wide.
- △ = Equipment and Support Companies.



● County Seat
 © geology.com

New Hampshire Timber Sales

Source: timber tax records, N.H. DRA, tax year April 1, 2014- March 31, 2015

County	municipalities with timber sales**	timber sales for tax year 2014-2015	timber sales with biomass	biomass volume (tons)
Belknap	11	206	113	148,046
Carroll	17	345	107	102,415
Cheshire	23	279	47	78,303
Coos	29	311	108	151,346
Grafton	36	451	184	199,985
Hillsborough	30	319	142	163,170
Merrimack	27	448	223	261,910
Rockingham	31	233	131	96,311
Strafford	12	123	82	55,646
Sullivan	15	231	61	91,886
Total	231	2946	1198	1,349,018

footnote:

Approximately 3,000,000 tons of timber is harvested in NH annually (all products, all species)

** this includes towns, cities and unincorporated places



THOMSON FAMILY TREE FARM
THOMAS THOMSON
173 Strawberry Hill Road
Orford, NH 03777



THOMSON FAMILY TREE FARM
THOMAS THOMSON
173 Strawberry Hill Road
Orford, NH 03777



May 7, 2019

RE: HB 183 Amendment No. 2019-1737, relative to baseload renewable generation credits for biomass energy facilities.

Statement of Mark Driscoll for Pinetree Power-Bethlehem, LLC and Pinetree Power-Tamworth, LLC

Thank you, Senators and Chairwoman Fuller Clark, for the opportunity to speak on the need for this legislation. My name is Mark Driscoll and I am the manager of the 15 MW Pinetree Power biomass power plant in Bethlehem. I have been the manager of that plant since 1992. I am here today on behalf of that plant and its employees, and our affiliated biomass plant and its employees, the 22 MW Pinetree Power-Tamworth plant.

Without this legislation the Bethlehem and Tamworth plants will close, jobs will be lost, and many New Hampshire families will be harmed economically.

Our management has worked to preserve the jobs associated with these plants. Our CEO, in following-up on a meeting with state officials on last session's SB 365, wrote "without SB 365, given the millions of dollars of losses these businesses are incurring and expect to incur going forward, these plants will be closed. Plant closure is a hardship for all, and most significantly for the families that depend on the jobs created from plant operations". He went on to state: "If possible, closure is an unfortunate outcome that I would like to avoid."

Due to the litigation delays on SB365 the plants have obtained no benefit from that law and are now in an economically induced shutdown. This amendment to HB 183 means the difference between the plants returning to regular full-time operations and job preservation and plant closure and job loss. I urge you to pass the bill with this amendment.

The Bethlehem and Tamworth plants have been in continuous operation since 1986 and 1987, respectively. Collectively these plants employ 40 people in direct power plant operations. These are good paying jobs and many our employees have been with the plants for over 20 years. Based on the Plymouth State University Study estimates for the 6 biomass plants, the two Pinetree plants also support approximately another 250 jobs in wood fuel procurement for the plants and in related businesses.

Our employees and suppliers all thought SB365 was going to stabilize the biomass industry. It has not done so due to the litigation over that law and its implementation. This is an issue that impacts families. The resulting uncertainty, for example, means some who wanted to purchase a new vehicle, or a new home are holding off because they do not know if they will have a job next week. Some are worried about how they are going to pay their mortgages if they lose their job. The anxiety and stress of uncertain continued employment has been too much for several of our employees, so they have chosen to leave.

I ask that you vote this amendment to HB 183 "ought to pass" and the amended bill as ought to pass as amended.

Thank You

A handwritten signature in black ink, appearing to read "M. Driscoll". The signature is written in a cursive style with a large, prominent initial "M".

Mark Driscoll, Plant Manager

HB 183 Amendment Testimony
Senate Energy and Natural Resources Committee

May 7, 2019

Chairwomen Fuller Clark and members of the committee,

Thank you for the opportunity to speak to you today in favor of this amendment to HB 183. This is an important bill and its legislative fate will determine the fate of a number of biomass power plants and the hundreds of jobs they support.

My name is Michael O'Leary and I am the Asset Manager of Bridgewater Power Company, one of 6 biomass plants that this legislation impacts. The Bridgewater plant has been in operation since 1987 and employs 20 people in the plant and supports about another 100 jobs in wood chip procurement and other service sectors. We are in the same part of the state that has seen the closure of the Alexandria biomass plant, with its resulting job losses.

Due to the low price of energy and renewable energy credits, Bridgewater is currently shut down. Simply put, the plant cannot run economically and sustain the plant and wood fuel related jobs in the current and forecasted market.

The legislature enacted SB365 last session in response to these market conditions and the risk of significant job loss and the loss of \$254 million of annual economic activity. Litigation by SB365 opponents has prevented the implementation of that law, and leaves plant operations and continued employment of plant personnel and wood-supply businesses at risk.

With the uncertainty created by the failure to implement SB 365, we are uncertain of the plant's restart date. Operating seasonally doesn't seem to be a viable option for our facility and it is not an option for those who work for us and supply us with our wood fuel.

In 2018 - when we did not operate in the months of May, September and October – it created a negative jobs impact with our suppliers as we purchased almost \$2 million dollars less in fuel than during full time regular operation. Wood suppliers had to curtail their operations, and many needed to scale back to four-day work weeks, I was told. I was also told that local suppliers had to reduce work hours for many of their employees.

The situation grows worse by the day if the plant cannot return to operation. The equipment debt obligations of many of our local suppliers for chippers and tractor-trailers that will no longer be needed if the biomass wood fuel chip market goes away will not be able to be met, and I've been told our local businesses likely will be forced to file under the bankruptcy laws.

Please note we have tried to cut our costs to manage through the past years' and current year's losses. Our employees have not had raises or bonuses in two years. We've deferred a significant amount of maintenance and have not been able to make any capital investments in the facility. We've significantly reduced our wood fuel purchase price – another factor impacting our partners in the logging community.

Our continued operation is dependent on this legislation. You may remember the Plymouth State University study of the 6 biomass

plants covered under this amendment, it demonstrated that the economic and environmental benefit to the State from these plants and plant supported jobs is significantly outweighed by the cost.

We will continue to assess the market and want nothing more than to make our operation viable and continue to provide jobs and livelihoods for our people, the foresters who manage our timber stands, and the people who provide our biomass fuel supply.

Thank you for your time and again, I would be happy to answer any questions.



April 11, 2018

Rep. Richard Barry, Chairman
N.H. House Science, Technology and Energy Committee
Room 304, Legislative Office Building
Concord, NH 03301

RE: Senate Bill 365, *AN ACT relative to the use of renewable generation in default service*

Dear Chairman Barry and members of the Committee:

The New Hampshire Timberland Owners Association (NHTOA) thanks you for the opportunity to speak in support of Senate Bill 365. Founded in 1911, the NHTOA represents forest landowners and the forest products industry in New Hampshire. This sector of New Hampshire's economy represents the third-largest sector of manufacturing in the state. The total forest products industry in New Hampshire employs more than 7,700 people directly, and contributes nearly \$1.4 billion dollars to the state's economy.

The NHTOA supports the biomass provisions in this bill, as they will assist in the continued operations of the state's six independent biomass power plants. Losing these biomass power plants, and the low-grade timber (trees unsuitable for lumber) markets they provide will negatively impact;

- Hundreds of jobs,
- Economic activity in many N.H. communities,
- New Hampshire's forest products industry,
- Sustainable forestry and timberland/stumpage values.

Jobs and Economic impact

In 2016 the NHTOA retained Plymouth State University's College of Business Administration (PSU) to conduct a study to estimate the economic contribution the six independent biomass electric power plants make to the New Hampshire economy.

This study shows:

- The grand total of the direct effect (the six independent biomass electric power plants), indirect effect (supply industries), and induced effect (service sector) economic activities is approximately **932 jobs (\$50.9 million in payroll)**. And the total economic output to the state's economy is **\$254.5 million each year**.
- The six biomass plants contribute \$7.3 million in tax revenues to state and local governments from all sources (direct, indirect and induced effect).

54 PORTSMOUTH ST., CONCORD, NH 03301
603-224-9699 • FAX 603-225-5898 • WWW.NHTOA.ORG

Growing Leadership for New Hampshire's Forests

This economic impact is statewide and occurs in many communities without the benefit of a large tax base. According to the New Hampshire Department of Revenue Administration's (NH DRA) timber tax data, during the 2014/2015 tax year 1,349,018 tons of biomass was harvested in 209 towns in New Hampshire.

Broader Forest Products industry

Besides timberland management, biomass markets also play two important roles for New Hampshire's sawmill industry (an industry whose annual output exceeds \$445 million) by:

- Providing an outlet for sawmill wastes (saw dust and chipped slabs),
- Improving forest management for future saw log production, and
- Improving overall logging operations/output.

Forest management and stumpage values

According to the U.S. Forest Service's Forest Inventory Analysis (FIA) data, almost two-thirds of the standing timber in New Hampshire is considered low-grade. Without markets for low-grade timber, landowners and land managers are unable to economically improve forest health and vigor. This will hinder many forest management activities practices common in New Hampshire,

- Watershed management projects, (managing tree canopy evapotranspiration),
- Wildlife habitat work (e.g. installing food plots, etc.),
- Recreation management (installing motorized and non-motorized trails),
- Pest management (e.g. Emerald Ash Borer control).

Timber markets make timberland ownership economically viable. Loss of saw log and low-grade timber markets directly impact stumpage values and ultimately the timberland's overall real estate value.

For these reasons, the NHTOA is asking you to support Senate Bill 365. Again, thank you for allowing me to testify on this important piece of legislation.

Sincerely,

Jasen A. Stock
Executive Director

Attach

CC: N.H. House of Representatives Science, Technology, and Energy Committee

Biomass Statewide Annual Economic Benefits*

6 Independent Biomass Power Plants

3/1/2017

Local Economic Activity Current Statewide Biomass Industry - 6 independent power plants			
	Jobs	Payroll	Annual Economic Impact (includes value added and payroll)
6 Independent Biomass Power Plants	120	\$11,600,000	\$158,900,000
Suppliers (e.g. commercial loggers)	583	\$28,100,000	\$64,500,000
Service/Support businesses (e.g. real estate, wholesale trade, etc.)	228	\$11,200,000	\$31,100,000
Total	931	\$50,900,000	

Total annual economic impact

\$254,500,000

*Source: Plymouth State University 2017 Economic Contribution of Biomass Electric Power Generation Industry (6 plants)

2016 NH Timber tax volumes and town revenues

source: 2016 NH Dept. of Revenue Administration timber tax data

Tax revenues

Total timber tax paid	Est. total stumpage value
\$3,810,723	\$38,107,330
Est. biomass timber tax paid	Est. biomass stumpage value
\$132,665	\$1,326,650

Timber Volumes (MBF)

Softwoods					Hardwoods						Low-grade	
White Pine	Spruce/Fir	Hemlock	Red Pine	Red Oak	Sugar Maple	Yellow and White Birch	Ash	Red Maple	Hardwood pallet and tie logs	Other hardwood (Beech, etc.)	Biomass (tons)	Other low-grade (firewood, etc.) (tons)
107,312	20,880	17,781	3,633	23,448	6,523	4,484	3,405	6,258	24,155	1,848	1,326,650	834,172

Timber Volumes (everything converted to tons)

Softwoods					Hardwoods						Low-grade	
White Pine	Spruce/Fir	Hemlock	Red Pine	Red Oak	Sugar Maple	Yellow and White Birch	Ash	Red Maple	Hardwood pallet and tie logs	Other hardwood (Beech, etc.)	Biomass (tons)	Other low-grade (firewood, etc.) (tons)
472,173	87,697	85,349	15,985	121,930	33,920	23,317	17,706	32,542	125,606	9,610	1,326,650	834,172

Total volume summary (tons)

Softwood Tonnage	661,203
Hardwood tonnage	434,750
Other low-grade products (tons)	834,172
Biomass	1,326,650
Total NH timber tonnage	3,256,776

pallet 3.86% percent of total
10.48% percent of hardwood



Forests of New Hampshire, 2017

This publication provides an overview of the forest resources in New Hampshire based upon inventories conducted by the U.S. Forest Service, Forest Inventory and Analysis (FIA) program of the Northern Research Station. Information about the national and regional FIA program is available online at www.fia.fs.fed.us.

Since 2002, FIA has implemented an annual inventory measuring 14 percent of sample plots each year. For the 2017 inventory, estimates for current variables, such as area, volume, and biomass, are based on 1,162 plots inventoried from 2011-2017. Change variables, such as net growth, removals, and mortality, are based on 923 plots inventoried in 2008-2012 and resampled in 2011-2017. Estimates from earlier annual and periodic inventories are included for comparison.

See Bechtold and Patterson (2005) and O'Connell et al. (2017) for definitions and technical details.

Additional data and reports are available online (www.nrs.fs.fed.us/fia/data-tools/state-reports/NH). A complete set of inventory tables is available at INSERT DOI.

Overview

New Hampshire contains an estimated 4.7 million acres of forest land (Table 1) and covers 82.7 percent of the land area in the State. Most of the forest land, 94.1 percent, is classified as timberland, meaning that it exceeds a minimum level of productivity and is not legislatively reserved from timber harvesting.

On the forest land in New Hampshire, there are an estimated 4.3 billion live trees that are at least 1 inch in diameter (Table 1). These trees have a total above ground biomass of 291.6 million tons and, looking at trees at least 5 inches in diameter, a total net volume of 11.2 billion ft³. The ratio of net growth to removals is 1.8:1.

Table 1.—New Hampshire forest statistics, 2017 and 2012. Volume estimates are for trees 5 inches and larger in diameter. Number of trees and biomass estimates are for trees 1 inch and larger diameter. Sampling errors and error bars shown in tables and figures in this report represent 68-percent confidence intervals.

	2017 estimate	Sampling error (%)	2012 estimate	Sampling error (%)	Change since 2012 (%)
Forest Land					
Area (thousand acres)	4,741	0.9	4,833	1.0	-1.9
Number of live trees ≥1 in diameter (million trees)	4,274	2.5	4,270	2.6	0.1
Live tree aboveground biomass (thousand oven-dry tons)	291,568	1.6	285,084	1.8	2.3
Net volume of live trees ≥5 in diameter (million ft ³)	11,216	1.8	11,023	1.9	1.7
Annual net growth of live trees ≥5 in diameter (thousand ft ³ /yr)	201,351	3.8	197,914	5.0	1.7
Annual mortality of live trees ≥5 in diameter (thousand ft ³ /yr)	102,831	5.7	117,106	5.4	-12.2
Annual harvest removals of live trees ≥5 in diameter (thousand ft ³ /yr)	110,159	12.9	125,451	11.9	-12.2
Annual other removals of live trees ≥5 in diameter (thousand ft ³ /yr)	4,312	48.9	2,535	51.6	70.1
Timberland					
Area of timberland (thousand acres)	4,463	1.1	4,532	1.2	-1.5
Number of live trees ≥1 in diameter (million trees)	3,927	2.7	3,914	2.9	0.3
Live tree aboveground biomass (thousand oven-dry tons)	275,352	1.8	268,962	2.0	2.4
Net volume of live trees ≥5 in diameter (million ft ³)	10,574	2.0	10,388	2.1	1.8
Net volume of growing-stock trees ≥5 in diameter (million ft ³)	9,481	2.1	9,560	2.2	-0.8
Annual net growth of growing-stock trees ≥5 in diameter (thousand ft ³ /yr)	180,787	3.4	190,270	4.0	-5.0
Annual mortality of growing-stock trees ≥5 in diameter (thousand ft ³ /yr)	69,187	6.3	79,189	5.9	-12.6
Annual harvest removals of growing-stock trees ≥5 in diameter (thousand ft ³ /yr)	92,688	13.1	105,184	12.1	-11.9
Annual other removals of growing-stock trees ≥5 in diameter (thousand ft ³ /yr)	4,788	55.2	7,529	48.0	-36.4

Forest Area

New Hampshire's forest land area has decreased since 2012 (Fig. 1). An estimated 72.2 percent of the forest land is privately owned, 27.8 percent is publicly owned, and the remainder is owned by Native American tribes (Fig. 2).

Currently, 64.2, 24.8, and 10.7 percent of the timberland in New Hampshire is in large, medium, and small stand sizes, respectively (Fig. 3).

respectively (Fig. 3).

The most common forest-type group is Maple/beech/birch, representing 51.9 percent of New Hampshire's forest land area (Fig. 4). The next most common forest-type groups are White/red/jack pine, Oak/hickory, and Spruce/fir.

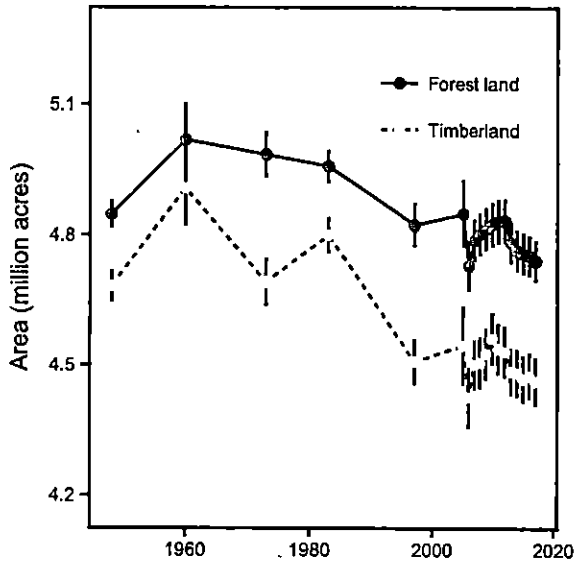


Figure 1.—Area of forest land and timberland, New Hampshire.

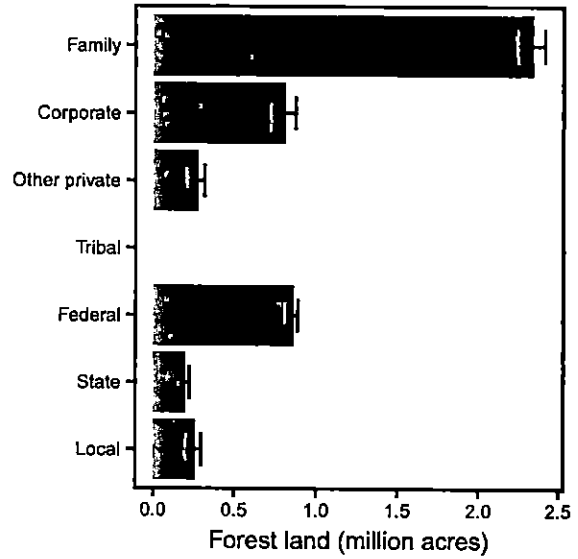


Figure 2.—Area of forest land by ownership group, New Hampshire, 2017.

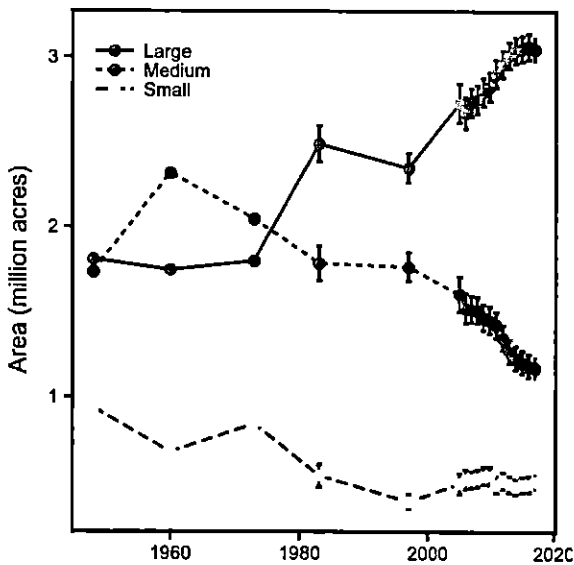


Figure 3.—Area of timberland by stand-size class, New Hampshire.

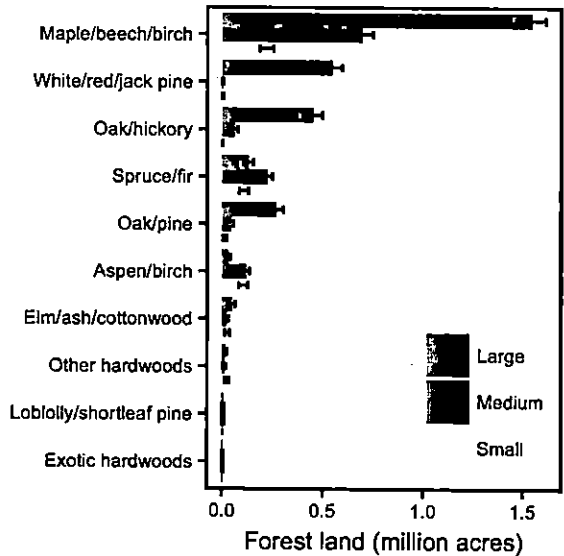


Figure 4.—Area of forest land by forest-type group, New Hampshire, 2017.

Forest Composition

New Hampshire's forests contain a wide variety of tree species with over 60 species sampled in 2017. This composition looks different depending on whether the number or volume of trees are examined.

In terms of volume, eastern white pine is the most common tree in New Hampshire followed by red maple and northern red oak (Table 2). Collectively, the 10 most voluminous tree species account for 89.0 percent of the total volume of live trees on forest land in New Hampshire. Of these species, red spruce, northern red oak, and sugar maple showed the most substantial increases in volume since 2012.

In terms of number of trees, balsam fir is the most numerous species in New Hampshire with 19.8 percent of the tree stems in the State (Fig. 5). Other common species include red maple, American beech, red spruce, and eastern hemlock. The ten most common species, in terms of numbers of stems, account for 83.6 percent of the trees in the State.

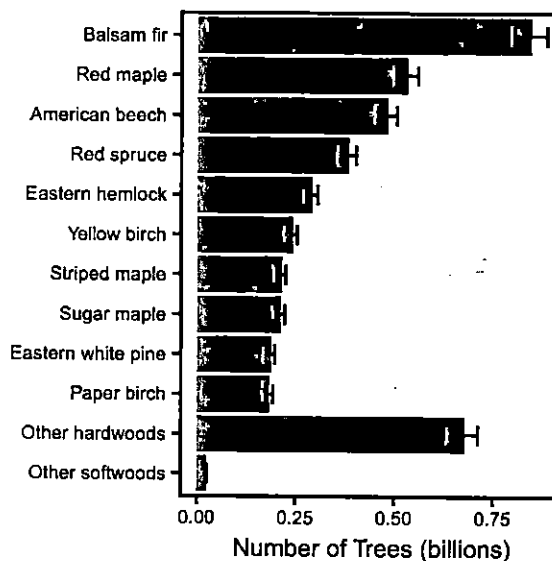


Figure 5.—Number of trees at least 1 inch in diameter by species, New Hampshire, 2017.

Table 2.—Net volume and percent change in net volume on forest land; sawtimber volume and percent change on timberland, New Hampshire, 2017 (top 10 species by net volume).

Rank	Species	Volume of live trees on forest land (million ft ³)	Sampling error (%)	Change since 2012 (%)	Volume of sawtimber trees on timberland (million board ft)	Sampling error (%)	Change since 2012 (%)
1	Eastern white pine	2,151.3	6.3	-1.7	9,540.3	6.9	0.1
2	Red maple	1,667.4	4.0	-1.2	3,002.2	5.9	-4.5
3	Northern red oak	1,273.1	6.6	8.6	4,405.7	7.9	13.4
4	Eastern hemlock	1,188.7	7.1	2.1	3,113.6	8.6	0.5
5	Sugar maple	875.8	7.3	3.9	2,236.7	9.5	6.3
6	Yellow birch	663.3	5.4	2.7	1,352.1	8.3	3.4
7	Red spruce	654.4	8.1	16.9	1,537.2	10.9	18.9
8	Balsam fir	529.6	6.9	0.9	633.2	11.8	0.1
9	American beech	525.0	6.8	0.1	897.2	11.4	-12.9
10	Paper birch	457.3	5.8	-10.3	646.2	10.0	-13.7
	Other softwood	111.1	24.6	-17.1	319.5	23.5	-9.1
	Other hardwood	1,119.2	5.8	4.7	2,774.7	8.3	3.4
	All species	11,216.2	2.1	1.8	30,458.6	3.0	2.2

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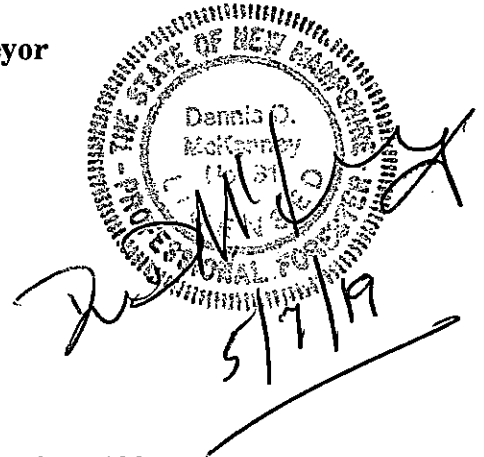
May 7, 2019

From: Dennis D. McKenney, Consulting Forester/Land Surveyor
To: Senate Energy and Natural Resources Committee

RE: HB 183 biomass amendment

I speak in support of this amendment as a

- resident of Bennington for decades,
- home and timberland owner of 100 acres in town,
- taxpayer, raised 4 children to adulthood in town
- consulting forester, land surveyor for 45 years.
- experienced land manager
- a forester who has successfully used the biomass market since 1983



Important Regional Facts:

- Biomass—low value commodity in 1983, low value commodity in 2019
- Biomass---abundant across the landscape
- But it still contributes over 250 million dollars to the State's GDP!!!

So, why harvest biomass?

- Long term forest improvement, 80/20 rule: the vast majority of NH trees are graded as 'unacceptable growing stock'---this means pulpwood or biomass
- Home grown, renewable fuel,
- Strong biomass markets allow us to weed the garden, to weed out the low-quality stems while producing modest income and avoiding expenses
- Wildlife benefit
- Recreation benefit
- Important to the public, the sawmill, the forester and logger and the landowner
- Widespread economic benefits and JOBS across NH

Important facts from one small NH company, NEFCo

- 2-3 loads of biomass produced per load of logs
- Geography: south of WMNF, private non industrial timberland
- 2017 5 foresters 2.7 million dollars' worth of standing timber, 11.7 million bf and about 90,000 tons biomass and roundwood
- That's about 8 tons of low quality wood for every thousand board feet of higher quality and value sawlogs!
- Ytd my office only, 2 foresters, \$643,000, 3.3mmbf, about 25,000 tons of roundwood and biomass

We need an expanding not contracting biomass market of large and small facilities dispersed across NH. This amendment moves us in that direction.

But I am concerned with the 'humpty dumpty' effect: if we lose the biomass market it won't readily be put back together again. Your continuing support is vital to forest products industry across all of New Hampshire.

Reps and Senators: thank you for your service to the State of NH, I appreciate it. Please vote 'YES' on this amendment.

5/2/19

Matt Magoon
Magoon Logging
Lendon, OH

I want to start by thanking this council for hearing our testimonies and concerns. I would also like to thank every forest professional here today for taking valuable time out of their schedule to come here. This shows how important these biomass plants mean to our industry.

This seat I am sitting in today is very uncomfortable to be in. It is much more comfortable for me to be in the seat of a piece of equipment on my job with my crew. Unfortunately I realize that if I'm not here I will no longer have the opportunity to be in that seat working and contributing to my local and State economy as we have for nearly 20 years.

The biomass plants have a very important role in our states forest industry. They deal with a waste product that is produced in our harvesting operation. In 2018 my company produced 6840.08 tons of wood waste. In a normal year we produce around 9,000 tons. Which is 35% of our total production. The 6840.08 tons still represents 35% of our total production. This number was down to prior years due to last June when our market went into reverse because of the power plant shutdowns. This was a very difficult process to deal with considering every single tree cut has wood waste. We have put off equipment purchases and scaled back production while we wait to see how this turns out. If these biomass plants cannot run year round the secondary waste market will

suffer and drive costs up considerably. These markets include the High School my wife and I went to as well as our 3 children in the school system now. MVHS just a few miles from here. We also have a long term relationship with a local greenhouse that uses wood waste for heat during the winter months. These types of markets are seasonal and use far less than a biomass plant. It will be very expensive to have a chipper operating only a couple months out of the year.

I want to speak about what Eversource calls an "unfair" subsidy paid for by the rate payers. Who they say they are most concerned with. Let me tell you I'm also concerned for my clients. The private landowners we work for which makes up 76% of our States forest ownership. I want to ask you this. Is it right to take away from landowners this market and tool for responsible timber harvesting? I don't think so. I also don't think it is right to burden these landowners with the added logging cost to their harvest. They will be forced to accept less revenue from forest products that every single person in this State benefits from and uses every single day! So let's look at who the REAL burden is on the landowner and forest professionals. I will encourage anyone here that would like a site visit to our job to come out and see the challenges we face on the ground. Please vote in favor of the Biomass amendment. Thank you

Jeff Eames

Fort Mountain Companies

17 employees,,

Allenstown NH

Learn more about us by visiting NH Forestry.com

We support the Biomass amendment, and it is important to our business, local business, and the state of NH.

Business / Produce 1K chips / week.

Contractor,, land owner assistance program.

25 K acres,, 1 K that we own.

Wildlife,, wildlife management. NH needs healthy forest.

Timber Investment

Employees,, Keep up with the cost of living.

Other business

Purchases such as

Gravel, Pipes, geotextile, engineering services , parts from local parts stores

Sanels , Car parts ,, Snap-on, Aubochoon Hardware

Grappone trucks, Nortrax equipment, Anderson Equipment,,

Freightliner, Irving fuels , Windward petroleum, Industrial communications,

Sullivan tire, Acadia insurance, Local banks, surveying cost, Airgas east, Inspection

stations, Electricity Eversource

750 K - Maintenance cost

Other business like towns, cities, and , local towns Taxes, Truck registration , Fuel tax, property tax.

State Government,, Tourism,, Keeping NH Forest well-manicured with good forestry . Utilization through whole tree harvesting.

Bearbrook SP with scale infestions,, White Ash with the emerald ash borer.

Close with ,, Biomass used as fuel , from the production of wood waste is good for the residents of NH, Great for our wildlife, water quality, and Tourism.

People come to our state visit are typically outside people. Keeping our forest and water ways respectable, while creating a few jobs for us is a great mechanism.

manage

750 K to local vendors

**TESTIMONY
OF
ROBERT J. BERTI, SELECTMAN – TOWN OF RUMNEY, NH
HB 183
MAY 7, 2019**

1. ECONOMIC

- a. One large sawmill which employs over 20 people
- b. Large pulpwood processing yard employing 9 people
- c. Small custom sawmill which produces specialized lumber products; i.e. log cabin logs; dimension lumber
- d. Small sawmill currently being renovated to process custom logs; i.e. birdseye maple, timber frames, specialized species – walnut, hickory, cherry
- e. 3 forestry-based businesses employing 10 people
- f. 2 large family logging contractors live in town employing 15-18 people
- g. 1 sawmill consultant
- h. Town receives average timber tax revenue of approximately \$20,000/year
- i. Approximate landowners' revenue based on yield tax revenue - \$200,000/year

2. RECREATION

- a. Rumney Rocks – considered one of the premier rock-climbing areas in the world
- b. Several miles of snowmobile trails on private lands
- c. Baker River and Stinson Lake bordered by forest

3. CULTURAL

- a. The town has a long history of timber harvesting and lumber production

May 7, 2019

Public Hearing for HB 183 - *amendment*
Senate Energy and Natural Resources Committee

I submit to the public record the following report:

A Dirty Waste—How Renewable Energy Policies Have Financed the Unsustainable Waste-to-Energy Industry

Boston College Law Review Volume 60 | Issue 1 Article 9 1-29-2019
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1-29-2019

A Dirty Waste—How Renewable Energy Policies Have Financed the Unsustainable Waste-to-Energy Industry

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A DIRTY WASTE—HOW RENEWABLE ENERGY POLICIES HAVE FINANCED THE UNSUSTAINABLE WASTE-TO-ENERGY INDUSTRY

Abstract: The end of the 20th Century saw a major shift in the United States' approach to energy policy. After decades focused on fossil fuel production, the country began to realize that renewable sources of energy were the way of the future. Motivated by environmental concerns and a realization that oil is a finite resource, the federal government and local governments began adopting economic policies that rewarded investment in and production of renewable, clean technology. Governments relied on both mandates and tax incentives to encourage the use of energy from sources like solar and wind power. Waste-to-Energy ("WTE") power is another form of energy production that is classified as renewable. Thus, WTE has benefited significantly from renewable energy policies. WTE, however, is a form of energy produced by burning trash and is neither environmentally friendly nor particularly sustainable. Yet, the WTE industry owes its existence to those government programs designed to fund sustainable sources of electricity. With WTE drawing from the same pot of government resources, the policies that were written to stimulate the sustainable energy field and protect the environment have undermined those very goals by subsidizing the WTE industry. This Note summarizes the WTE process and the laws that allowed it to grow, argues that WTE is not economically sound or environmentally sustainable, and proposes legislative changes to prevent more harm from WTE in the future.

INTRODUCTION

On March 17, 2016, the residents of South Baltimore had reason to celebrate.¹ After years of fighting between the citizens and the Energy Answers International power company, the Maryland Department of the Environment announced that the permit allowing the energy company to build a new waste-to-energy ("WTE") power plant in the town of Fairfield had ex-

¹ See Fern Shen, *Maryland Declares Energy Answers' Fairfield Incinerator Permit Expired*, BALT. BREW (Mar. 17, 2016), <https://baltimorebrew.com/2016/03/17/maryland-declares-energy-answers-fairfield-incinerator-permit-expired/> [https://perma.cc/VM6P-US2K] (detailing that the parties were involved in a six-year conflict over the plan to build a trash incineration power plant in the southern neighborhood of the Maryland capital city). The Energy Answers International company wanted to build its waste facility on the site of an old chemical plant. *Id.* It was opposed by the citizens of Curtis Bay, Brooklyn, and Brooklyn Park as well as the Environmental Integrity Project and Free Your Voice, a student run human rights organization. *Id.*

pired.² Local advocacy groups shared in triumph and relief that the incinerator would not be built, stating that the decision saved the area from another facility that would emit toxic substances into the air and the surrounding environment.³

The successful effort to block the new incinerator represents a small victory for the city, but Baltimore's problem with pollution from WTE is far from resolved.⁴ The nearby Wheelabrator Baltimore incinerator, which has been in operation since 1985, is still the city's greatest single source of air pollution.⁵ In 2014, this incinerator was the source of eighty-two percent of the city's sulfur dioxide pollution and sixty-four percent of the nitrogen oxides.⁶ Today, it releases around 120 pounds of lead, 99 tons of hydrochloric acid, 60 pounds of mercury, and 2 tons of formaldehyde in a year.⁷ Compared to the state average, the number of deaths from lung cancer are twice as high and the life expectancy is ten years lower for those who live near the facility.⁸ Although correlation is not causation, the residents do believe the incinerator plays a major role in these figures.⁹

² *Id.* (noting that the contest spanned many years). Waste-to-energy ("WTE"), also called energy recovery, is the process of burning trash in an incinerator or converting trash through chemical treatment to create electricity. See *Energy Recovery from the Combustion of Municipal Solid Waste (MSW)*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/smm/energy-recovery-combustion-municipal-solid-waste-msw> [<https://perma.cc/2G8T-HKP7>] [hereinafter *Energy Recovery*] (describing the WTE process and its role in the field of renewable energy).

³ See Shen, *supra* note 1 (quoting the groups who fought the construction project). Destiny Watford, a representative of Free Your Voice, stated that this development would allow the community to bring clean energy alternatives to the area that could create jobs without posing health risks. *Id.* Free Your Voice is a group made up primarily of students from the Curtis Bay and Brooklyn areas of Baltimore that formed to fight the construction of what would have become the biggest incinerator in the United States. *We Demand Fair Development! Stop the Incinerator!*, STOP THE INCINERATOR, <https://stoptheincinerator.wordpress.com/about-free-your-voice-2/> [<https://perma.cc/QT54-K6Q7>]. Free Your Voice declares on their blog that "Clean Air Is a Human Right." *Id.*

⁴ See Scott Dance, *Power Struggle: How a Trash Incinerator—Baltimore's Biggest Polluter—Became 'Green' Energy*, BALT. SUN (Dec. 15, 2017), <http://www.baltimoresun.com/news/maryland/environment/bs-md-trash-incineration-20171107-story.html> [<https://perma.cc/2FHD-66MH>] (reporting that a WTE trash incinerator is Baltimore's main source of air pollution).

⁵ *Id.* (describing the history of the incinerator in Westport, Baltimore). The incinerator burned about 723,000 tons in 2016 and the facility has a contract with the city to continue its operations through 2021. *Id.*

⁶ *Id.*; see ECO-CYCLE, WASTE OF ENERGY: WHY INCINERATION IS BAD FOR OUR ECONOMY, ENVIRONMENT, AND COMMUNITY 2 (2011), https://www.ecocycle.org/files/pdfs/WTE_wrong_for_environment_economy_community_by_Eco-Cycle.pdf [<https://perma.cc/8SFX-3R7X>] [hereinafter WASTE OF ENERGY] (asserting that these chemicals are known to be very harmful to humans, causing cancer and respiratory disease, respectively).

⁷ Dance, *supra* note 4 (reporting that the Maryland Department of the Environment has stated that the facility is the main source of these toxic chemicals).

⁸ *Id.*

⁹ See *id.* (detailing several health issues found in residents living near the facility). The Chesapeake Bay Foundation estimates that pollution from the WTE plant may be responsible for almost \$22 million in health care costs for residents. *Id.*

Importantly, the Baltimore facility, along with around seventy other active WTE facilities in the United States, appears to comply with the current emission standards under the Clean Air Act (“CAA”).¹⁰ The facility received about \$10 million in state subsidies for renewable energy in the last six years.¹¹ This is because, in 2011, Maryland passed a bill that recognized municipal solid waste (“MSW”) as a renewable source of energy.¹² As such, the Maryland government has been providing the facility with the same financial benefits as wind, solar, and geothermal energy companies.¹³

The situation in Baltimore is not an isolated phenomenon.¹⁴ In 2014, thirty-one states had designated MSW as a renewable source of energy, and twenty-three states had active WTE facilities.¹⁵ At the federal level, MSW is also recognized as a renewable source of energy.¹⁶

¹⁰ *Id.* It is reported that the Maryland waste facility officers meet the permit standards for monitoring and limiting pollution, and that they pass 800 checks per day to make sure they remain in compliance with emission standards. *See* 42 U.S.C. § 7411 (2018) (codifying the Environmental Protection Agency’s (EPA) duty to promulgate regulations establishing emissions standards for air pollution). Under the Clean Air Act (“CAA”), the EPA must establish national ambient air quality standards (“NAAQS”). *Id.* § 7409. States must then submit a plan to comply with and enforce the NAAQS. *Id.* § 7410; *see* MD. CODE ANN., ENVIR. § 2-302 (West 2018) (stating that under Maryland law, state NAAQS will mirror those of the federal statute). Following the 1990 amendments, the CAA also requires major polluting entities to obtain and comply with federal permits. 42 U.S.C. § 7661a. The CAA also provides specifically for the regulation of facilities that rely on combustion of solid waste. *Id.* § 7429; *see also* *The Clean Air Act in a Nutshell: How It Works*, U.S. ENVTL. PROT. AGENCY (2013), https://www.epa.gov/sites/production/files/2015-05/documents/caa_nutshell.pdf [<https://perma.cc/VPW6-NVW5>] (providing a plain text summary and history of the CAA).

¹¹ Dance, *supra* note 4 (describing how Maryland’s energy policy and the federal tax code have allowed WTE facilities to receive large amounts of money with the hope of promoting renewable energy sources).

¹² *Id.* (stating that the WTE industry played a role in drafting and passing legislation that defined trash as a renewable source of energy); *see* S.B. 690, 2011 Leg., 428th Sess. (Md. 2011) (designating WTE as a Tier I energy source akin to solar or wind energy).

¹³ MD. CODE ANN., PUB. UTIL. § 7-701(r) (West 2017) (classifying WTE as a Tier I renewable energy source in the same category as solar and wind energy); Dance, *supra* note 4 (detailing the state policy that allowed incinerators the same incentives as solar, wind, and geothermal energy). The law in Maryland has a tiered energy policy that, when implemented in 2004, placed WTE in a lower classification than wind, solar, and geothermal. Dance, *supra* note 4. Under this system, subsidies would end for WTE in 2018. *Id.* Industry lobbyists, however, succeeded in having WTE moved up into the top tier for renewable energy in 2011, which means it remains eligible for subsidies beyond 2018. *Id.*

¹⁴ *See* TED MICHAELS, ENERGY RECOVERY COUNCIL, THE 2014 ERC DIRECTORY OF WASTE-TO-ENERGY FACILITIES 6, 8 (2014), http://energyrecoverycouncil.org/wp-content/uploads/2016/01/ERC_2014_Directory.pdf [<https://perma.cc/68EV-3KAM>] (listing the states that recognize WTE as a renewable form of energy). In 2014, thirty-one states had laws recognizing WTE as a form of renewable energy. *Id.* at 6. There were eighty active WTE facilities in the United States. *Id.* at 4. The average WTE facility processed 96,249 tons of MSW per day. *Id.*

¹⁵ *Id.* at 6, 8.

¹⁶ *See* I.R.C. § 45(c)(1)(G) (2018) (listing MSW as an energy resource).

The reasoning sounds fair on its face—renewable energy, as its name suggests, comes from sources that renew or replenish themselves quickly relative to other sources.¹⁷ Solar and wind energy are recognizable renewable energy sources.¹⁸ MSW is considered renewable in that consumers create a constant and reliable stream of household trash.¹⁹ The goal of using renewable power is to decrease dependence on finite fossil fuels and utilize sources that have lesser or no negative impact on the environment.²⁰ Therefore, many argue that burning waste plays an important role in working toward those ends.²¹ Government entities claim that financial incentives and tax benefits granted to the WTE industry are in an earnest attempt to reach environmental and sustainability goals.²²

Nevertheless, the very laws written to promote sustainability and protect human health and the environment have actually hindered efforts to reach those goals.²³ By granting financial benefits to the WTE industry, governments are funding activities that are not truly safe for human health or the environment.²⁴ The government has disincentivized true clean practices like solar and wind energy because it is initially more attractive to alter an existing incinerator to meet air standards than it is to invest in an entirely

¹⁷ See 42 U.S.C. § 15852(b)(2) (2018) (providing a definition of renewable energy). Renewable energy is defined as a list of technology types the federal government recognizes as renewable, rather than a more abstract summary of renewable properties. *See id.* (enumerating the recognized renewable technology types). Other government guidance elucidates the properties that renewable energies possess. *See Renewable Energy Explained*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/index.cfm?page=renewable_home [<https://perma.cc/G3PZ-DAN2>] (stating that renewable energy has the property of replenishing and being infinite over a reasonable amount of time); *see also Nonrenewable Energy Explained*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/?page=nonrenewable_home [<https://perma.cc/RJY6-3AS4>] (listing recognized non-renewable energy sources and stating that they do not replenish quickly).

¹⁸ *See Renewable Energy Explained*, *supra* note 17 (categorizing renewable energy sources).

¹⁹ *Biomass Explained: Waste-to-Energy (Municipal Solid Waste)*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/index.php?page=biomass_waste_to_energy [<https://perma.cc/F3SG-EDFZ>] (listing the elements of MSW, such as organic waste and other combustible materials, that can be used to create electricity, as well those that cannot, such as inorganic materials like glass).

²⁰ See 42 U.S.C. § 13451(b) (stating that among the goals of the Department of Energy regarding energy efficiency are improvements to technology, increases in the use of renewable energy, and reductions of environmental harm).

²¹ *See Dance*, *supra* note 4 (reporting that the Maryland government had good motives in granting subsidies to WTE plants, and that this was a logical step towards sustainability at the time they passed the bill); *State Renewable Energy Resources*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/statelocalenergy/state-renewable-energy-resources> [<https://perma.cc/V4B4-PYY7>] (describing the benefits of using renewable energy).

²² *See Dance*, *supra* note 4 (stating that Maryland politicians sought to decrease reliance on fossil fuels and stymie climate change).

²³ *See WASTE OF ENERGY*, *supra* note 6, at 2 (arguing that WTE is more expensive, less efficient, and more dangerous to human health and the environment than current alternatives, and that WTE undermines the goals of sustainability legislation).

²⁴ *See id.* (arguing that WTE facilities emit toxic substances).

new plant, purchase the land, and build the facility.²⁵ When renewable credits were made available for WTE, energy companies took the route of retrofitting incinerators.²⁶ Thus, government subsidies are allowing polluting technologies to continue to exist in the same sphere as solar and wind.²⁷ This has left less money to invest in solar, wind, and geothermal plants simply because they must draw money from the same pot as WTE.²⁸ Furthermore, these financial incentives are supporting an industry in WTE that cannot coexist with actual sustainable practices like recycling, composting, or zero waste.²⁹

²⁵ See *Renewable Portfolio Standards*, ENERGY JUSTICE NETWORK, <https://energyjustice.net/RenewablePortfolioStandards> [<https://perma.cc/RN7P-VFDA>] (explaining that companies are more likely to invest in existing renewables than risk investing in new one, given the option).

²⁶ See *id.* (stating that it is less costly for a company to buy an extant incinerator than invest in new technology).

²⁷ See *id.* (reporting that in the early 2000s, clean renewables made up 63% of renewable energy sold in the US, while biomass contributed 24% to that number). Biomass is a closely related field to WTE that relies on organic materials, such as animal and plant waste, rather than trash in the energy conversion process. See I.R.C. § 45 (2018) (defining and differentiating biomass as an energy source derived from MSW). Federal tax law treats biomass as unique from WTE. *Id.* Other government agencies, however, do not always make such a distinction, and at times treat WTE as a subset of biomass. See *Biomass Explained*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/index.cfm?page=biomass_home [<https://perma.cc/JP5Q-2T8E>] (categorizing MSW as a form of biomass). The article *Renewable Portfolio Standards*, for example, states that biomass contributed to 24% of the renewable energy sold in the U.S. and then clarifies that biomass is mostly referring to gas collected in MSW landfills. *Renewable Portfolio Standards*, *supra* note 25. Under the Internal Revenue Code (“IRC”), gas collected from an MSW landfill is exempt from the definition of biomass, which could thus render the 24% number misleading. See I.R.C. § 45 (excluding gas collected from MSW landfills from the definition of open-loop biomass). For the purposes of this Note, WTE and MSW will follow their statutory definitions. See *id.* Even though biomass is generally targeted in tandem with WTE, a full analysis of biomass is beyond the scope of this Note.

²⁸ See *Renewable Portfolio Standards*, *supra* note 25 (stating that in 2002, 24% of green energy sold came from the biomass, in this case meaning primarily landfill gas). Green power is renewable energy that has the least negative impact on the environment. See U.S. DEP’T OF ENERGY ET AL., *GUIDE TO PURCHASING GREEN POWER 2–3* (2018), https://www.epa.gov/sites/production/files/2016-01/documents/purchasing_guide_for_web.pdf [<https://perma.cc/7KNV-JKMD>] [hereinafter *GUIDE TO PURCHASING GREEN POWER*] (issuing guidance on procedures for, and benefits of, purchasing green energy). The Department of Energy notes that utilization of green power is voluntary and exceeds any current government mandates. *Id.*

²⁹ See Steffen Lehmann, *Resource Recovery and Materials Flow in the City: Zero Waste and Sustainable Consumption as Paradigms in Urban Development*, 11 *SUSTAINABLE DEV. L. & POL’Y* 28, 33 (2010) (arguing for the benefits of “zero waste,” an approach that relies on recycling, composting, and demand reduction of resources to mitigate the harms to the environment and human health, and phases out unsustainable practices); WASTE OF ENERGY, *supra* note 6, at 11 (contending that the most effective biomass fuel sources are materials that can be composted or recycled, and that for WTE facilities to remain financially productive, they demand a constant stream of those materials). Zero waste is a term used to describe a paradigm shift for resource consumption that eliminates the waste aspect from production cycles. Lehmann, *supra*, at 28. Materials like metal, glass, and plastic can be reused or recycled, used in their original state, or broken down and utilized in different ways, rather than thrown into landfill. *Id.* at 31. For exam-

Part I of this Note begins by describing how the WTE process works.³⁰ Part II provides a history of energy policy in the United States.³¹ Part III examines federal and state laws that promote the renewable energy field, including laws regarding WTE.³² Part IV argues that the United States' renewable energy policy has in part undermined the goals it purports to advance.³³ Specifically, this Part argues that government subsidies and tax preferences for renewable energy have financed an industry that is not environmentally friendly or properly sustainable.³⁴ Part IV also proposes amending these laws to remove WTE eligibility from renewable energy benefits.³⁵

I. TURNING TRASH INTO ENERGY

Federal and state laws provide funding for specifically designated types of renewable energy.³⁶ In addition to renewable energy produced through hydropower, wind, geothermal, and solar technology, WTE is a renewable energy source that involves conversion of trash into energy.³⁷ The

ple, many products are packaged with recyclable plastics that could have countless other uses. *Id.* Zero waste may be achieved by holding manufacturers responsible for the packaging they use and requiring companies to design products and packaging with an eye toward reuse or recycling at the end of their initial cycle of use. *Id.* Third parties also aid zero waste goals by collecting and finding other uses for trash, such as Madewell Inc., who partnered with Cotton Inc.'s Blue Jeans Go Green initiative, which collects and converts old denim jeans into insulation. *See Recycling Denim for a Great Cause*, BLUE JEANS GO GREEN, <http://bluejeansgogreen.org/About-Us/> [<https://perma.cc/8CSJ-MMQ4>] (describing a nationwide initiative to repurpose old pants and make them into insulation for buildings); *see also How We Do Well*, MADEWELL, <https://www.madewell.com/inspo-do-well-denim-recycling-landing.html> [<https://perma.cc/LDB6-GEMZ>] (describing Madewell's Do Well projects to affect positive changes in the world, and the Blue Jean Go Green process).

³⁰ *See infra* notes 36–57 and accompanying text.

³¹ *See infra* notes 58–81 and accompanying text.

³² *See infra* notes 82–137 and accompanying text.

³³ *See infra* notes 138–209 and accompanying text.

³⁴ *See infra* notes 146–183 and accompanying text.

³⁵ *See infra* notes 184–209 and accompanying text.

³⁶ *See* I.R.C. § 45 (2018) (providing an example of one federal statute aimed at providing financial assistance to renewable energy production); 73 PA. STAT. & CONS. STAT. ANN. § 1648.3 (West 2007) (demonstrating a state level approach).

³⁷ *Renewable Energy Explained*, *supra* note 17 (defining different renewable energy sources in the United States). By definition, renewable energy must have a source that quickly redevelops and will not run out from use. *What Is Green Power?*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/greenpower/what-green-power> [<https://perma.cc/R9N2-4JHT>]. WTE is considered renewable, but not a “green power” source, like solar, wind, and geothermal, which is a subset of renewable resources that has less or no negative environmental impact. *See id.* (describing different categories of renewable power and differentiating green power). Solar power is the process of harnessing energy or heat from sunlight and turning it into electricity or using it directly to heat a building. *Solar Energy Basics*, NAT'L RENEWABLE ENERGY LAB., <https://www.nrel.gov/workingwithus/re-solar.html> [<https://perma.cc/V38T-CXPV>]. Wind power is the process where wind moves a turbine to create electricity. *Wind Energy Basics*, WIND ENERGY DEV. PROGRAMMATIC EIS, <http://windeis.anl.gov/guide/basics/> [<https://perma.cc/WM7X-ZKZC>]. Geothermal harnesses the natural

EPA recognizes WTE as central to the U.S. strategy for sustainable waste management.³⁸ It is thus important to understand how WTE actually works.³⁹

A prominent method of energy conversion is combustion.⁴⁰ In WTE, MSW is the material that is used in the conversion process.⁴¹ MSW is essentially garbage thrown out in homes and businesses.⁴² The process begins when trash vehicles pick up MSW and deliver it to the WTE facilities, where it is dumped.⁴³ From there, waste is systematically collected and transferred into an incinerator, where it is burned at very high temperatures.⁴⁴ The burning MSW creates heat which converts water into steam, which then moves a turbine and generates electricity.⁴⁵

The waste is converted into ash as it burns, most of which settles at the bottom of the combustion chamber as “bottom ash,” though small particles also rise throughout the process, creating “fly ash.”⁴⁶ The bottom ash is estimated to be a 90% reduction in volume of waste.⁴⁷ A filtration system, called a “baghouse,” captures an estimated 96% of the fly ash.⁴⁸ The ash is subsequently collected and dumped in a landfill.⁴⁹

heat from within the planet. *What Is Geothermal Energy*, GEOTHERMAL ENERGY ASSOC., <http://geo-energy.org/Basics.aspx> [<https://perma.cc/YL3C-PFBG>].

³⁸ *Energy Recovery*, *supra* note 2 (detailing the role of “Energy Recovery” in the EPA’s “non-hazardous waste management hierarchy”). The EPA has established a hierarchy for waste management, ranking from most to least preferred practices, with “Source Reduction and Reuse” being the most preferred, and “Energy Recovery” ranking only higher than traditional “Treatment and Disposal.” *See Sustainable Materials Management: Non-Hazardous Materials and Waste Management Hierarchy*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy> [<https://perma.cc/KH5R-E5PS>] (presenting the EPA’s waste management hierarchy).

³⁹ *See infra* notes 40–57 and accompanying text.

⁴⁰ *Energy Recovery*, *supra* note 2.

⁴¹ *Id.* (describing the WTE process).

⁴² *Municipal Solid Waste*, U.S. ENVTL. PROT. AGENCY, <https://archive.epa.gov/epawaste/nonhaz/municipal/web/html/> [<https://perma.cc/VE3R-MKQE>] (defining municipal solid waste).

⁴³ *Energy Recovery*, *supra* note 2.

⁴⁴ *Waste-to-Energy: How It Works*, DELTAWAY ENERGY, <http://www.deltawayenergy.com/wte-tools/wte-anatomy/> [<https://perma.cc/AFU5-2ZVQ>] (describing how WTE plants operate).

⁴⁵ *Id.* The incinerator creates heat that dissolves water in a connected boiler which becomes steam and powers a turbine. *See id.* It is not the fly ash that turns the turbine. *See id.* (illustrating the biomass process). The emissions from the steam stack, however, are not the benign and uncontaminated steam from the turbine, but rather the treated ash that remains after the filtration process. *See id.* (presenting the process that carries the particulate fly ash from the combustion to the filtration room and then to the stack).

⁴⁶ *Id.* Fly ash is particulate waste, too fine and light to settle at the bottom, that the facility attempts to capture through various filtration processes. *Id.*

⁴⁷ *Id.* Bottom ash is captured and separated by magnets and other metal separators. *Id.*

⁴⁸ *Id.*

⁴⁹ *Energy Recovery*, *supra* note 2; *see* E. Kalogirou et al., *Fly Ash Characteristics from Waste-to-Energy Facilities and Processes for Ash Stabilization* (2010), https://www.iswa.org/uploads/tx_iswaknowledgebase/Kalogirou.pdf [<https://perma.cc/CW45-E9EK>] (describing the composition and

Sometimes, MSW is sent to a landfill instead of an incinerator.⁵⁰ Here, the WTE scheme uses anaerobic digestion, another form of energy conversion, where material is placed in an oxygen deficient environment to decompose.⁵¹ Once entombed in a landfill, the organic elements of MSW break down and release methane gas.⁵² That gas is collected and combusted to produce electricity.⁵³

Energy creation from MSW may take a number of other forms, such as co-firing, pyrolysis, or gasification.⁵⁴ Co-firing is a process in which organic waste is mixed with traditional fossil fuels like coal to lower the carbon dioxide ("CO₂") production in a furnace and lessen the demand for those traditional fuel sources.⁵⁵ Pyrolysis and gasification are techniques in which the organic waste is superheated, but not exposed to oxygen so it does not combust, and instead undergoes a chemical change into a gas or oil.⁵⁶ Whatever the process, those who support WTE argue it leads to significantly less waste going into landfills, less CO₂ released into the air, and energy collection from sources that would have traditionally been discarded.⁵⁷

dangers of fly ash). A concern with fly ash is that it contains heavy metals and compounds that are hazardous to human health. *See* Kalogirous, *supra*, at 4 (listing the dangerous elements that have high concentrations in ash). Because of these dangers, the report also looks at methods to decrease the reliance on ash landfills. *See id.* at 1. (summarizing the purpose of the study).

⁵⁰ *See Basic Information About Landfill Gas*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/lmop/basic-information-about-landfill-gas> [<https://perma.cc/5BVC-ZTMS>] (describing the Landfill Gas energy recovery process).

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.*

⁵⁴ *Energy Recovery*, *supra* note 2 (listing other WTE processes); *see Benefits of Landfill Gas Energy Projects*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/lmop/benefits-landfill-gas-energy-projects> [<https://perma.cc/PJC7-9QDB>] (describing the collection of methane gas created by landfills, and how to utilize that gas); *Waste to Energy Gasification*, GLOB. SYNGAS TECH. COUNCIL, <https://www.globalsyngas.org/syngas-production/waste-to-energy-gasification/> [<https://perma.cc/K4RX-6RLM>] (describing gasification as a process that, instead of using the waste as fuel for heat, creates usable gas at the output of the process).

⁵⁵ *Biomass Energy*, NAT'L GEOGRAPHIC, <https://www.nationalgeographic.org/encyclopedia/biomass-energy/> [<https://perma.cc/2G4K-4YZM>] (defining the different energy recovery processes).

⁵⁶ *Id.* During pyrolysis, the biomass fuel is heated to around 390–570 degrees Fahrenheit, without the presence of oxygen, to prevent the biomass from combusting. *Id.* This produces an oil-like substance that can be burned as a fuel. *Id.* Similarly, in gasification, the biomass is heated to 1,300 degrees Fahrenheit, with limited oxygen, which produces a gas that can also be used as a fuel source. *Id.*

⁵⁷ *See Waste-to-Energy: How It Works*, *supra* note 44 (presenting the benefits of WTE as opposed to fossil fuels). This report estimates that WTE reduces landfill volume by 90%, significantly lowers CO₂ emissions, and produces enough energy per day to power 15,000 houses. *Id.*; *see* Christopher Dann et al., *Reconsidering Waste-to-Energy: Technology and Regulation Changes the Outlook for Garbage Burners*, 150 PUB. UTIL. FORTNIGHTLY 44, 45 (2012) (arguing that WTE presents a good fuel alternative for utilities seeking security in the case of legislation that limits carbon emissions).

II. A SUMMARY OF ENERGY POLICY AND RENEWABLE ENERGY LAW IN THE UNITED STATES

To understand how the current renewable energy laws developed, it is instructive to examine the recent history of U.S. energy policy.⁵⁸ From 1916 to 1970, U.S. energy policy was designed to stimulate and promote the domestic fossil fuel industry.⁵⁹ The federal government took this approach to shore up oil reserves in an era where global conflicts could cut off U.S. access to imported fuel.⁶⁰ Federal tax law allowed taxpayers involved in oil production to deduct numerous costs at values higher than would have been generally permitted.⁶¹ This in turn led to lower costs and fewer risks for investors and operators in the energy industry and lower prices for consumers but discouraged growth in alternative energy.⁶²

In the 1970s, people in the United States started to grow aware of environmental harm caused by human actions.⁶³ Significantly, the United States also experienced a pair of energy crises due to the 1973 oil embargo and the Iranian Revolution in 1978.⁶⁴ Again, the United States shaped its energy

⁵⁸ SALVATORE LAZZARI, CONG. RESEARCH SERV., RL33578, ENERGY TAX POLICY: HISTORY AND CURRENT ISSUES 1 (2008), <https://fas.org/sgp/crs/misc/RL33578.pdf> [<https://perma.cc/W44Y-V7S3>] (discussing the context that led to legislation on energy sustainability and environmental responsibility in the 1970s)

⁵⁹ *Id.* at 2.

⁶⁰ *See id.* at 1 (stating that oil embargoes and price fluctuations are among the factors that have shaped renewable energy policy); James A. Duffield et al., *Ethanol Policy: Past, Present, and Future*, 53 S.D. L. REV. 425, 427 (2008) (stating that conflicts such as World War II disrupted oil importation, leading to a national policy shift toward renewable energy). One analysis centers on the bio-fuel industry, which relates to gasoline burned by vehicles rather than wide scale energy production. *See* Duffield et al., *supra*, at 430 (discussing modern laws requiring gasoline to be blended with ethanol). Nevertheless, the study provides a robust analysis of the factors that informed modern renewable energy policy. *See id.* at 427.

⁶¹ LAZZARI, *supra* note 58, at 2, 3. Costs such as labor, equipment, and supplies must generally be capitalized, meaning deductions would be taken yearly over the lifetime of the operation. *Id.* at 2. Instead, the federal government allowed for those expenses to be deducted in the first year of operation. *Id.* at 3. The “percentage depletion allowance” allowed taxpayers to claim a deduction at 27.5% of their revenue, which was much higher than the deduction for the general rate of depletion. *Id.*

⁶² *See id.* at 3 (detailing the effects of the tax policy favoring fossil fuels prior to 1970). Fossil fuels were traditionally favored because they were easy to transport, and contained significant energy producing power in reasonable volumes. Archana Dayalu, *Why We Need Sustainable Energy*, HARVARD UNIV. GRADUATE SCH. OF ARTS & SCI. BLOG (Dec. 15, 2012), <http://sitn.hms.harvard.edu/flash/2012/why-sustainable/> [<https://perma.cc/LN2C-LPV2>]. Fossil fuels are finite, however, in that they are made of organic material from millions of years in the past and have a negative impact on the environment by creating particulate matter and chemicals that have adverse effects on organic life. *Id.*

⁶³ LAZZARI, *supra* note 58, at 2.

⁶⁴ Duffield et al., *supra* note 60, at 427–28 (discussing the factors that led the United States to seek alternative to reliance on foreign gasoline). In the early 1970s, the demand for oil was much greater than the production, leading the Organization of Petroleum Exporting Countries to increase oil prices. *Id.* Due to political tensions, Arab countries enacted an oil embargo on the Unit-

policy in response to a disruption in the oil trade, although this time the policy was crafted to decrease the dependence on foreign oil sources and look for energy alternatives.⁶⁵ This led the federal government to offer fewer tax incentives for oil producers and to create new tax repercussions to discourage fossil fuel use and punish polluters.⁶⁶ The legislature also enacted a tax plan that created preferences for conservation, sustainability, and alternative energy sources and technology.⁶⁷ The Public Utility Regulatory Policies Act ("PURPA"), a part of the National Energy Act of 1978 ("NEA"), created early mandates to energy suppliers to include electricity generated from renewable sources.⁶⁸

The preferences offered by the United States took the form of government subsidies, including special exclusions, deductions, and tax credits for taxpayers operating within renewable energy fields.⁶⁹ For the first time, the government allowed taxpayer companies relief from tax liability for activities relating to renewable energy, alleviating the financial burden and risk of in-

ed States in 1973, causing major shortages in the United States and forcing the country to look to other forms of energy and oil sources. *Id.* Although the embargo was lifted in 1974, another crisis arose in 1978, when a revolution in the major oil exporting country Iran caused laborers to cease production. *Id.*

⁶⁵ See *id.* (describing the disruptive effect WWII had on oil importation in the United States and how that informed policy making).

⁶⁶ LAZZARI, *supra* note 58, at 3 (detailing the factors that led to energy tax policy changes).

⁶⁷ *Id.* at 4, 5 (describing new tax incentives and subsidies created by the Energy Tax Act of 1978 and subsequent additional subsidies). The Energy Tax Act was one of five acts that together made up the Nation Energy Act of 1978. James W. Moeller, *Electric Demand-Side Management Under Federal Law*, 13 VA. ENVTL. L.J. 57, 57 (1993); see Energy Tax Act of 1978, Pub. L. No. 95-618, 92 Stat. 3174 (1978). The other acts were: the Public Utility Regulatory Policies Act of 1978 (PURPA), Pub. L. No. 95-617, 92 Stat. 3117 (1978); the National Energy Conservation Policy Act of 1978, Pub. L. No. 95-619, 92 Stat. 3206 (1978); the Powerplant and Industrial Fuel Use Act of 1978, Pub. L. No. 95-620, 92 Stat. 3289 (1978); and the Natural Gas Policy Act of 1978, Pub. L. No. 95-621, 92 Stat. 3350 (1978). The Energy Tax Act rolled back benefits to the oil industry, reducing preferences that subsidized the cost of developing an oil well and benefits that allowed oil producers to reduce their taxable income by a certain percentage. LAZZARI, *supra* note 58, at 4. The new law also created tariffs on traditional fossil fuels like oil. *Id.* Finally, the Act introduced subsidies for renewable energy and conservation initiatives. *Id.*

⁶⁸ PURPA, Pub. L. No. 95-617, 92 Stat. 3117 (current version at 16 U.S.C. § 2601 (1978)); see James A. Duffield & Keith Collins, *Evolution of Renewable Energy Policy*, 21 CHOICES, no. 1, 2006, at 9 (summarizing the history of federal policy regarding renewable energy).

⁶⁹ See LAZZARI, *supra* note 58, at 4-5 (listing examples, including subsidies for taxpayers who invested in alternative and renewable fuels sources, such as wind or solar, and preferable depletion deduction rates for geothermal energy). Another tax preference at this time made producers of energy from solid waste, including early WTE facilities, exempt from taxation on the interest from industrial development bonds. *Id.* at 5.

vesting into renewable technology.⁷⁰ These subsidies are the earliest examples of the tax incentives that still apply to current renewable energy producers.⁷¹

By the end of the twentieth century, the focus of U.S. energy policy shifted away from traditional fossil fuels and focused primarily on renewable energy.⁷² Concerns about greenhouse gases and climate change began to inform policy making under Presidents George H. W. Bush and Bill Clinton.⁷³ The Energy Policy Act of 1992 (“EPAAct”) rewarded energy supply companies that sourced a percentage of their electricity from renewable sources.⁷⁴ The updated EPAAct of 2005, under President George W. Bush, marked an even greater shift, gearing policy toward energy created by wind power.⁷⁵ By 2008, the cost of preferences for energy efficiency, alternative fuel sources, and renewable energy was twice that for fossil fuels.⁷⁶ Today, the goals enacted by

⁷⁰ See *id.* at 4 (stating that the Energy Tax Act implemented credits, deductions, and exclusions for taxpayers working with renewable energy or in conservation).

⁷¹ See *id.* at 4–5 (describing how certain incentives like tax credits for residents have expired but have led to many other current and active tax credits). Renewable electricity tax credits, for example, were first introduced in 1992 and were continually renewed to subsidize renewable energy activities. *Id.* at 5 (stating that the renewable electricity tax credit first introduced in 1992 was expanded under the American Jobs Creation Act of 2004).

⁷² See *id.* at Summary (suggesting that while economics played a role in Presidents Bush Sr. and Clinton’s energy policy, the policy was also influenced by environmental concerns about climate change and greenhouse gases).

⁷³ *Id.*

⁷⁴ Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776 (1992) (amending and updating PURPA, in part); see Duffield & Collins, *supra* note 68, at 10 (describing components of the Energy Policy Act (“EPAAct”)); Moeller, *supra* note 67, at 57 (stating that the amendments focused partially on promoting sustainability on the demand side). EPAAct also extended tax credits to fuels that incorporated a percentage of ethanol, a fuel derived from corn, with traditional fossil fuels. Duffield & Collins, *supra* note 68, at 10. Similarly, the vehicle industry was encouraged to introduce vehicles that could run on alternative fuels sources. *Id.*

⁷⁵ Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (2005); see *Federal Support for Developing, Producing, and Using Fuels and Energy Technologies: Hearing Before the H. Subcomm. on Energy & Commerce*, 115th Cong. 3 (2017), <https://www.cbo.gov/system/files?file=115th-congress-2017-2018/reports/52521-energytestimony.pdf> [<https://perma.cc/2UGV-SE7N>] [hereinafter *Hearing Before the H. Subcomm. on Energy & Commerce*] (testimony of Terry Dinan, Senior Advisor, Microeconomic Studies Division, Congressional Budget Office stating that energy policy shifted toward efficiency and alternative fuel sources, leading to spending increases on energy-related tax incentives and decreases in that spending being fossil fuel related); Duffield & Collins, *supra* note 68, at 10 (stating that this Act led to significant growth of the wind power field by offering production credits, which are tax credits with value based on a relationship to electricity produced by specific means). These production credits for wind were extended by the 2005 Energy Policy Act into the year 2007. Duffield & Collins, *supra* note 68, at 10.

⁷⁶ *Hearing Before the H. Subcomm. on Energy & Commerce*, *supra* note 75, at 3 (describing the effects of EPAAct of 2005 and subsequent legislation). The American Recovery and Reinvestment Act (“ARRA”) in 2009 expanded tax preferences and created new programs like the Section 1603 grant, which allowed renewable production companies a onetime cash payout instead of tax credits. American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009); see *Hearing Before the H. Subcomm. on Energy & Commerce*, *supra* note 75, at 3 (stating

the EAct of 1992 still stand, declaring that through energy conservation research and development, the United States should seek to improve economic efficiency and strength while still considering environmental costs and strive to reduce harmful environmental impacts related to the energy industry.⁷⁷

During the early 2000s, state lawmakers also began crafting policies to promote renewable energy.⁷⁸ States have often encouraged a more direct approach to renewable energy through government mandates.⁷⁹ This was accomplished by instituting Renewable Portfolio Standards (RPSs), which required energy supply companies obtain a percentage of their electricity from renewable generators.⁸⁰ By 2015, twenty-nine states and Washington D.C. had adopted mandatory RPSs.⁸¹

III. RENEWABLE ENERGY INCENTIVES ARE THE LIFEBLOOD OF THE WTE INDUSTRY

The federal and state governments currently take different approaches to renewable energy law.⁸² The federal government generally utilizes tax preferences to implement energy related goals.⁸³ States tend to adopt RPSs to either encourage or mandate that a certain percentage of energy sold in the state comes from renewable sources.⁸⁴ In order to understand what approach should be taken in the future, one must first examine the current laws.⁸⁵ Sec-

that ARRA amended parts of the EAct as part of President Obama's stimulus package in response to the 2008 recession).

⁷⁷ See 42 U.S.C. § 13041 (2018) (enumerating the goals of for future research and development of sustainable technologies).

⁷⁸ Duffield et al., *supra* note 60, at 437 (reporting that at least eight states have implemented standards that require gasoline to contain a percentage of ethanol). Ethanol is a form of fuel that is derived from corn, and can be produced in the United States, thus relying on a renewable source, unlike fossil fuels, and stimulating local economies. *Id.* at 426.

⁷⁹ *Id.* at 437. State programs rely on tax preferences, incentives for renewable energy generators, and mandates to promote their goals. *Id.*

⁸⁰ U.S. ENVTL. PROT. AGENCY, ENERGY AND ENVIRONMENT GUIDE TO ACTION, at ES-5 (2015). States goals include reducing overall energy consumption, deriving a certain amount of energy from renewable resources, lowering pollution, and achieving better energy efficiency. *Id.*

⁸¹ *Id.* at 1-6.

⁸² Compare I.R.C. § 45 (2018) (detailing the PTC approach that relies on tax incentives to effectuate renewable energy goals), with *Renewable Portfolio Standards*, *supra* note 25 (detailing the RPS strategy that often relies upon government mandates).

⁸³ I.R.C. § 45 (codifying the current federal tax credit for renewable energy production). One of the most common tax preferences is the tax credit, a government subsidy that allows a taxpayer to subtract a specific amount of money from total taxes owed. *What Is a Tax Credit?*, INTERNAL REVENUE SERV. (Oct. 11, 2018), <https://www.irs.gov/credits-deductions-for-individuals> [<https://perma.cc/R2HX-F5JC>].

⁸⁴ See IND. CODE § 8-1-37-10 (2018) (providing an example of an incentive based RPS); 73 PA. STAT. & CONS. STAT. ANN. § 1648.3 (West 2007) (demonstrating a mandate-based standard).

⁸⁵ See *infra* notes 88-137 and accompanying text.

tion A analyzes the federal tax credit regime.⁸⁶ Section B lays out the state RPS approach.⁸⁷

A. Federal Incentives for Renewable Energy

The main vehicle by which the federal government has effectuated its renewable energy goals is through tax credits, specifically Renewable Electricity Production Tax Credits (PTC) and the Business Energy Investment Tax Credits (ITC).⁸⁸ The PTC, originally enacted under the EPAct of 1992, currently allows taxpayer businesses in the renewable energy field to deduct \$0.023 for every kilowatt hour (kWh) of electricity produced from their taxes owed.⁸⁹ This credit, however, is only available for wind, geothermal, closed-loop biomass, and solar energy.⁹⁰ WTE is situated, with open-loop biomass and coal, among others, in a group that only qualifies for fifty-percent of the PTC, or about \$0.012/kWh.⁹¹ The credit applies to the first ten years of the operation of an energy facility.⁹² Additionally, the credit has been slowly phased out.⁹³ For a WTE facility to be eligible for this credit, the facility had to have begun construction before January 1, 2018.⁹⁴ Wind facilities, on the other hand, will remain eligible for the credit until 2020, although the value will be decreased by 20% each year.⁹⁵

⁸⁶ See *infra* notes 88–115 and accompanying text.

⁸⁷ See *infra* notes 116–137 and accompanying text.

⁸⁸ See I.R.C. §§ 45, 48 (2018) (codifying the PTC and IRC, respectively).

⁸⁹ See *id.* §§ 45(a) (stating that the PTC allows a credit of \$0.015 for every kilowatt hour (kWh) of electricity), 45(b)(2) (stating that the \$0.015 credit will be based on its value in 2002, and thus subject to inflation); Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776 (1992) (instituting the PTC); *Renewable Electricity Production Tax Credit (PTC)*, U.S. DEP'T OF ENERGY, <https://www.energy.gov/savings/renewable-electricity-production-tax-credit-ptc> [<https://perma.cc/L4B9-Z268>] (estimating that the current value of the PTC is approximately \$0.023 and stating that the first PTC was enacted in the EPAct of 1992).

⁹⁰ See I.R.C. §§ 45(a)(2)(A)(i) (stating that the credit is available to qualified energy resources), 45(b)(4)(a) (exempting certain types of technology from the full credit, and instead granting only a fifty percent credit to those technologies including MSW), 45(c) (defining qualified energy resources).

⁹¹ See *id.* §§ 45(b)(2) (explaining how the credit adjusts based upon inflation), 45(b)(4)(a) (listing the technologies that are eligible for only half the value of the full credit).

⁹² See *id.* § 45(a)(2)(A)(ii) (stating that the general rule applies the credit for ten years after the day the facility is put into operation).

⁹³ See *id.* § 45(b)(5) (detailing the gradual step down in value for wind facilities). The PTC steps down in value by 20% if the facility began construction after December 31, 2016, but before January 1, 2018, then again to 40% of the original value if the facility began construction after December 31, 2017, but before January 1, 2019; and finally, to 60% if the facility began construction after December 31, 2018, and before January 1, 2020. *Id.*

⁹⁴ See *id.* § 45(d)(6)–(7) (defining the deadline for construction to begin on a landfill gas facility and a trash facility, respectively). Under the Code, a landfill gas facility is one that produces electricity from gas created by MSW breaking down. *Id.* § 45(d)(6). “Trash facilities” is the term used by the Code to describe WTE, a facility that burns MSW. *Id.* § 45(d)(7).

⁹⁵ *Id.* § 45(b)(5).

The ITC is closely related to the PTC, though it focuses primarily on solar energy.⁹⁶ In general, the ITC is worth 30% of the basis of a facility that relies on enumerated solar energy technologies placed in service during the taxable year.⁹⁷ In other words, a company can apply a 30% credit to the cost of their investment in a facility.⁹⁸ The ITC, however, also provided a 10% tax credit for facilities that are eligible for the PTC, but opt not to utilize that credit.⁹⁹ In short, a company constructing a WTE facility could utilize the ITC against their investment in the facility.¹⁰⁰ This was limited by the requirement that the facility be under construction by January 1, 2018, and as such the ITC is no longer available to WTE.¹⁰¹

There are several aspects of the PTC worth examination.¹⁰² First, it is important to note that new WTE facilities, those that began construction after January 1, 2018, will not be eligible for this credit.¹⁰³ When compared to the fact that wind energy remains eligible until 2020, it seems the law may recognize that wind should be treated as unique from other energy production technologies.¹⁰⁴ Furthermore, WTE was not eligible for the full value of the credit; indeed the credit for WTE was only half of what was available to wind energy.¹⁰⁵

Nevertheless, it is notable that even though WTE is not eligible for new credits, any facility that had begun construction before January 1, 2018 will continue to enjoy that credit for the following ten years.¹⁰⁶ Thus the

⁹⁶ *Id.* § 48(a)(2) (describing the energy property for which the entire 30% credit is available). The Code defines energy property to include primarily solar energies. *Id.* § 48(a)(3). The Code also allows for utilization for this credit in the case that a taxpayer does not or has not previously utilized the PTC. *Id.* § 48(a)(5)(B).

⁹⁷ *Id.* § 48(a)(2)(A)(i); see 26 U.S.C. § 1012 (2018) (defining basis generally as the cost of real property).

⁹⁸ I.R.C. § 48(a)(2)(A)(i); *Business Energy Investment Tax Credit (ITC)*, U.S. DEP'T OF ENERGY, <https://www.energy.gov/savings/business-energy-investment-tax-credit-itc> [<https://perma.cc/35T5-ST7Y>] (summarizing the Investment Tax Credit ("ITC") in plain language).

⁹⁹ See I.R.C. §§ 48(a)(2)(A)(ii) (stating that any energy property not specified under subsection 48(a)(2)(A)(i) is eligible for a 10% tax credit), 48(a)(5)(C) (stating that certain energies from section 45 may be treated as energy properties for the purposes of this section).

¹⁰⁰ See *id.* § 48(a)(3) (describing the property and activity to which the ITC applies). The ITC is a credit related to a taxpayer's investment in an energy property, so it arises when a taxpayer is building or purchasing a facility. *Id.*

¹⁰¹ *Id.* § 48(a)(5)(C).

¹⁰² See *id.* § 45.

¹⁰³ *Id.* § 45(d)(6)–(d)(7).

¹⁰⁴ See *id.* § 45(b)(5) (detailing that the PTC is still available to new wind facilities until 2020).

¹⁰⁵ See *id.* § 45(b)(4) (detailing the technologies for which only half the credit is available).

¹⁰⁶ See *id.* § 45(a)(2)(A)(ii) (stating that the ten-year period to utilize the PTC begins when the facility is placed in service). It is important to consider that the ten-year period begins running later than the cutoff date for credit eligibility under subsection (d)(7), which is attached to when the facility begins construction. *Id.*

WTE industry may continue to enjoy considerable tax benefits until the year 2028.¹⁰⁷ It is important to reiterate that that WTE will be drawing funds from the same source as wind energy.¹⁰⁸

The ITC gives rise to effectively the same analysis.¹⁰⁹ It is apparent that the ITC is designed to favor solar credits, but in the process it did allow resources to flow toward the WTE industry.¹¹⁰ Although the ITC is no longer available to WTE projects, it does demonstrate that for over a decade, resources that are primarily allocated toward solar energy have been available to the WTE field.¹¹¹ Additionally, past energy tax credits have expired only to be renewed again later under new legislation.¹¹² At the end of 2017, the Trump administration unveiled its tax reform bill.¹¹³ The bill did not renew the tax credits for renewables, which were last extended in 2015, but it also did not repeal the current phasing out process that allows eligible renewable energy producers to enjoy production credits.¹¹⁴ Nevertheless, it is reasonable to posit that a future administration could reestablish or institute new tax credits.¹¹⁵

¹⁰⁷ *See id.*

¹⁰⁸ *Id.* § 45.

¹⁰⁹ *Compare id.* (giving superior tax credits to wind power), *with id.* § 48 (granting favorable credits to solar energy, primarily).

¹¹⁰ *See id.* §§ 48(a)(2) (granting a 30% credit to primarily solar properties), 48(a)(5)(C) (allowing a 10% credit for other technologies as enumerated under section 45).

¹¹¹ *See id.* § 48(a)(5)(C) (stating that qualified facilities as defined under section 45 are only eligible for such credits if they began construction before January 1, 2018). The type of energy property that qualifies for the 30% credit also has a deadline to begin construction before January 1, 2022, under the current statute. *Id.* § 48(a)(3).

¹¹² *See Duffield & Collins, supra* note 68, at 10 (stating that the EPAct of 2005 reestablished credits for wind energy that had expired in 2003).

¹¹³ Joseph Bebon, *President Trump Signs Tax Bill with Solar ITC Intact*, SOLAR INDUS. (Dec. 26, 2017), <https://solarindustrymag.com/president-trump-signs-tax-bill-solar-itc-intact> [<https://perma.cc/N9BA-MWNX>] (commenting on the effects of the new tax plan on solar tax credits). The bill keeps in place the ramping down process that allows subsidies to decrease gradually through the year 2021. *Id.*

¹¹⁴ *Id.* The PTC remains intact for wind energy, meaning that wind facilities that started construction after December 31, 2019, have a three-year scale down process where the tax credit is still available to new facilities, but decreasing by 20% more each year. I.R.C. § 45. Wind facilities that began construction in 2017 are eligible for a credit reduced by 20% of the original amount, which was \$.019/kilowatt hour, then by 40% in 2018, and 60% in 2019. *Id.* For non-wind technologies, including WTE, new ITCs ceased to be available at the end of 2016, but the rule still allows any facility that began construction before that date to use the credit for a period of 10 years. *Id.*

¹¹⁵ *See Duffield & Collins, supra* note 68, at 10 (stating that credits had expired in the past only to be renewed years later).

B: Renewable Portfolio Standards—The State Approach

States often rely on a different approach to renewable energy, the RPS.¹¹⁶ An RPS is a regulation requiring energy suppliers to obtain a certain amount of the electricity from a renewable source.¹¹⁷ These can range from aspirational financial incentives to firm mandates.¹¹⁸ Currently twenty-nine states have some version of an RPS, and more have renewable energy goals.¹¹⁹ Consider first Indiana's Voluntary Clean Energy Portfolio Standard Program.¹²⁰ This system encourages, but does not require participation.¹²¹ In brief, an energy supplier is incentivized to obtain four percent of its energy from a renewable source by December 31, 2018, seven percent by December 31, 2024, and at least ten percent by December 25, 2025.¹²² Should a company meet these goals, the state will compensate the company, allowing favorable recovery of costs incurred by the company.¹²³ Indiana does not differentiate between the sources of clean energy, meaning a company could meet the RPS goals while relying solely on energy derived from WTE.¹²⁴

Alternatively, Pennsylvania's Alternative Energy Portfolio Act is a government mandate, where suppliers must comply with state regulations or pay additional fees.¹²⁵ This regulation has a two tiered system, where tier I technology includes, but is not limited to, wind, solar, and geothermal ener-

¹¹⁶ *Renewable Portfolio Standards*, *supra* note 25 (describing the RPS as a public policy based approach, unique from a market-based approach).

¹¹⁷ *Id.*

¹¹⁸ *See id.* (clarifying that some states have legal standards that must be met, while others merely have energy goals).

¹¹⁹ *Id.* Iowa established the first RPS in the United States in 1983. *Id.* Hawaii has the most robust RPS, with the goal of 30% of energy coming from renewables in 2020, and 100% by 2024. *Id.*

¹²⁰ *See* IND. CODE § 8-1-37-10 (2018) (authorizing the creation of Indiana's RPS, titled the Voluntary Clean Energy Portfolio Standard Program).

¹²¹ *See id.* § 8-1-37-11 (describing the process for an energy supplier to opt into this voluntary program).

¹²² *Id.* § 8-1-37-12.

¹²³ *See id.* § 8-1-37-13 (laying out Indiana's recovery system). The statute allows the state to "establish a shareholder incentive consisting of authorization of an increased overall rate of return on equity, not to exceed fifty (50) basis points over a participating electricity supplier's authorized rate of return . . ." *Id.* An analysis of companies' return on equity is beyond the scope of this Note.

¹²⁴ *See id.* § 8-1-37-4 (enumerating the types of energy technology from which a supplier may obtain their energy under the program, including but not limited to wind, solar, and WTE). The statute does, however, exempt incineration of MSW, allowing only WTE that relies on "advanced" solid waste technologies. *Id.* § 8-1-37-4(a)(9), (b). The statute does not positively define what "advanced" technologies are, but implies by omission that it is technology that does not rely on combustion of MSW. *Id.* § 8-1-37-4(b).

¹²⁵ *See* 73 PA. STAT. & CONS. STAT. ANN. § 1648.3(f) (West 2007) (authorizing the state to extract a fee if a facility is found not in compliance).

gy, while tier II includes coal and MSW.¹²⁶ Under this system, energy companies must derive at least eight percent of their electricity from tier I resources, and ten percent from tier II resources by May 31, 2021.¹²⁷ There are also additional requirements for the use of solar energy.¹²⁸

To help effectuate this goal, Pennsylvania has implemented a tax credit system.¹²⁹ These alternative energy credits (“AECs”) are equal to the number of megawatt-hours of energy created using renewable means.¹³⁰ Credits are tracked to measure the compliance of an energy company.¹³¹ If an energy company satisfies its energy goals, it can transfer its additional credits to aid companies struggling to reach the state standards.¹³²

The difference between these two approaches is fairly stark.¹³³ The Indiana statute offers financial incentives to companies that sell energy provided by renewable sources.¹³⁴ The Indiana statute does not make a distinction between the sources of renewable energy—wind and solar are treated as equal to WTE.¹³⁵ The Pennsylvania approach is substantially different as, instead of tax incentives, it issues mandates.¹³⁶ Furthermore, the Pennsylvania model differentiates between types of energy, stating that a certain percentage of energy must come from tier I renewables, which consists of types energy considered generally less polluting than those in tier II.¹³⁷

¹²⁶ *Id.* § 1648.2. Tier I consists of energy from (1) solar, (2) wind, (3) low-impact hydropower, (4) geothermal, (5) biologically derived methane gas, (6) fuel cells, (7) biomass, and (8) coal mine methane gas. *Id.* Tier II relies on (1) waste coal, (2) distributed generation systems, (3) demand-side management, (4) large-scale hydropower, (5) MSW, (6) wood related waste, (7) coal gasification technology. *Id.*

¹²⁷ *Id.* § 1648.3(b), (c).

¹²⁸ *Id.* § 1648.3(b)(2).

¹²⁹ *Id.* § 1648.3(e).

¹³⁰ *Id.* § 1648.3(e)(4).

¹³¹ *Id.* § 1648.3(e)(2) (requiring the state to establish an administrative entity whose duties are the creation, overseeing, tracking, and reporting of the AEC program).

¹³² *Id.* § 1648.3(e)(8) (requiring the state to establish a registry relating to transfers of energy credits between entities).

¹³³ Compare IND. CODE § 8-1-37-13 (allowing participating entities to recovery on their investment costs), with 73 PA. STAT. & CONS. STAT. ANN. § 1648.3(f) (authorizing the state of Pennsylvania to impose additional payment costs on any entity that fails to comply with the statute).

¹³⁴ See IND. CODE § 8-1-37-13 (establishing the Indiana goal based RPS where a taxpayer who chooses to derive energy from renewable sources may be entitled to recovery on their investment).

¹³⁵ See *id.* § 8-1-37-4 (including certain types of WTE in its definition of a “clean energy resource” eligible for the incentive).

¹³⁶ 73 PA. STAT. & CONS. STAT. ANN. § 1648.3(a).

¹³⁷ *Id.* § 1648.3(b), (c).

IV. WTE IS NOT ENVIRONMENTALLY FRIENDLY, TRULY SUSTAINABLE, OR ECONOMICALLY SOUND

There is reason to believe WTE power is an elegant solution for a society with a serious waste problem.¹³⁸ For example, research suggests that in 2013, the waste sent to landfills could have been used to power 14 million homes, which equals roughly 240 million barrels of oil.¹³⁹ Furthermore, there is evidence that diverting waste could reduce environmental harms created by landfills, in terms of both greenhouse gases emitted and toxins seeping into the land and groundwater.¹⁴⁰ These forms of energy production, however, have a number of consequences that have an adverse impact on human health and the environment that do not arise in other renewable energy sources.¹⁴¹ Moreover, given a critical examination, recovering energy from WTE is a process that is not truly sustainable.¹⁴² Section A synthesizes research suggesting that WTE is a harmful technology.¹⁴³ Section B presents the position that WTE is not economically sustainable either.¹⁴⁴ Section C proposes that laws tailored to benefiting renewable energy should be renewed but altered to prevent WTE from continuing to thrive.¹⁴⁵

A. Too Dirty to Be Clean Energy—WTE Expels Numerous Toxins into the Air, Land, and Water

Even though the EPA classifies WTE power as renewable energy along with solar, wind, and others, it does not generally consider it a source of

¹³⁸ Dann et al., *supra* note 57, at 45 (stating that in 2012, the United States was generating around 243 million tons of municipal solid waste and spending around \$18 billion on landfills in conjunction with that waste).

¹³⁹ Emilio Lamanna, Note, *The Wealth in Waste: America's Ability to Enter the Waste to Energy Market by Embracing European Landfill Diversion, Waste Framework, and Renewable Energy Laws and Waste to Energy Initiatives*, 25 CARDOZO J. INT'L & COMP. L. 347, 353 (2017) (quoting the estimates of James Stewart, the Chair of California's BioEnergy Producers Association). The fourteen million homes represent about 12% of the total United States. *Id.*

¹⁴⁰ *Id.* at 353–54 (quoting Stewart, who states that gas created in landfills is about 25%–50% CO₂ and 50%–75% methane, two major greenhouse gases). Stewart goes on to explain that the United States sends around 60% of its waste to landfills, compared to Europe's two percent, and that as a result, there is significant toxic runoff in the form of leachate getting into the U.S. water. *Id.* at 354. Leachate is the liquid byproduct of the landfilling process that can potentially leak into the environment if not contained. *Id.*

¹⁴¹ See *Renewable Portfolio Standards*, *supra* note 25 (distinguishing broadly biomass from wind, solar, geothermal, and others, because it is much dirtier).

¹⁴² WASTE OF ENERGY, *supra* note 6, at 13 (arguing that MSW should not be considered renewable because it is composed of many non-renewable materials like plastics). Plastics and packaging, which make up a significant amount of general household waste, are petroleum-based products. *Id.*

¹⁴³ See *infra* notes 146–166 and accompanying text.

¹⁴⁴ See *infra* notes 167–183 and accompanying text.

¹⁴⁵ See *infra* notes 184–209 and accompanying text.

“green power.”¹⁴⁶ Green power, sometimes called clean renewable energy, describes production processes that do not create any significant pollution or harm the environment.¹⁴⁷ This does not apply for WTE, as these processes emit numerous toxins and chemicals into the environment.¹⁴⁸

WTE incinerators emit a vast array of chemicals through the facility’s steam stack.¹⁴⁹ Even though there are a number of filtration systems in place at these facilities, even a state-of-the-art incinerator allows some percentage of fly ash to escape.¹⁵⁰ This is problematic, even at those low amounts, because those pollutants have qualities that make them especially hazardous in that they degrade slowly, accumulate in organic tissue, and are highly toxic.¹⁵¹

Chemicals with these qualities are known as Persistent Bioaccumulative Toxic (“PBT”) chemicals.¹⁵² These chemicals are specifically defined by the EPA under the Toxic Release Inventory (“TRI”) Program.¹⁵³ The EPA created the TRI program as part of the Emergency Planning and Community Right-to-Know Act, a regulation requiring, among other things, state governments to have an emergency response plan for chemical accidents and pollution-creating facilities to report emission numbers of dangerous toxins.¹⁵⁴ The EPA

¹⁴⁶ See GUIDE TO PURCHASING GREEN POWER, *supra* note 28, at 2–3 (providing guidance that states that green energy has more environmental benefits than standard renewable energy but is not mandatory under federal law).

¹⁴⁷ See *Renewable Portfolio Standards*, *supra* note 25 (stating that clean renewables are best limited to solar and wind power, with the possibility of some exceptions for geothermal and types of hydroelectric).

¹⁴⁸ See WASTE OF ENERGY, *supra* note 6, at 8 (presenting evidence that WTE causes pollution).

¹⁴⁹ See *id.* at 9 (claiming that inspectors often only inspect stack emissions when they are operating at optimum levels).

¹⁵⁰ See *id.* at 8 (stating that facilities “emit particulate matter, volatile organic compounds, heavy metals, dioxins, sulfur dioxide, carbon monoxide, mercury, carbon dioxide, and furans”).

¹⁵¹ *Id.* (describing the chemicals as persistent, bioaccumulative, and toxic). Persistent chemicals are resistant to degradation both in the environment and can be absorbed or consumed by humans. *Persistent, Bioaccumulative, Toxicants*, SCI. & ENVTL. HEALTH NETWORK, <http://saferchemicals.org/wp-content/uploads/sites/3/2014/07/PBT-Factsheet.pdf?x38790> [<https://perma.cc/AGB6-PNHA>]. Bioaccumulative chemicals build up within organic matter and can be stored in high concentrations inside animals and humans. *Id.* Toxic chemicals cause health and environmental damages when consumed or absorbed. *Id.*

¹⁵² *Persistent, Bioaccumulative Toxic (PBT) Chemicals Covered by the TRI Program*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/toxics-release-inventory-tri-program/persistent-bioaccumulative-toxic-pbt-chemicals-covered-tri> [<https://perma.cc/8JSB-YGSV>] (listing chemicals and compounds that the EPA has categorized as uniquely threatening to human health and the environment due to their persistent, bioaccumulative, and toxic nature).

¹⁵³ *Id.* TRI reporting is part of the Emergency Planning and Community Right-to-Know Act (EPCRA). See 42 U.S.C. § 11023 (2018).

¹⁵⁴ 42 U.S.C. § 11023; see *What Is EPCRA?*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/epcra/what-epcra> [<https://perma.cc/LC9B-MZB9>] (summarizing the basics of EPCRA).

requires WTE facilities to monitor and report on emissions, as they are known to carry specifically dangerous chemicals.¹⁵⁵

Evidence supports the assertion that WTE facilities are dangerous as well.¹⁵⁶ Baltimore reported that life expectancy near their WTE facility was ten years less than the rest of the state, with higher cancer rates.¹⁵⁷ Studies suggest a correlation between proximity to a WTE facility and a likelihood of developing a number of diseases.¹⁵⁸ Reports link WTE pollution to increased mortality rates from childhood cancers, as well as throat, liver, stomach, rectum, and lung cancer.¹⁵⁹ Other reports evidence the connection between WTE pollution and developmental ailments, such as abnormal puberty and sexual maturation in children.¹⁶⁰

Proponents of WTE argue that diverting waste from landfills means there is an aggregate environmental good from incineration.¹⁶¹ The core of the argument is that landfills create both greenhouse gases and leachate, a toxic liquid byproduct of landfilling that can seep into the ground should it breach the landfill's liner.¹⁶² Although that argument is fundamentally sound, WTE does not get rid of the need for landfills.¹⁶³ Even though incinerators

¹⁵⁵ *Toxic Chemicals in Wastes*, U.S. ENVTL. PROT. AGENCY (2014), https://cfpub.epa.gov/roe/indicator_pdf.cfm?i=58 [<https://perma.cc/2G9H-ML76>] (explaining that toxic chemicals may be produced by private waste treatment activities, and the producer must report those chemicals according to the TRI program).

¹⁵⁶ See WASTE OF ENERGY, *supra* note 6, at 9 (detailing studies that suggest several illnesses connected with those living in close proximity to biomass facilities).

¹⁵⁷ See Dance, *supra* note 4 (describing the mortality statistics around the facility). Statistics can be difficult to attribute to any one source. See *id.* (reporting that the residents around the incinerator believe it to be the cause of the poor health in the community). Further, there is the problem of environmental justice, which is the idea that environmental harms are not bore equally by the entire population, specifically, poor people and people of color are much more negatively impacted due to factors such as exclusion from policymaking. Jeanne Marie Zokovitch Paben, *Green Power & Environmental Justice—Does Green Power Discriminate?*, 46 TEX. TECH. L. REV. 1067, 1071 (2014). Marginalized groups shoulder the costs of environmental progress disproportionately. *Id.* at 1071–72. For example, residents of the only county in Florida that is predominately black had to fight the construction of a biomass facility, as did the citizens of a predominately black neighborhood in Tallahassee. *Id.* at 1095.

¹⁵⁸ PEMBINA INST., INCINERATION OF MUNICIPAL SOLID WASTE: AN UPDATE ON POLLUTION 2–3 (2007), http://www.pembina.org/reports/Incineration_FS_Pollution.pdf [<https://perma.cc/9A3D-G9RE>]. In addition to cancer, the study shows that children living near a waste facility may not properly go through puberty or reach sexual maturity. *Id.* at 2.

¹⁵⁹ *Id.* at 2.

¹⁶⁰ *Id.* WTE facilities generate dioxins that are among the most harmful to humans, as well as particulate matter that is a known contributor to cardiovascular diseases, pulmonary diseases, and cancer. *Id.*

¹⁶¹ See Lamanna, *supra* note 139, at 353–54 (arguing that because WTE diverts trash from landfills, it contributes to decreasing greenhouse gases).

¹⁶² *Id.* at 354 (describing leachate as “hazardous sludge that poisons freshwater sources” that can leak from a landfill).

¹⁶³ See WASTE OF ENERGY, *supra* note 6, at 10 (arguing that incinerators create significant amounts of waste ash, that must still be disposed of in a landfill).

reduce waste volume by around 90 percent, there is still plenty of leftover toxic ash, which will have to be buried in designated landfills.¹⁶⁴ Landfill liners are designed to entomb unwanted wastes, but in reality they have a limited effective life before substances begin to pass through into the environment.¹⁶⁵ Even in the case where a landfill is constructed in full compliance with the law, there is the eventuality that the toxic ash will contaminate the environment.¹⁶⁶

B. WTE Is Too Wasteful to Be Sustainable as It Relies on Waste and Finite Materials as Fuels Sources

Environmental concerns notwithstanding, there is also the belief that WTE is not sustainable.¹⁶⁷ Much of what ends up in MSW comes from non-renewable sources, such as plastics that were not properly recycled.¹⁶⁸ An incinerator company wants the most reliable fuel sources to optimize their equipment.¹⁶⁹ Paper and plastics, which could be recycled, happen to also be the materials that burn the most efficiently.¹⁷⁰ As a for-profit endeavor, WTE

¹⁶⁴ *Id.* (arguing that incinerators create harmful byproducts in significant numbers).

¹⁶⁵ G. FRED LEE & ANNE JONES-LEE, *FLAWED TECHNOLOGY OF SUBTITLE D LANDFILLING OF MUNICIPAL SOLID WASTE* 10 (2015), <http://www.gfredlee.com/Landfills/SubtitleDFlawedTechnPap.pdf> [<https://perma.cc/ELG7-9PUA>] (stating that the plastic landfill liner will eventually fail and allow substances to leak out); *see* Criteria for Municipal Solid Waste Landfills, 40 C.F.R. § 258.40 (2018) (specifying the construction standards an MSW landfill must satisfy). A landfill must be built with a composite liner, a two-layer system that has a plastic layer encased in a densely packed soil layer. 40 C.F.R. § 258.50(b).

¹⁶⁶ *See* Letter from Heather A. Murray, Staff Attorney, Conservation Law Foundation, to Robert Boucher Jr., President & CEO, Wheelabrator Saugus, Inc., and Wheelabrator Technologies, Inc., at 3 (May 22, 2017), <https://www.clf.org/wp-content/uploads/2017/05/2017-05-22-FINAL-Wheelabrator-Saugus-Notice-Letter.pdf> [<https://perma.cc/V5AA-MQUC>] (providing notice to Wheelabrator of the intended action by the Conservation Law Foundation for violations of the RCRA). The claims brought by CLF relate to violations of RCRA arising from failure to monitor groundwater for contamination, creating risks of toxins leaching into the ecosystem. *See id.* *See generally* 40 C.F.R. § 258 (laying out the regulatory requirements for operation of an MSW landfill). The Saugus landfill has been operating since well before the construction requirements imposed by the regulations associated with RCRA, and thus demonstrates a way a landfill may operate without the protections of current law. *See* 40 U.S.C. §§ 6907, 6912 (2018) (providing the authority for the EPA to promulgate rules and issue guidelines to carry out the statutory purpose of RCRA); 57 Fed. Reg. 28628 (June 26, 1992) (demonstrating that the EPA provided notice in the year 1992 for the rulemaking that would be codified at C.F.R. § 258.40); Greta Jochem, *An Incinerator Divides a Town Near Boston*, CITYLAB (Feb. 1, 2018), <https://www.citylab.com/environment/2018/02/an-incinerator-divides-a-town-near-boston/552053/> [<https://perma.cc/L98F-MVDT?type=image>] (stating that the Saugus Incinerator began operation in the 1970s).

¹⁶⁷ *See* WASTE OF ENERGY, *supra* note 6, at 13 (declaring that, due to the presence of non-renewable materials in biomass waste, WTE is not a sustainable practice).

¹⁶⁸ *Id.* (using the example of plastic packaging that may be thrown out, which is derived from fossil fuel-based petroleum).

¹⁶⁹ *See id.* at 11 (arguing that, because plastics and paper burn more efficiently, true organic materials are made up of higher percentages of water).

¹⁷⁰ *Id.*

facilities have little incentive to sort out best fuel sources, and indeed are more likely to sort other materials, while leaving plastics in.¹⁷¹ Thus, WTE only appears to be sustainable, when in actuality, the fuel source, trash, is made up of numerous nonrenewable components.¹⁷²

This is exacerbated by the fact that many incinerators have contracts, which creates a demand for waste.¹⁷³ The contracts create a relationship where a municipality either supplies enough waste to keep the incinerator profitable, or the municipality pays money to make up the loss.¹⁷⁴ The other arm of this relationship is between the incinerator and the bank.¹⁷⁵ The cost of building and operating a WTE facility means that it can never downscale operations as long as it needs to pay off loans.¹⁷⁶ In 2009, in Lake County, Florida, a predictable conflict arose under these circumstances.¹⁷⁷ The city was not producing enough trash due to the economic crash hurting the local tourism industry, and the city made the choice to stop encouraging recycling in an effort to avoid spending millions supporting the incinerator contract.¹⁷⁸

Additionally, it is probable that WTE would not have thrived without government subsidies because WTE power production is costly.¹⁷⁹ A 2011 report by the Energy Information Administration stated that the cost of having a hauling company bring its waste to a WTE facility was about fifty percent more expensive than simply taking it to a landfill.¹⁸⁰ The report goes on to claim that the WTE incineration process itself is ultimately more costly than

¹⁷¹ *See id.* (discussing the financial structure of a WTE facility).

¹⁷² *See id.* at 13 (stating that trash tends to be made up of non-renewable products like plastics, and thus burning trash cannot be considered renewable energy).

¹⁷³ *Id.* at 11 (observing that many WTE facilities have decade long contracts with municipalities to produce the waste-fuel for the incinerator).

¹⁷⁴ *Id.* (describing these contracts as “put or pay,” a process whereby the community must financially compensate the waste company if it does not generate an agreed upon tonnage, resulting in the waste company losing earning).

¹⁷⁵ *Id.* at 12.

¹⁷⁶ *See id.* (describing that the operation demands fuel to make money, rather than burn based on the rate of fuel being brought in).

¹⁷⁷ *Id.*

¹⁷⁸ *Id.*

¹⁷⁹ *See id.* at 5–8 (describing the numerous economic issues that WTE raises). In broad terms, WTE is not economically viable, especially when compared to a system built around recycling and composting. *See id.* (analyzing the costs of operating a biomass facility). WTE facilities are a major investment up front and have many secondary costs related to operation, and thus is the least efficient way to generate energy relative to its cost. *Id.* at 6.

¹⁸⁰ *Id.* at 5. The process of having a hauler deliver trash to a facility is called a gate fee or a tipping fee. *Id.* The fee to deposit waste in a landfill in 2011 was sixty-one dollars, while at an incinerator it was ninety-two dollars on average. *See id.* (charting the tipping fees for incinerators, landfills, and composting facilities).

alternatives.¹⁸¹ Although exact costs vary based on the size of the facility, some estimates put the operating costs at around \$600–\$1000 per ton of waste incinerated, which ranges from around \$41 million to \$169 million per year.¹⁸² In context, it becomes clear that WTE is not an environmentally efficient approach to creating energy.¹⁸³

C. A Clean Slate—Changing the Future of Energy Policy

As part of the EPCRA of 1992, the legislature articulated a set of goals for the development of energy conservation technologies focused on increasing energy security and economic efficiency, while decreasing environmental harms.¹⁸⁴ The growth of WTE technology has undermined this goal.¹⁸⁵ Thus, Congress must amend its approach to renewable technologies in the future.¹⁸⁶

There is an open question as to whether the expiration of federal tax credits will resolve the problems created by WTE.¹⁸⁷ Although this does end funding for WTE, benefits for other renewables fields will also be cut off.¹⁸⁸ The legislature must look to the future by reestablishing the credits as they have before.¹⁸⁹ Congress should, however, redefine what types of energy technologies are eligible for credits, based upon recent studies on the social and economic consequences of WTE power.¹⁹⁰ Congress should allow credits

¹⁸¹ *Id.* at 7. The initial investment costs were significantly higher for WTE than for conventional natural gas, wind, conventional coal, photovoltaic, nuclear, and coal with carbon capture. *See id.*

¹⁸² *Cost of Incineration Plant*, WASTE TO ENERGY INT'L (Sept. 14, 2015), <https://wteinternational.com/cost-of-incineration-plant/> [<https://perma.cc/2U9D-R8Y5>] (calculating the possible costs for small to medium sized facilities). Waste to Energy International states that operating a WTE facility is expensive and there is no way around it. *Id.*

¹⁸³ *See* Paul Connett, *Why Incineration Is a Very Bad Idea in the Twenty First Century*, GLOB. ALL. FOR INCINERATOR ALTS. (2010), <http://www.no-burn.org/why-incineration-is-a-very-bad-idea-in-the-twenty-first-century/> [<https://perma.cc/58AK-X38E>] (arguing that there are very reasonable alternatives to incineration). San Francisco, despite its large population, has successfully implemented a strategy that is diverting 72% of its waste, with an eye to reaching 75% in 2020. *Id.*

¹⁸⁴ *See* 42 U.S.C. § 13401 (2018) (articulating the policy goals the United States should strive for in researching and developing conservation technologies).

¹⁸⁵ *See* WASTE OF ENERGY, *supra* note 6, at 8, 13 (arguing that WTE is not environmentally sustainable or economically sound).

¹⁸⁶ *See* I.R.C. § 45(d)(7) (2018) (demonstrating that under the current regime, WTE can still enjoy ten years of benefits if the facility began construction after January 1, 2018).

¹⁸⁷ *See id.* §§ 45(b)(5) (providing that the PTC only remains available for new wind facilities past 2018, and that it has expired for all other technologies), 48(a)(5) (stating that the ITC is no longer eligible for any WTE facility seeking to claim the credit after January 1, 2018).

¹⁸⁸ *Id.* § 45(d)(7).

¹⁸⁹ *See* Duffield & Collins, *supra* note 68, at 10 (stating that federal incentives for renewable energy have expired and been renewed in the past).

¹⁹⁰ *See* I.R.C. § 45 (detailing the different types of energy that have been eligible to receive the PTC); WASTE OF ENERGY, *supra* note 6, at 8, 13 (presenting research suggesting that WTE has adverse environmental and economic effects).

only for energy types that have minimal negative environmental impact, and in the very least, exclude WTE.¹⁹¹

Congress should also consider following the lead of the states and adopt a federal RPS.¹⁹² The legislature drafted such a bill in the past, the American Clean Energy and Securities Act (“ACESA”), but ultimately the bill did not pass.¹⁹³ Congress ought to reconsider that choice.¹⁹⁴ The ACESA looks substantially similar to the Pennsylvania RPS.¹⁹⁵ Specifically, it mandated that energy be derived from renewable sources and did not merely rely on an incentive system.¹⁹⁶ It also employed a two tier system.¹⁹⁷ This could be used to prevent an energy supplier from relying completely on WTE as the renewable resource.¹⁹⁸ One noticeable way in which the failed bill surpassed the current Pennsylvania statute was that landfill gas would be categorized alongside WTE.¹⁹⁹ Congress could go further, however, and develop a system whereby WTE is completely phased out over a number of years.²⁰⁰ In the extreme, Congress could simply develop a new proposed federal RPS to focus only on green technologies.²⁰¹

¹⁹¹ See GUIDE TO PURCHASING GREEN POWER, *supra* note 28, at 2–3 (demonstrating that federal agencies have issued guidance instructing and encouraging the use of green technologies).

¹⁹² See 73 PA. STAT. & CONS. STAT. ANN. § 1648.3 (West 2007) (demonstrating a mandate based RPS standard, which requires the state to acquire a certain amount of energy from renewable sources).

¹⁹³ American Clean Energy and Security Act (“ACESA”), H.R. 2454, 111th Cong. (2009). The American Clean Energy and Security Act required that energy retailers acquire at least 20% of their electricity from renewable source by 2020. *Id.*

¹⁹⁴ See *id.*

¹⁹⁵ See *id.* (revealing that the proposed American Clean Energy and Security Act is very similar to the current Pennsylvania RPS). Like the Pennsylvania statute, the ACESA places energy resources into two categories, with wind, solar, and geothermal energy, among others, into one category and WTE into a separate category. See *id.*; 73 PA. STAT. & CONS. STAT. ANN. § 1648.3 (demonstrating that ACESA distinguished between “qualifying energy resources” and “renewable energy sources” in much the same way the Pennsylvania statute separates tier I and tier II sources of renewable energy).

¹⁹⁶ See H.R. 2454, 111th Cong. (proposing a plan to gradually grow from requiring 6% of energy to be acquired from a renewable source in 2012 to 20% in 2020).

¹⁹⁷ *Id.*

¹⁹⁸ See 73 PA. STAT. & CONS. STAT. ANN. § 1648.3 (requiring that energy be derived from both tiers of renewable resources).

¹⁹⁹ Compare H.R. 2454, 111th Cong. (categorizing landfill gas as a “qualifying energy resource” along with WTE, instead of a “renewable energy resource”), with 73 PA. STAT. & CONS. STAT. ANN. § 1648.3 (defining landfill gas as a subset of biomass, under Tier I).

²⁰⁰ See I.R.C. § 45 (giving an example of a statute where a type of technology, in this case wind, is gradually phased out without immediately terminating the credit).

²⁰¹ See GUIDE TO PURCHASING GREEN POWER, *supra* note 28, at 2–3 (acknowledging that green energy use is currently voluntary).

There is significant room at the state level to dictate future renewable energy policy as well.²⁰² Twenty-nine states already have some form of an RPS, and more have renewable energy goals.²⁰³ Not all states, however, treat WTE the same under RPS laws.²⁰⁴ It is crucial to long term energy sustainability that the remaining states adopt mandatory RPS laws.²⁰⁵ States too could follow Pennsylvania's model.²⁰⁶ Again, states should consider limiting or even blocking WTE from being considered a valid source of energy for the purposes of an RPS.²⁰⁷ Although it can be argued that this would be unfairly harsh for the WTE industry, it can also be argued that the industry would not have even existed without leeching benefits from other renewables, making this a course correction.²⁰⁸ Finally, it seems that having lower benefits, such as being allowed on half the entire PTC credit, did not prevent WTE from thriving historically, and therefore any regime that does not completely eliminate benefits to WTE will not truly dissuade its use.²⁰⁹

CONCLUSION

Energy policy in the last fifty years in the United States has seen massive strides. While the previous century was mostly focused on ensuring the country had enough oil to power through world wars, the 1970s marked a major shift, wherein lawmakers began to seek alternative fuel sources. This was at first spurred by concerns about energy security, but toward the start of the 2000s, laws began to reflect growing concerns of waste, sustainability, and environmental harm. To those ends, the federal and state governments

²⁰² See *State Renewable Portfolio Standards and Goals*, NAT'L CONFERENCE OF STATE LEGISLATURES (2017), <http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx> [<https://perma.cc/BVP3-MFLP>] (describing the increase in states adopting RPSs).

²⁰³ *Id.* Iowa established the first RPS in the United States in 1983. *Id.* Hawaii has the most robust RPS, with the goal of 30% of energy coming from renewables in 2020, and 100% by 2024. *Id.*

²⁰⁴ SAMANTHA DONALDS, CLEAN ENERGY STATES ALL., RENEWABLE THERMAL IN STATE RENEWABLE PORTFOLIO STANDARDS 5 (2015), <https://www.cesa.org/assets/Uploads/Renewable-Thermal-in-State-RPS-April-2015.pdf> [<https://perma.cc/5JYK-4GX3>] (comparing the RPS laws across the United States that include thermal energy). Thermal power can take several forms, and here, is categorized as solar thermal, biomass, and geothermal technology. *Id.* In 2015, Arizona, Indiana, Massachusetts, Maryland, New Hampshire, Texas, and Wisconsin included all three of these types of thermal in their RPS. *Id.*

²⁰⁵ See *Renewable Portfolio Standards*, *supra* note 25 (lauding Pennsylvania's early adoption of a robust, clean focused RPS).

²⁰⁶ See *id.* (examining the shortcomings of relying solely on market forces to drive green solutions, even when it is trendy to be "green").

²⁰⁷ See 73 PA. STAT. & CONS. STAT. ANN. § 1648.3 (categorizing MSW as a Tier II source of energy).

²⁰⁸ See WASTE OF ENERGY, *supra* note 6, at 2 (positing that the PTC effectively created to the WTE industry).

²⁰⁹ See *id.*

implemented incentives through the tax code and mandates, using both stick and carrot approaches to meet new energy needs.

WTE, however, was also able to benefit by those policies. Because WTE superficially appears to be renewable, it was able to become a thriving industry by taking government subsidies that should have been reserved for wind, solar, and geothermal energy. Thus this "dirty" industry has continued to benefit under federal and state programs, while they simultaneously expelling persistent, bioaccumulative toxins into the environment.

Energy and environmental policies thus actively undermined many of the goals they were written to achieve, most specifically energy and environmental sustainability. Times are changing, however, and there is a movement in the United States away from these polluting renewables. Federal and state governments should continue to promote renewable technologies. They should, however, take steps to ensure the WTE does not continue to enjoy benefits at the expense of truly clean renewable technology.

HALE MCANULTY



May 7, 2019

**Testimony of Consumer Advocate D. Maurice Kreis
Concerning Amendment 2019-1737s to HB 183,
AN ACT establishing a committee to study the applications of microgrids in New
Hampshire and changes in law necessary to allow for microgrids in electrical
supply, and relative to baseload renewable generation credits for biomass energy
facilities**

Good morning Chairperson Fuller-Clark and distinguished Senators. As you know, I am D. Maurice Kreis, the state's consumer advocate. By statute, I represent the interests of New Hampshire's residential utility customers. I am testifying here today neither in support of nor in opposition to the amendment to HB 183 you are considering.

I want to start with some history.

Today happens to be the 40th anniversary of one of New Hampshire's finest moments. On this date, exactly 40 years ago, Governor Hugh Gallen signed into law – for immediate effect – New Hampshire's anti-CWIP statute.

CWIP, as I am guessing you know, is an acronym for "construction work in progress" and the anti-CWIP statute says you can't put construction work in progress into utility rates. It was one of the most decisive blows in favor of ratepayers in the history of electricity.

And because, in the Spring of 1979, CWIP was synonymous with Seabrook – already delayed, destined to cost seven billion dollars, and still eleven long years from going on line – keeping CWIP out of rates is what eventually drove PSNH into bankruptcy. When the New Hampshire Supreme Court eventually rejected PSNH's challenge to the anti-CWIP statute, the Court said PSNH was seeking a *bailout* – something neither the state constitution nor the federal constitution required.

In a related decision of the same court, Justice Souter used the phrase “plenary indemnification” – which, he said, is exactly what a utility is NOT entitled to from its customers.

Another key development during the Carter Administration was the work of the late New Hampshire Senator John Durkin. At the request of a Portsmouth-based company then known as Wheelabrator-Frye, Senator Durkin inserted into the 1978 energy bill the language we know today as Section 210 of PURPA.

This too was successful legislation. Section 210 forced utilities like PSNH to buy power for the first time from non-utility producers – so-called PURPA qualifying facilities. They had to be smaller than 80 megawatts, and they had to use what were then new technologies as opposed to nuclear or fossil fuel. They were entitled to rates based on the utility’s avoided cost.

The PURPA QFs in New Hampshire thrived, in no small part because the PUC – assigned the task under PURPA -- calculated avoided cost with great optimism and generosity. It’s been estimated that New Hampshire ratepayers have paid upwards of \$2 billion over the years to PURPA QFs beyond what they otherwise would have paid.

But electric industry restructuring has overtaken Section 210 of PURPA – avoided cost rates are now equal to market rates and the PURPA QFs can’t compete in the competitive wholesale marketplace. So the QFs – including one called Wheelabrator – have asked for help. They got it last year in the form of RSA 362-H, and it looks like they’re getting it this year via the amendment that is before you today.

Some people will call it a subsidy. Justice Souter might call it plenary indemnification. I call it a public policy choice that is yours to make.

Believe me when I say that I am not immune, as you are not immune, to the pleas for help from New Hampshire’s struggling forest products industry. The working forest has long been a critical component of our state’s economy. Our elected officials – directly accountable to the electorate -- are the right folks to decide whether financial assistance of this sort is a good step as the working forest strives to reinvent itself.

I on the other hand am tasked by statute with representing the interests New Hampshire’s residential utility customers before any and all tribunals. And verb in the statute I am talking about – RSA 363:28 – is “shall.”

It is for that reason that I decided several months ago, after a great deal of legal research, to make the argument that RSA 362-H as it was adopted last year is preempted by certain provisions of the Federal Power Act that are in these circumstances favorable to ratepayers.

I want to make three things clear about that choice.

One, I did not act alone. I raised the issue with my advisory board, two-thirds of which has been appointed by the General Court, and their advice was to go forward with the preemption claim if I thought it was legally sound. I *did* think it was legally sound.

Two, it is not fair to blame – or credit – only the New England Ratepayers Association (NERA) for the currently pending challenge. They acted first only because they were able to hire on outside counsel faster than I could. The OCA has fully supported NERA's position and, indeed, we have taken the lead in proceedings at the PUC and now the New Hampshire Supreme Court.

Third, I respectfully disagree with those who believe that I am exceeding my authority in arguing that a statute duly adopted by the General Court is preempted by federal law.

I would like to comment briefly on some of the other testimony I've heard today.

With respect to the idea that litigation has unreasonably delayed the implementation of RSA 362-H, I would suggest, respectfully, that the wood plants, which are well-represented by counsel, have actually acquiesced to the delay. They did not ask the PUC to address the preemption issue; in fact, they asked the PUC not to address it. They have not filed a lawsuit in either state or federal court to compel Eversource what they claim Eversource is obliged to do under RSA 362-H – sign contracts with them. I think the wood plants know they have a preemption problem.

The testimony from Mr. Ginnetti [of Jim Ginnetti Consulting, LLC, on behalf of Wheelabrator Technologies, reprising his contention from last year that losing 100 megawatts of wood- and trash-fired capacity would raise capacity costs payable by New Hampshire ratepayers by \$17 million a year] was interesting. He is talking about very sophisticated market issues. His claims deserve to be tested. My deputy is a PhD economist who's an expert on the Forward Capacity Market but neither he nor I have had a chance to review his analysis. I recommend amending the

amendment so that the PUC has the opportunity to review Mr. Ginnetti's analysis and consider its effects on the public interest before anything else goes forward. Beyond that, I would add that the implicit assumption that bidding into the capacity market is essential undermines the argument that there is no "tethering" here under the Supreme Court's decision in *Hughes v. Talen Energy*.

We learned about this amendment only four days ago. We are taking a hard look at whether there are still preemption issues associated with the mandatory purchase of "baseload renewable generation credits" that are not RECs and do not convey title to either energy or capacity. Even if the baseload renewable generation credits are indistinguishable from ZECs [i.e., the Zero Emissions Credits recently sustained by the U.S. Courts of Appeals for the Second and Seventh Circuits] the First Circuit will not necessarily agree with the Second and Seventh Circuits, which sets up the possibility of a circuit conflict the Supreme Court would need to resolve.

We will also consider the question of whether the amendment raises any issues related Part 2, Article 5 of the New Hampshire Constitution, which requires taxes to be levied in a proportional fashion. Because in some respects the mandatory purchase of baseload renewable generation credits is hard to distinguish from a tax on retail electricity – one that is not applicable everywhere in the state.

Regardless of how those issues play out, the ineluctable reality is that 100 percent of the bill for baseload renewable generation credits goes in nonbypassable fashion to customers. In that respect, today's amendment is indistinguishable from last year's bill adopting the current language in RSA 362-H. Based on the most recent information I have from Eversource, it's \$10 million a year for the residential customers of THAT utility alone.

My conscience, and my statutory obligations, are the reasons I am compelled to come here today and make sure that fact gets heard. The principle I invoke here is the same one that animated Governor Gallen's decision to sign the anti-CWIP bill 40 years ago today: The only costs that should go in nonbypassable rates relate to that which is actually "used and useful" in the provision of utility service. Everything else presently in rates *does* meet that standard.

The Senate's press release says that a lot of jobs and a lot of economic benefits are at stake here. I don't have access to the information I would need to test that assertion, but I surely do not want to put one Granite Stater out of work. I ask only that as you consider this proposed amendment, you remember New Hampshire's residential ratepayers and the constitutional provisions that protect them.

Thank you for the opportunity to testify; I would be happy to answer any questions.

N.H. Constitution, Part 2, Art. 5. [Power to Make Laws, Elect Officers, Define Their Powers and Duties, Impose Fines and Assess Taxes; Prohibited from Authorizing Towns to Aid Certain Corporations.] And farther, full power and authority are hereby given and granted to the said general court, from time to time, to make, ordain, and establish, all manner of wholesome and reasonable orders, laws, statutes, ordinances, directions, and instructions, either with penalties, or without, so as the same be not repugnant or contrary to this constitution, as they may judge for the benefit and welfare of this state, and for the governing and ordering thereof, and of the subjects of the same, for the necessary support and defense of the government thereof, and to name and settle biennially, or provide by fixed laws for the naming and settling, all civil officers within this state, such officers excepted, the election and appointment of whom are hereafter in this form of government otherwise provided for; and to set forth the several duties, powers, and limits, of the several civil and military officers of this state, and the forms of such oaths or affirmations as shall be respectively administered unto them, for the execution of their several offices and places, so as the same be not repugnant or contrary to this constitution; and also to impose fines, mulcts, imprisonments, and other punishments, and **to impose and levy proportional and reasonable assessments, rates, and taxes, upon all the inhabitants of, and residents within, the said state;** and upon all estates within the same; to be issued and disposed of by warrant, under the hand of the governor of this state for the time being, with the advice and consent of the council, for the public service, in the necessary defense and support of the government of this state, and the protection and preservation of the subjects thereof, according to such acts as are, or shall be, in force within the same; provided that the general court shall not authorize any town to loan or give its money or credit directly or indirectly for the benefit of any corporation having for its object a dividend of profits or in any way aid the same by taking its stocks or bonds. For the purpose of encouraging conservation of the forest resources of the state, the general court may provide for special assessments, rates and taxes on growing wood and timber.

STATE OF NEW HAMPSHIRE

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May 8, 2019

Senator Martha Fuller Clark
Chair
Committee on Energy and Natural Resources
New Hampshire Senate
The State House
107 North Main Street
Concord, New Hampshire 03301

Re: Amendment 2019-1737s to HB 183, re baseload renewable generation credits for biomass energy facilities

Dear Senator Fuller Clark:

This follows up on the testimony I gave at the May 7 hearing before your Committee on the above-referenced amendment. When I addressed the Committee, I made reference to the previous testimony of Jim Ginnetti of Jim Ginnetti Consulting, LLC on behalf of Wheelabrator Technologies, Inc. I described Mr. Ginnetti's testimony as "interesting" and said that I would like an opportunity to analyze it in more depth in consultation with my deputy. Although Mr. Ginnetti did not distribute copies of his testimony to the public at the hearing, Mr. Roberge, your Committee Aide, was kind enough to supply me with the document.

As you know, I have asked the Committee to keep in mind that 100 percent of the costs associated with the Baseload Renewable Generation Credits, which Eversource and Unitil will be required to purchase from wood- and trash-burning generators in their service territories should HB 183 as modified by Amendment 2019-1737s become law, will be borne by the ratepayers of these utilities. As the statutory representative of the interests of residential utility customers, I estimated the annual impact to the residential customers of Eversource to be approximately \$10 million. In round numbers, the overall annual ratepayer impact is \$20 million.

The gist of Mr. Ginnetti's testimony is that these ratepayer impacts would be offset by \$17 million a year, on a permanent basis, beginning three years in the future. Mr. Ginnetti contends that capacity costs – incurred via the regional Forward Capacity Market (FCM) administered by

regional transmission organization ISO New England, and ultimately passed through to retail energy rates – will increase in that amount should there be a loss of 100 megawatts of capacity bidding into the annual FCM auction. Mr. Ginnetti assumes that, absent the revenue stream from Baseload Renewable Generation Credits (or the equivalent revenue stream from mandatory energy purchases under RSA 362-H as adopted last year, a requirement we believe is preempted by the Federal Power Act), all of the wood- and trash-burning plants covered by RSA 362-H would shut down and 100 megawatts of capacity would be lost to the FCM on a permanent basis. (He has not provided financial or other support for the proposition that permanent retirement would be the prudent financial choice for these assets should RSA 362-H fail to yield the hoped-for financial assistance to them.)

Obviously, if Mr. Ginnetti is correct, this would offset some of the ratepayer impacts that concern the Office of the Consumer Advocate (OCA). Therefore, I have reached out to two experts on my team: Deputy Consumer Advocate Pradip Chattopadhyay and Principal Associate Doug Hurley of Synapse Energy Economics. Mr. Chattopadhyay is a PhD economist and Mr. Hurley has for the past 15 years been advising clients on matters related to the wholesale markets overseen by ISO New England. Messrs. Chattopadhyay and Hurley are the OCA's principal representatives to NEPOOL, the official stakeholder advisory board to ISO New England, of which the OCA is a voting member. Although the comments in this letter rely heavily on analysis provided to me by messrs. Chattopadhyay and Hurley, I am responsible for the contents of this letter.

As a preliminary matter, the Committee should keep in mind that Mr. Ginnetti's 100 megawatt figure is only a rough, high-side estimate of FCM impact arising out of the loss of the biomass plants in Bethlehem, Bridgewater, Springfield, Tamworth and Whitefield as well as the loss of his client's solid waste combustion facility in Concord (Wheelabrator Concord LP). The five biomass plants acquired a total capacity supply obligation of 83.6 megawatts in the recently concluded capacity auction (FCA 13), which covers the 12 months beginning on June 1, 2022. The waste-to-energy facility in Concord – identified in the FCA 13 results spreadsheet as SES Concord rather than Wheelabrator Concord LP – acquired a capacity supply obligation of 11.99 megawatts in FCA 13.

The Committee should also be mindful that (1) Baseload Renewable Generation Credit (or other RSA 362-H) revenue does not guarantee that any of these facilities will continue to bid into the Forward Capacity Auction, and (2) generators with capacity supply obligations must either meet them when dispatched or incur significant pay-for-performance penalties. It appears that the six generators in question have capacity supply obligations through June 30, 2023; yet you heard testimony on Tuesday that at least five of them are not currently operating. Mr. Ginnetti's analysis did not discuss the extent to which any of the plants are incurring, or might incur, such penalties. Nor, therefore, does he discuss what effects if any such penalties might have on wholesale energy and capacity costs as they are ultimately passed through to retail ratepayers.

Moreover, the region's capacity market does not function in isolation. The energy and capacity markets are designed so that, together, they yield just and reasonable prices for wholesale electricity within the meaning of the Federal Power Act. Thus, an increase in capacity costs

triggered by the loss of 100 megawatts of capacity bids could well reduce wholesale *energy* prices by some amount, though the effect is difficult if not impossible to estimate. We simply know that generators, whose energy supply bids are driven by their costs as overseen by internal and external market monitors, will have lower costs if their capacity revenues increase as the result of higher FCA prices.

Subject to these caveats, the OCA agrees that in general terms Mr. Ginnetti's hypothesis is sound. The price of capacity in the FCM is determined using an administratively developed demand curve, which sets a defined clearing price for every amount of capacity that could conceivably clear in the market. The market clears – i.e., the price is set – at the point where the supply and demand curves meet. Removing low-cost supply from the supply curve (or from any supply curve in any single-clearing-price market) *could* increase the clearing price and make the total cost of that market higher.

What Mr. Ginnetti omits from his discussion is that the FCM supply curve is never a smooth upward-sloping curve even though it is usually represented that way. The supply curve is always a step-wise function of individual bids. Moving the total amount of supply by 100 megawatts might not move the price at all, or it might move the price by quite a bit. We cannot know unless the specific data of the supply curve is public. Unfortunately, this data is *not* public.

Mr. Ginnetti's estimates are similar to ones developed two years ago by Mr. Hurley (filed in Massachusetts on behalf of another client of his firm, the Cape Light Compact) to assess the effect of *adding* 100 megawatts of capacity, via energy efficiency, to the region's capacity market. This is precisely what one would expect, given the use of an administratively defined demand curve.

In the opinion of the OCA, Legislators and others with an interest in this issue should keep in mind that, while an additional 100 megawatts of low-cost capacity will move the market price of capacity downward, *any* amount of any type of such capacity will have precisely the same effect. For example, consistent with Mr. Hurley's analysis from 2017, installing 100 megawatts of energy efficiency around the Granite State would reduce capacity prices but residents and businesses would then have the benefit of more comfortable premises that are cheaper to own and use.

This brings me back around to the central point I endeavored to make in my testimony on May 7. As a ratepayer advocate, I am comfortable with requiring customers to pay for capacity provided by energy efficiency because both the costs and benefits relate to energy use. In regulatory parlance, everything included in such a ratepayer's bill is "used and useful" from the standpoint of the service being purchased by consumers. However, legislators are not solely concerned with ratepayers; your task is to assess the broader public policy implications of the initiatives you consider. I understand and respect the responsibility you feel to preserve the livelihoods of those Granite Staters who labor in the forest products industry.

I hope the above analysis is helpful to you, and to others in the General Court, as you consider

how to proceed on this important legislation. Please feel free to contact me at 603.271.1174 or donald.kreis@oca.nh.gov if I can be of further assistance. Thank you for the opportunity to provide these comments.

Sincerely,



D. Maurice Kreis
Consumer Advocate

cc: Senators Bradley, Feltes, Giuda and Watters
Representatives Backus, Moffett and Harrington



May 7, 2019

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The Honorable Martha Fuller Clark, Chairwoman
New Hampshire Senate Committee on Energy and Natural Resources
State House, Room 103
Concord, NH 03301

Dear Senator Fuller Clark:

Thank you for this opportunity to testify in support of Amendment #2019-1737 to HB 183. As you know, we are a 118 year old land trust whose mission is to protect the state's most important landscapes while promoting the wise use of its renewable natural resources. It is the second part of that mission statement which most directly connects us to New Hampshire's forest-based economy. We own over 55,000 acres of forestland in 185 reservations. About 38,000 of these acres are in active forest management. Each year, we host an average of 8 to 12 timber harvesting operations. For our fiscal year ending on April 30, 2017, we harvested 1.75 million board feet of saw logs and 16,000 tons of low grade wood. Given those numbers and the fact that the state's biomass plants serve as a main market for the low-grade wood, SPNHF strongly supports efforts to strengthen those low-grade wood markets.

The Forest Society, like other private forestland owners, needs markets for this wood. However, when wood and wood-chip markets take a downturn, it becomes difficult to maintain the conditions that allow us to support and promote the other benefits that sustainable forest management provides. The current reality for the private forestland owners is that the strength of those markets is tied to the operations of the State's six independent biomass energy plants.

We believe the amendment to HB 183 will help these plants remain economically viable. Ensuring these New Hampshire-based sources of power generation continue to operate is in and itself an important policy goal. However, what is also important is that as they resume their operations, the markets on which loggers, landowners, and wood processors rely for their low-grade timber are sustained. When we maintain these markets, we strengthen the economic contributions the wood industry makes to our state.

The Forest Society is committed to advancing the resilience of New Hampshire forests and the health of the forest products industry. The resilience of natural systems within forests support our quality of life; markets for forest products support sustainable forestry, which in turn helps make the natural systems within forests resilient. The weakening, or worse the termination, of existing energy markets for low-grade wood will undermine a century of progress in restoring the resilience of New Hampshire forests.

Thank you for your consideration of these comments. Thank you as well for the support the Committee has provided to the forests and forests products industry in our state.

Sincerely,

Matt Leahy, Public Policy Manager
Society for the Protection of New Hampshire Forests



TO: Senator Martha Fuller Clark, Chairwomen
Senate Energy and Natural Resources Committee
Room 103 New Hampshire State House
Concord, NH 03301

FROM: Michael O’Friel
Senior Vice President and General Counsel
Wheelabrator Technologies

DATE: May 10, 2019

RE: Amendment No. 2019-1737 to House Bill 183 Relative to Baseload Renewable Generation Credits for Biomass Energy Facilities

On behalf of Wheelabrator Technologies and Wheelabrator Concord Energy Company (Wheelabrator), I am submitting this letter in support of Amendment No. 2019-1737 to House Bill 183 Relative to Baseload Renewable Generation Credits for Biomass Energy Facilities. I am also submitting this letter to correct certain testimony at the hearing on the Amendment the Committee held on May 7, 2019 regarding the environmental performance of Wheelabrator Technologies’ waste-to-energy facilities and the Wheelabrator Concord facility.

Wheelabrator Technologies is an industry leader in the conversion of everyday residential and business non-hazardous solid waste to clean, renewable energy. Protecting public health and the environment is our highest priority and our operations are protective of both. For more than 30 years, our facilities have operated in accordance with stringent state and federal air, water, and solid waste regulations. All of our facilities’ operating permits have been maintained and renewed without exception. Moreover, our facilities continuously monitor numerous environmental health and safety standards and meet approximately 800 separate environmental health and safety compliance checks each and every day.

Our waste-to-energy facilities reduce greenhouse gas emissions by approximately 1 ton for every ton of municipal solid waste combusted by: (1) diverting waste from landfills and avoiding landfill methane generation, (2) producing renewable electricity and avoiding CO2 emissions from fossil fuel plants and (3) recycling metals that reduces the energy needed for processing raw metal into usable form. The positive and environmental benefits of waste-to-energy as a preferred disposal method are recognized by the United States Environmental Protection Agency, the European Environmental Agency, the Intergovernmental Panel on Climate Change, and the United Nations Environment Programme, among many others.

Although there was testimony before the Committee about the environmental impact of our Baltimore facility, the Wheelabrator Baltimore facility operates in full compliance with its

permits. Those permits are granted and renewed only after we demonstrate to the Maryland Department of the Environment (MDE) that the emissions from the facility are reduced and controlled so they have no impact on the most sensitive members of society and the environment. In addition, Wheelabrator Baltimore will meet the latest NOx standards proposed by the MDE, a 30% reduction from U.S. EPA's maximum achievable control technology standard. And, we will continue to work with the MDE to further enhance our NOx control technology.

Our Wheelabrator Concord facility is the only waste-to-energy facility in the State. It processes over 18% of the total municipal solid waste in the State and produces energy to power 14,000 New Hampshire homes. Twenty-two New Hampshire municipalities including 17 members of the Concord Regional Solid Waste/Regional Cooperative Waste Authority deliver over 59,000 tons of solid waste per year to the Concord facility. The Concord Coop communities have been delivering waste to the Wheelabrator Concord facility since the facility began operations in 1989.

If the facility were to close because it became uneconomic to continue to operate, the cost of waste disposal for the municipal and commercial customers that use the facility would increase as they would be forced to transport their waste to landfills that are much further away than the facility particularly as in-state landfills close and waste must be disposed at out-of-state landfills. We estimate that the municipal and commercial customers would pay over \$1. million more in transportation and disposal costs if the facility closed. Closure of the facility would also eliminate the taxes Wheelabrator Concord pays to the State and to Concord and Pennacook.

In addition the Concord facility is the only assured destruction facility in the State for unused prescription drugs and over 76 New Hampshire and Vermont police departments and other law enforcement agencies use the facility to safely dispose of such drugs. Closure of the facility would increase the cost of disposing of these drugs and impact the State's ability to combat the opioid crisis.

The Department of Environmental Services supports the continued operation of the facility. Michael Wimsatt from the DES testified before the House Science, Technology and Energy Committee last year with respect to the Senate Bill 365 that maintaining the viability of the facility is important to New Hampshire's solid waste management infrastructure because the facility is the only waste-to-energy in the State and in the State's statutory waste management hierarchy waste-to-energy is preferred over landfilling as a method of waste disposal. Joseph Fontaine of the DES also testified before the House Committee last year that the facility has state of the art air emissions control systems and there are no compliance issues associated with the facility.

In early 2019 the DES reissued Wheelabrator Concord's Title V air permit. Although the permit was appealed by some of the same waste to energy opponents who testified before the committee the DES's Air Resources Council denied the appeal. The appeal was not based on the grounds that the facility violates any current air quality standards or rules but rather that instead of issuing the permit DES should have initiated a plan to close the facility within 2 years. In dismissing the appeal the DES's Air Resources Council held the DES had the authority to issue the permit and upheld the DES's determination that the facility complies with all applicable air requirements

that currently apply. In fact the facility consistently operates at or below emissions limits in the Title V permit as issued by the DES.

As you consider Amendment No. 2019-1737 to House Bill 183 Relative to Baseload Renewable Generation Credits for Biomass Energy Facilities I hope you will recognize all of the tremendous environmental and economic benefits Wheelabrator Concord provides to New Hampshire.

Voting Sheets

Senate Energy & Natural Resources Committee

EXECUTIVE SESSION RECORD

2019-2020 Session

Bill # **HB 183**

Hearing date: 04/02/2019

Executive Session date: 05/14/2019

Motion of: Amendment 2019-1920s Vote: 5-0

Committee Member	Present	Made by	Second	Yes	No
Sen. Fuller Clark, Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Feltes, Vice Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Watters	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Bradley	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Giuda	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Motion of: OTPA Vote: 5-0

Committee Member	Present	Made by	Second	Yes	No
Sen. Fuller Clark, Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Feltes, Vice Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Watters	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Bradley	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Giuda	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Motion of: _____ Vote: _____

Committee Member	Present	Made by	Second	Yes	No
Sen. Fuller Clark, Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Feltes, Vice Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Watters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Bradley	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Giuda	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reported out by: Feltes

Notes: _____

Committee Report

STATE OF NEW HAMPSHIRE
SENATE
REPORT OF THE COMMITTEE

Tuesday, May 14, 2019

THE COMMITTEE ON Energy and Natural Resources

to which was referred **HB 183**

AN ACT

establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.

Having considered the same, the committee recommends that the Bill

OUGHT TO PASS WITH AMENDMENT

BY A VOTE OF: 5-0

AMENDMENT # 1981s

Senator Dan Feltes
For the Committee

Griffin Roberge 271-7875

ENERGY AND NATURAL RESOURCES

HB 183, establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply.

Ought to Pass with Amendment, Vote 5-0.

Senator Dan Feltes for the committee.

Docket of HB183

Docket Abbreviations

Bill Title: (Second New Title) establishing a committee to study the applications of microgrids in New Hampshire and changes in law necessary to allow for microgrids in electrical supply, and relative to baseload renewable generation credits for biomass energy facilities.

Official Docket of HB183.:

Date	Body	Description
12/27/2018	H	Introduced 01/02/2019 and referred to Science, Technology and Energy HJ 2 P. 40
1/23/2019	H	Public Hearing: 01/30/2019 10:15 am LOB 304
2/15/2019	H	Executive Session: 02/19/2019 02:00 pm LOB 304
2/21/2019	H	Majority Committee Report: Ought to Pass with Amendment #2019-0561h (NT) for 03/07/2019 (Vote 12-8; RC) HC 14 P. 18
2/21/2019	H	Minority Committee Report: Inexpedient to Legislate
3/7/2019	H	Special Order to 03/14/2019 Without Objection HJ 8 P. 60
3/14/2019	H	Amendment #2019-0561h (NT): AA VV 03/14/2019 HJ 9 P. 32
3/14/2019	H	Ought to Pass with Amendment 2019-0561h (NT): MA DV 206-132 03/14/2019 HJ 9 P. 32
3/25/2019	S	Introduced 03/21/2019 and Referred to Energy and Natural Resources; SJ 10
3/28/2019	S	Hearing: 04/02/2019, Room 103, SH, 10:40 am; SC 16
5/2/2019	S	Hearing: 05/07/2019, Room 103, SH, 09:00 am, on proposed amendment #2019-1737s; SC 21
5/15/2019	S	Committee Report: Ought to Pass with Amendment #2019-1981s , 05/23/2019; SC 23
5/24/2019	S	Special Order to to the present time, Without Objection, MA; 05/23/2019; SJ 17
5/23/2019	S	Committee Amendment #2019-1981s , AA, VV; 05/23/2019; SJ 17
5/23/2019	S	Ought to Pass with Amendment 2019-1981s, MA, VV; OT3rdg; 05/23/2019; SJ 17
6/13/2019	H	House Concurs with Senate Amendment 1981s (Rep. Backus): MA RC 222-123 06/13/2019 HJ 19 P. 11
6/27/2019	S	Enrolled (In recess 06/27/2019); SJ 21
6/27/2019	H	Enrolled 06/27/2019 HJ 20 P. 53
8/5/2019	H	Vetoed by Governor Sununu 08/02/2019
9/18/2019	H	Veto Sustained 09/18/2019: RC 251-132 Lacking Necessary Two-Thirds Vote HJ 21 P. 10

NH House

NH Senate

Other Referrals

Senate Inventory Checklist for Archives

Bill Number: HB 183

Senate Committee: ENR

Please include all documents in the order listed below and indicate the documents which have been included with an "X" beside

Final docket found on Bill Status

Bill Hearing Documents: {Legislative Aides}

Bill version as it came to the committee

All Calendar Notices

Hearing Sign-up sheet(s)

Prepared testimony, presentations, & other submissions handed in at the public hearing

Hearing Report

Revised/Amended Fiscal Notes provided by the Senate Clerk's Office

Committee Action Documents: {Legislative Aides}

All amendments considered in committee (including those not adopted):

- amendment # 1737

- amendment # 1920

- amendment # 1981

- amendment # _____

Executive Session Sheet

Committee Report

Floor Action Documents: {Clerk's Office}

All floor amendments considered by the body during session (only if they are offered to the senate):

_____ - amendment # _____

_____ - amendment # _____

_____ - amendment # _____

_____ - amendment # _____

Post Floor Action: (if applicable) {Clerk's Office}

_____ Committee of Conference Report (if signed off by all members. Include any new language proposed by the committee of conference):

_____ Enrolled Bill Amendment(s)

_____ Governor's Veto Message

All available versions of the bill: {Clerk's Office}

as amended by the senate

_____ as amended by the house

final version

Completed Committee Report File Delivered to the Senate Clerk's Office By:

Committee Aide

Date

Senate Clerk's Office JM