LEGISLATIVE COMMITTEE MINUTES

SB168

Bill as Introduced

SB 168 - AS INTRODUCED

2019 SESSION

19-1090
06/01

SENATE BILL ***168***

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

SPONSORS: Sen. Feltes, Dist 15; Sen. Fuller Clark, Dist 21; Sen. Watters, Dist 4; Rep. Oxenham, Sull. 1

COMMITTEE: Energy and Natural Resources

ANALYSIS

This bill increases the renewable portfolio standard requirements for new solar energy from 2019 through 2025.

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Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

SB 168 - AS INTRODUCED

19-1090
06/01

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Nineteen

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

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

1 Electric Renewable Portfolio Standard; Minimum Standards. Amend the footnote to RSA 362-F:3 to read as follows:

*Class I increases an additional 0.9 percent per year from 2015 through 2025. A set percentage of the class I totals shall be satisfied annually by the acquisition of renewable energy certificates from qualifying renewable energy technologies producing useful thermal energy as defined in RSA 362-F:2, XV-a. The set percentage shall be 0.4 percent in 2014, 0.6 percent in 2015, 0.8 percent in 2016, and increased annually by 0.2 percent per year from 2017 through 2023, after which it shall remain unchanged. Class II shall increase to 0.5 percent beginning in 2018, [~~0.6~~] ***1.2*** percent beginning in 2019, [~~and 0.7~~] ***1.9*** percent beginning in 2020, ***2.6 percent beginning in 2021, 3.3 percent beginning in 2022, 4.0 percent beginning in 2023, 4.7 percent beginning in 2024, and 5.4 percent beginning in 2025,*** otherwise classes II-IV shall remain at the same percentages from 2015 through 2025 except as provided in RSA 362-F:4, V-VI.

2 Effective Date. This act shall take effect 60 days after its passage.

SB 168 - AS AMENDED BY THE SENATE

03/28/2019 1180s

2019 SESSION

19-1090
06/01

SENATE BILL *168*

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

SPONSORS: Sen. Feltes, Dist 15; Sen. Fuller Clark, Dist 21; Sen. Watters, Dist 4; Rep. Oxenham, Sull. 1

COMMITTEE: Energy and Natural Resources

AMENDED ANALYSIS

This bill increases the renewable portfolio standard requirements for new solar energy from 2019 through 2025. The bill also provides an exemption from increases in the annual purchase percentages for certain electrical supply contracts.

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

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Nineteen

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

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

1 Electric Renewable Portfolio Standard; Minimum Standards. Amend the footnote to RSA 362-F:3 to read as follows:

*Class I increases an additional 0.9 percent per year from 2015 through 2025. A set percentage of the class I totals shall be satisfied annually by the acquisition of renewable energy certificates from qualifying renewable energy technologies producing useful thermal energy as defined in RSA 362-F:2, XV-a. The set percentage shall be 0.4 percent in 2014, 0.6 percent in 2015, 0.8 percent in 2016, and increased annually by 0.2 percent per year from 2017 through 2023, after which it shall remain unchanged. Class II shall increase to 0.5 percent beginning in 2018, [~~0.6~~] ***1.2*** percent beginning in 2019, [~~and 0.7~~] ***1.9*** percent beginning in 2020, ***2.6 percent beginning in 2021, 3.3 percent beginning in 2022, 4.0 percent beginning in 2023, 4.7 percent beginning in 2024, and 5.4 percent beginning in 2025,*** otherwise classes II-IV shall remain at the same percentages from 2015 through 2025 except as provided in RSA 362-F:4, V-VI.

2 New Section; Minimum Electric Renewable Portfolio Standards; Exemption Period for Certain Electrical Supply Contracts. Amend RSA 362-F by inserting after section 3 the following new section:

362-F:3-a Exemption Period for Certain Electrical Supply Contracts.

I. The increases in the annual purchase percentages under RSA 362-F:3 applicable to class II for 2019 and thereafter as compared to the class II annual purchase percentages in effect as of January 1, 2019, shall not apply to the megawatt-hours delivered during the contract term under any electrical power supply contract entered into before the effective date of this section, provided that the contract term in effect before such effective date has not been extended or otherwise increased after that date.

II. Providers shall inform the commission by July 1 of each year, through July 1, 2022, of all such exempted contracts, including but not limited to, the execution date and expiration date of the contract, the basis for exemption under this section, and if applicable, the annual megawatt-hours supplied and exempted, or the annual amount of exempted methane gas certificates and the basis for exemption. All such information filed with the commission shall be exempt from the provisions of RSA 91-A:5, IV.

3 Effective Date. This act shall take effect 60 days after its passage.

LBAO
19-1090
Amended 6/14/19

SB 168 FISCAL NOTE
AS AMENDED BY THE HOUSE (AMENDMENT #2019-1894h)

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

FISCAL IMPACT: [X] State [X] County [X] Local [ ] None

	Estimated Increase / (Decrease)			
STATE:	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**
Appropriation	$0	$0	$0	$0
Revenue	Indeterminable	Indeterminable	Indeterminable	Indeterminable
Expenditures	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase
Funding Source:	[X] General [ ] Education [X] Highway [X] Other - Various government funds (See Methodology)			

COUNTY:

Revenue	Indeterminable	Indeterminable	Indeterminable	Indeterminable
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 as amended includes changes to the Renewable Portfolio Standard (RPS) requirements for Class II sources (solar electric) to increase the amount required to be held in the annual purchase percentages. This bill also exempts certain electrical supply contracts from the requirements to increase the percentage of Class II sources of energy.

The Public Utilities Commission states that electricity providers are required to purchase an electricity portfolio consistent within the standards set in the RPS. If the electricity providers cannot achieve the requirements of the RPS, or elect to not comply, then electricity providers must make alternative compliance payments (ACPs) to the Renewable Energy Fund (REF). To demonstrate compliance with the RPS statute, electric providers purchase Renewable Energy Certificates (RECs) for each of the classes established within the RPS.

The Commission states this bill will impact state, county, and local expenditures and revenue by an indeterminable amount. The impact would be dependent on the market of RECs and future ACP rates set by the Commission, which varies. For example, if Class II RECs are sufficiently available to meet the electricity providers' compliance obligations, then RECs would likely sell below the ACP rate and electricity providers would not be required to pay a higher price for RECs and/or fulfill their obligation through paying ACPs. However, if the Class II REC supply is insufficient, then ACPs would be deposited into the REF. Money in the REF is used to support energy projects, which may benefit governments seeking grants for renewable energy projects.

The Commission states this bill will increase state, county, and local government expenditures for electricity by an indeterminable amount, assuming no change in the state electricity usage.

AGENCIES CONTACTED:

Public Utilities Commission

SB 168 - AS AMENDED BY THE HOUSE

03/28/2019 1180s
6Jun2019... 1894h

2019 SESSION

19-1090
06/01

SENATE BILL ***168***

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

SPONSORS: Sen. Feltes, Dist 15; Sen. Fuller Clark, Dist 21; Sen. Watters, Dist 4; Rep. Oxenham, Sull. 1

COMMITTEE: Energy and Natural Resources

AMENDED ANALYSIS

This bill increases the renewable portfolio standard requirements for new solar energy from 2019 through 2025. The bill also provides an exemption from increases in the annual purchase percentages for certain electrical supply contracts.

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

SB 168 - AS AMENDED BY THE HOUSE

03/28/2019 1180s
6Jun2019... 1894h

19-1090
06/01

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Nineteen

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

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

1 Electric Renewable Portfolio Standard; Minimum Standards. Amend the footnote to RSA 362-F:3 to read as follows:

*Class I increases an additional 0.9 percent per year from 2015 through 2025. A set percentage of the class I totals shall be satisfied annually by the acquisition of renewable energy certificates from qualifying renewable energy technologies producing useful thermal energy as defined in RSA 362-F:2, XV-a. The set percentage shall be 0.4 percent in 2014, 0.6 percent in 2015, 0.8 percent in 2016, and increased annually by 0.2 percent per year from 2017 through 2023, after which it shall remain unchanged. Class II shall increase to 0.5 percent beginning in 2018, 0.6 percent beginning in 2019, [~~and 0.7~~] ***1.4*** percent beginning in 2020, ***2.2 percent beginning in 2021, 3.0 percent beginning in 2022, 3.8 percent beginning in 2023, 4.6 percent beginning in 2024, and 5.4 percent beginning in 2025***[~~, otherwise~~]. Classes [~~II~~] ***III***-IV shall remain at the same percentages from 2015 through 2025 except as provided in RSA 362-F:4, [~~V-VI~~] ***VI. The requirements for classes I-II are subject to the provisions of RSA 362-F:4, V.***

2 New Section; Minimum Electric Renewable Portfolio Standards; Exemption Period for Certain Electrical Supply Contracts. Amend RSA 362-F by inserting after section 3 the following new section:

362-F:3-a Exemption Period for Certain Electrical Supply Contracts.

I. The increases in the annual purchase percentages under RSA 362-F:3 applicable to class II for 2019 and thereafter as compared to the class II annual purchase percentages in effect as of January 1, 2019, shall not apply to the megawatt-hours delivered during the contract term under any electrical power supply contract entered into before the effective date of this section, provided that the contract term in effect before such effective date has not been extended or otherwise increased after that date.

II. Providers shall inform the commission by July 1 of each year, through July 1, 2022, of all such exempted contracts, including but not limited to, the execution date and expiration date of the contract, the basis for exemption under this section, and if applicable, the annual megawatt-hours supplied and exempted, or the annual amount of exempted methane gas certificates and the basis for exemption. All such information filed with the commission shall be exempt from the provisions of RSA 91-A:5, IV.

3 Effective Date. This act shall take effect 60 days after its passage.

SB 168 - FINAL VERSION

03/28/2019 1180s
6Jun2019... 1894h

2019 SESSION

19-1090
06/01

SENATE BILL ***168***

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

SPONSORS: Sen. Feltes, Dist 15; Sen. Fuller Clark, Dist 21; Sen. Watters, Dist 4; Rep. Oxenham, Sull. 1

COMMITTEE: Energy and Natural Resources

AMENDED ANALYSIS

This bill increases the renewable portfolio standard requirements for new solar energy from 2019 through 2025. The bill also provides an exemption from increases in the annual purchase percentages for certain electrical supply contracts.

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

03/28/2019 1180s
6Jun2019... 1894h

19-1090
06/01

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Nineteen

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

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

1 Electric Renewable Portfolio Standard; Minimum Standards. Amend the footnote to RSA 362-F:3 to read as follows:

*Class I increases an additional 0.9 percent per year from 2015 through 2025. A set percentage of the class I totals shall be satisfied annually by the acquisition of renewable energy certificates from qualifying renewable energy technologies producing useful thermal energy as defined in RSA 362-F:2, XV-a. The set percentage shall be 0.4 percent in 2014, 0.6 percent in 2015, 0.8 percent in 2016, and increased annually by 0.2 percent per year from 2017 through 2023, after which it shall remain unchanged. Class II shall increase to 0.5 percent beginning in 2018, 0.6 percent beginning in 2019, [~~and 0.7~~] ***1.4*** percent beginning in 2020, ***2.2 percent beginning in 2021, 3.0 percent beginning in 2022, 3.8 percent beginning in 2023, 4.6 percent beginning in 2024, and 5.4 percent beginning in 2025***[~~, otherwise~~]. Classes [~~II~~] ***III***-IV shall remain at the same percentages from 2015 through 2025 except as provided in RSA 362-F:4, [~~V-VI~~] ***VI. The requirements for classes I-II are subject to the provisions of RSA 362-F:4, V.***

2 New Section; Minimum Electric Renewable Portfolio Standards; Exemption Period for Certain Electrical Supply Contracts. Amend RSA 362-F by inserting after section 3 the following new section:

362-F:3-a Exemption Period for Certain Electrical Supply Contracts.

I. The increases in the annual purchase percentages under RSA 362-F:3 applicable to class II for 2019 and thereafter as compared to the class II annual purchase percentages in effect as of January 1, 2019, shall not apply to the megawatt-hours delivered during the contract term under any electrical power supply contract entered into before the effective date of this section, provided that the contract term in effect before such effective date has not been extended or otherwise increased after that date.

II. Providers shall inform the commission by July 1 of each year, through July 1, 2022, of all such exempted contracts, including but not limited to, the execution date and expiration date of the contract, the basis for exemption under this section, and if applicable, the annual megawatt-hours supplied and exempted, or the annual amount of exempted methane gas certificates and the basis for exemption. All such information filed with the commission shall be exempt from the provisions of RSA 91-A:5, IV.

3 Effective Date. This act shall take effect 60 days after its passage.

VETOED July 19, 2019

LBAO
19-1090
Amended 6/14/19

SB 168- FISCAL NOTE

AS AMENDED BY THE HOUSE (AMENDMENT #2019-1894h)

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

FISCAL IMPACT: [X] State [X] County [X] Local [ ] None

	Estimated Increase / (Decrease)			
STATE:	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**
Appropriation	$0	$0	$0	$0
Revenue	Indeterminable	Indeterminable	Indeterminable	Indeterminable
Expenditures	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase
Funding Source:	[X] General [ ] Education [X] Highway [X] Other - Various government funds (See Methodology)			

COUNTY:

Revenue	Indeterminable	Indeterminable	Indeterminable	Indeterminable
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 as amended includes changes to the Renewable Portfolio Standard (RPS) requirements for Class II sources (solar electric) to increase the amount required to be held in the annual purchase percentages. This bill also exempts certain electrical supply contracts from the requirements to increase the percentage of Class II sources of energy.

The Public Utilities Commission states that electricity providers are required to purchase an electricity portfolio consistent within the standards set in the RPS. If the electricity providers cannot achieve the requirements of the RPS, or elect to not comply, then electricity providers must make alternative compliance payments (ACPs) to the Renewable Energy Fund (REF). To demonstrate compliance with the RPS statute, electric providers purchase Renewable Energy Certificates (RECs) for each of the classes established within the RPS.

The Commission states this bill will impact state, county, and local expenditures and revenue by an indeterminable amount. The impact would be dependent on the market of RECs and future

ACP rates set by the Commission, which varies. For example, if Class II RECs are sufficiently available to meet the electricity providers' compliance obligations, then RECs would likely sell below the ACP rate and electricity providers would not be required to pay a higher price for RECs and/or fulfill their obligation through paying ACPs. However, if the Class II REC supply is insufficient, then ACPs would be deposited into the REF. Money in the REF is used to support energy projects, which may benefit governments seeking grants for renewable energy projects.

The Commission states this bill will increase state, county, and local government expenditures for electricity by an indeterminable amount, assuming no change in the state electricity usage.

AGENCIES CONTACTED:

Public Utilities Commission

SB 168 - FINAL VERSION

03/28/2019 1180s
6Jun2019... 1894h

2019 SESSION

19-1090
06/01

SENATE BILL ***168***

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

SPONSORS: Sen. Feltes, Dist 15; Sen. Fuller Clark, Dist 21; Sen. Watters, Dist 4; Rep. Oxenham, Sull. 1

COMMITTEE: Energy and Natural Resources

AMENDED ANALYSIS

This bill increases the renewable portfolio standard requirements for new solar energy from 2019 through 2025. The bill also provides an exemption from increases in the annual purchase percentages for certain electrical supply contracts.

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

03/28/2019 1180s
6Jun2019... 1894h

19-1090
06/01

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Nineteen

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

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

1 Electric Renewable Portfolio Standard; Minimum Standards. Amend the footnote to RSA 362-F:3 to read as follows:

*Class I increases an additional 0.9 percent per year from 2015 through 2025. A set percentage of the class I totals shall be satisfied annually by the acquisition of renewable energy certificates from qualifying renewable energy technologies producing useful thermal energy as defined in RSA 362-F:2, XV-a. The set percentage shall be 0.4 percent in 2014, 0.6 percent in 2015, 0.8 percent in 2016, and increased annually by 0.2 percent per year from 2017 through 2023, after which it shall remain unchanged. Class II shall increase to 0.5 percent beginning in 2018, 0.6 percent beginning in 2019, [~~and 0.7~~] ***1.4*** percent beginning in 2020, ***2.2 percent beginning in 2021, 3.0 percent beginning in 2022, 3.8 percent beginning in 2023, 4.6 percent beginning in 2024, and 5.4 percent beginning in 2025***[~~, otherwise~~]. Classes [~~II~~] ***III***-IV shall remain at the same percentages from 2015 through 2025 except as provided in RSA 362-F:4, [~~V-VI~~] ***VI. The requirements for classes I-II are subject to the provisions of RSA 362-F:4, V.***

2 New Section; Minimum Electric Renewable Portfolio Standards; Exemption Period for Certain Electrical Supply Contracts. Amend RSA 362-F by inserting after section 3 the following new section:

362-F:3-a Exemption Period for Certain Electrical Supply Contracts.

I. The increases in the annual purchase percentages under RSA 362-F:3 applicable to class II for 2019 and thereafter as compared to the class II annual purchase percentages in effect as of January 1, 2019, shall not apply to the megawatt-hours delivered during the contract term under any electrical power supply contract entered into before the effective date of this section, provided that the contract term in effect before such effective date has not been extended or otherwise increased after that date.

II. Providers shall inform the commission by July 1 of each year, through July 1, 2022, of all such exempted contracts, including but not limited to, the execution date and expiration date of the contract, the basis for exemption under this section, and if applicable, the annual megawatt-hours supplied and exempted, or the annual amount of exempted methane gas certificates and the basis for exemption. All such information filed with the commission shall be exempt from the provisions of RSA 91-A:5, IV.

3 Effective Date. This act shall take effect 60 days after its passage.

VETOED July 19, 2019 -- Veto Sustained September 19, 2019

1

LBAO
19-1090
Amended 6/14/19

SB 168- FISCAL NOTE
AS AMENDED BY THE HOUSE (AMENDMENT #2019-1894h)

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

FISCAL IMPACT: [X] State [X] County [X] Local [ ] None

	Estimated Increase / (Decrease)			
STATE:	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**
Appropriation	$0	$0	$0	$0
Revenue	Indeterminable	Indeterminable	Indeterminable	Indeterminable
Expenditures	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase	Indeterminable Increase
Funding Source:	[X] General [ ] Education [X] Highway [X] Other - Various government funds (See Methodology)			

COUNTY:

Revenue	Indeterminable	Indeterminable	Indeterminable	Indeterminable
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 as amended includes changes to the Renewable Portfolio Standard (RPS) requirements for Class II sources (solar electric) to increase the amount required to be held in the annual purchase percentages. This bill also exempts certain electrical supply contracts from the requirements to increase the percentage of Class II sources of energy.

The Public Utilities Commission states that electricity providers are required to purchase an electricity portfolio consistent within the standards set in the RPS. If the electricity providers cannot achieve the requirements of the RPS, or elect to not comply, then electricity providers must make alternative compliance payments (ACPs) to the Renewable Energy Fund (REF). To demonstrate compliance with the RPS statute, electric providers purchase Renewable Energy Certificates (RECs) for each of the classes established within the RPS.

The Commission states this bill will impact state, county, and local expenditures and revenue by an indeterminable amount. The impact would be dependent on the market of RECs and future

ACP rates set by the Commission, which varies. For example, if Class II RECs are sufficiently available to meet the electricity providers' compliance obligations, then RECs would likely sell below the ACP rate and electricity providers would not be required to pay a higher price for RECs and/or fulfill their obligation through paying ACPs. However, if the Class II REC supply is insufficient, then ACPs would be deposited into the REF. Money in the REF is used to support energy projects, which may benefit governments seeking grants for renewable energy projects.

The Commission states this bill will increase state, county, and local government expenditures for electricity by an indeterminable amount, assuming no change in the state electricity usage.

AGENCIES CONTACTED:

Public Utilities Commission

Amendments

Sen. Feltes, Dist 15
March 19, 2019
2019-1129s
06/10

Amendment to SB 168

Amend the bill by inserting after section 1 the following and renumbering the original section 2 to read as 3:

2 New Section; Minimum Electric Renewable Portfolio Standards; Exemption Period for Certain Electrical Supply Contracts. Amend RSA 362-F by inserting after section 3 the following new section:

362-F:3-a Exemption Period for Certain Electrical Supply Contracts.

I. The increases in the annual purchase percentages under RSA 362-F:3 applicable to class II for 2019 and thereafter as compared to the class II annual purchase percentages in effect as of January 1, 2019, shall not apply to the megawatt-hours delivered during the contract term under any electrical power supply contract entered into before the effective date of this section, provided that the contract term in effect before such effective date has not been extended or otherwise increased after that date.

II. Providers shall inform the commission by July 1 of each year, through July 1, 2022, of all such exempted contracts, including but not limited to, the execution date and expiration date of the contract, the basis for exemption under this section, and if applicable, the annual megawatt-hours supplied and exempted, or the annual amount of exempted methane gas certificates and the basis for exemption. All such information filed with the commission shall be exempt from the provisions of RSA 91-A:5, IV.

2019-1129s

AMENDED ANALYSIS

This bill increases the renewable portfolio standard requirements for new solar energy from 2019 through 2025. The bill also provides an exemption from increases in the annual purchase percentages for certain electrical supply contracts.

Energy and Natural Resources
March 20, 2019
2019-1180s
06/10

Amendment to SB 168

Amend the bill by inserting after section 1 the following and renumbering the original section 2 to read as 3:

2 New Section; Minimum Electric Renewable Portfolio Standards; Exemption Period for Certain Electrical Supply Contracts. Amend RSA 362-F by inserting after section 3 the following new section:

362-F:3-a Exemption Period for Certain Electrical Supply Contracts.

I. The increases in the annual purchase percentages under RSA 362-F:3 applicable to class II for 2019 and thereafter as compared to the class II annual purchase percentages in effect as of January 1, 2019, shall not apply to the megawatt-hours delivered during the contract term under any electrical power supply contract entered into before the effective date of this section, provided that the contract term in effect before such effective date has not been extended or otherwise increased after that date.

II. Providers shall inform the commission by July 1 of each year, through July 1, 2022, of all such exempted contracts, including but not limited to, the execution date and expiration date of the contract, the basis for exemption under this section, and if applicable, the annual megawatt-hours supplied and exempted, or the annual amount of exempted methane gas certificates and the basis for exemption. All such information filed with the commission shall be exempt from the provisions of RSA 91-A:5, IV.

2019-1180s

AMENDED ANALYSIS

This bill increases the renewable portfolio standard requirements for new solar energy from 2019 through 2025. The bill also provides an exemption from increases in the annual purchase percentages for certain electrical supply contracts.

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 6, 2019

HEARINGS

Tuesday		03/12/2019
(Day)		(Date)
Energy and Natural Resources	SH 103	9:00 a.m.
(Name of Committee)	(Place)	(Time)

9:00 a.m.	**SB 206**	excluding the cost of lobbying and political activity from the rates of public utilities. (THE PREVIOUS HEARING FOR SB 206 WAS RECESSED ON MARCH 5th)
9:15 a.m.	**SB 72**	relative to issuance of renewable energy certificates.
9:30 a.m.	**SB 165**	relative to net energy metering by low-moderate income community solar projects.
10:00 a.m.	**SB 168**	relative to class 2 obligations under the electric renewable portfolio standards.
10:30 a.m.	**SB 124**	relative to renewable portfolio standards after 2025.

EXECUTIVE SESSION MAY FOLLOW

Sponsors:

SB 206			
Sen. Feltes	Sen. Fuller Clark	Rep. Hennessey	Rep. Luneau
SB 72			
Sen. Fuller Clark	Sen. Levesque	Sen. Sherman	Rep. Moffett
SB 165			
Sen. Feltes	Sen. Fuller Clark	Sen. Watters	Sen. Bradley
Sen. Hennessey	Rep. Moffett	Rep. Oxenham	Rep. Luneau
Rep. Myler			
SB 168			
Sen. Feltes	Sen. Fuller Clark	Sen. Watters	Rep. Oxenham
SB 124			
Sen. Fuller Clark	Sen. Kahn	Sen. Levesque	Sen. Feltes
Rep. Mann	Rep. Oxenham	Rep. Somssich	

Griffin Roberge 271-7875

Martha Fuller Clark
Chairman

Senate Energy and Natural Resources Committee

Griffin Roberge 271-7875

SB 168, relative to class 2 obligations under the electric renewable portfolio standards.

Hearing Date: March 12, 2019.

Time Opened: 10:40 a.m. **Time Closed:** 11:20 a.m.

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

Members of the Committee Absent: Senator Giuda.

Bill Analysis: This bill increases the renewable portfolio standard requirements for new solar energy from 2019 through 2025.

Sponsors:
Sen. Feltes Sen. Fuller Clark Sen. Watters
Rep. Oxenham

Who supports the bill: Senator Dan Feltes (NH Senate District 15), Senator Martha Fuller Clark (NH Senate District 21), Ted Vansant (New England Commercial Solar Services), Dorothy Currier, Madeleine Mineau (Clean Energy NH), Ruth M. Heath, Sue Durling (ECHO Action), Margaret Watkins (NH Audubon), Liz-Anne Platt (Concord, NH), Sarah Thorne, Patricia Martin (Rindge, NH), Melissa Hinebauch, Melissa Birchard (Conservation Law Foundation), Dan Weeks (ReVision Energy), Catherine Corkery (NH Sierra Club), Erik Shifflett (Granite State Solar).

Who opposes the bill: Marc Brown (New England Ratepayers Association), Business & Industry Association.

Who is neutral on the bill: Karen Cramton (PUC).

Summary of testimony presented in support:

Senator Dan Feltes
NH Senate District 15

- SB 168 deals with Class II (new solar) under the Renewable Portfolio Standard (RPS), which requires electric suppliers to get their electricity generation from specific renewable sources. The bill would increase the Class II obligation for electric suppliers by 0.70% each year from its current obligation of 0.50% until it reaches 5.40% in 2025. SB 169 builds off the increased Class II obligations that were made in SB 129 (2017).
- The next several years are critical for supporting 1,000 NH jobs in the solar industry and expanding solar opportunities.
- Other states in New England have higher obligations for solar and are making investments in the solar industry. NH is lagging behind and should be competitive with neighboring states.

- While some in the solar industry would favor higher obligations than those proposed in SB 168, the proposed increases in Class II's obligation are reasonable to make sure that NH is not left behind and a growing industry is supported.
- Senator Watters asked what other states have for their solar obligations until 2025.
    - Senator Feltes said it is important to note that each state constructs their RPS differently. It would not be a simple comparison, but was unsure about other states and their obligations. He deferred to others who may be able to address that question.
- Senator Bradley asked if Senator Feltes knew about any impact to the ratepayer under SB 168, as the Class II obligation increases until 2025.
    - Senator Feltes said he did not have a specific analysis and that he would defer that question to others.

Ted Vansant
President, New England Commercial Solar Services

- SB 168 supports solar industry jobs in NH.
- SB 168 represents an opportunity to transform energy production in the state to solar - it is the most deployable and advanced technology available. It allows NH to combat climate change.
- Senator Bradley asked what the RPS obligations were for solar in other states.
    - Mr. Vansant said he was not sure, but knows NH is behind Massachusetts and Vermont. NH is close to the same with Maine.
    - Mr. Vansant acknowledges that, in terms of a ratepayer impact, that there will be a rate increase in the short-term, but those costs are miniscule when compared to the impacts of climate change and the impacts it will have on utility infrastructure. NH should start looking at the long-term. While the increased obligations as proposed in SB 168 are modest, they could be higher. SB 168 represents a baby-step forward.
- Senator Bradley questioned whether SB 168 was a baby-step. He said the Class II obligation increase in SB 129 (2017) was a compromise that led to Class II going from 0.50% in 2018 to 0.70% in 2020. SB 168 is a major jump in the Class II obligation percentage. That was why Senator Bradley was looking for a ratepayer impact and what other states are doing.

Dan Weeks - provided written testimony
Director of Market President, ReVision Energy

- The goals of SB 168 are too modest and will leave much of the economic, public health, and environmental benefits of homegrown renewable energy on the table and keep NH behind neighboring states. ReVision Energy encouraged the committee to consider amending SB 168 to achieve 10% or higher Class II RPS by 2025. ReVision Energy also suggests moving NH to a 100% renewable energy future by 2040 or 2050.
- In response to Senator Bradley's question to Mr. Brown and Mr. Vansant, NH is currently at 0.60% solar penetration as of 2019. Massachusetts is at 10%; Vermont is over 12%. Massachusetts's RPS is currently at 16% overall with a carve out for solar that increases by 2% each year over the next decade. Maine is on-par with NH, but is making a concerted effort to increase its RPS.
- SB 168 will save all ratepayers money:
    - Raising solar penetration will bring cost-saving benefits to every ratepayer, not just the families, businesses, and municipalities that choose to adopt solar.
    - The PUC found in a 2017 net metering study that there was no evidence of cost shifting from solar generators to the rate paying public.
    - Based on a 2015 Acadia Center NH study, The value of solar to the grid - and ratepayers connected to the grid - ranges from 19-24 cents/kWh, with additional societal values of 6.7 cents/kWh, which is 50% more than the full retail cost of electricity today.
    - The accumulating research on net metering concludes that the economic benefits of net metering outweigh the costs and impose no significant cost increase for non-solar customers. Net metering is a net benefit to all ratepayers.
- SB 168 will protect the public health and the environment:
    - In February 2019, NH's energy-related emissions of CO2 were 13.8 million metric tons.

- Based on NHDES data, 100 NH residents will die prematurely from respiratory ailments related to carbon pollution. The public health cost of treating these ailments is around $1 billion annually.
- NH's wildlife is also threatened by global warming and carbon emissions.
- SB 168 will contribute a meaningful reduction in CO2 emissions by offsetting more than 500,000 metric tons of CO2 a year.

- SB 168 will add jobs and economic investment:
  - Though NH has 0.60% solar penetration, there is 80 MW of solar capacity in NH, representing $214 million in local investment and 1,000 jobs. SB 168 will bring NH's solar capacity to 600 MW, resulting in $1 billion in new private-sector investments and thousands of more jobs.
  - Massachusetts, with a more aggressive solar RPS obligation, is seeing more private-sector investment and more than 11,350 jobs created in the solar industry.
- Senator Watters asked if manufacturers take climate change and public health issues into consideration when making decisions about expansion or relocation.
  - Mr. Weeks said he hears from businesses frequently about climate change. He cited a NH business that is being pressured by its European partners to shift to using renewable energy.
- Senator Watters asked if Mr. Weeks was aware that last year Germany surpassed Canada as the largest receiver of American exported manufacturing goods. He asked if there would be some foreign pressure on American manufacturers to alter their concern for climate change.
  - Mr. Weeks said it was a matter of competitiveness. Germany is the fourth largest industrialized economy. Much of their economy is powered by solar and wind generation.
- Senator Feltes noted that opponents of SB 168 will focus largely on the impact to ratepayers. He asked Mr. Weeks if Mr. Brown's assessment regarding a $30 million cost to ratepayers was accurate, or if SB 168 would lead to cost savings.
  - Mr. Weeks said that there was no evidence of a cost-shift occurring related to RPS Class II. This is the case even when solar penetration exceeds 10%. If cost-shifting is found, it is found to be insignificant compared to the other drivers of electricity rates, such as the activation of certain generating plants during times of peak demand in the summer or winter.
- Senator Feltes requested Mr. Weeks send a copy of the 2015 study conducted by the Acadia Center to the committee. He said it was important as Mr. Weeks's testimony referenced that the study found solar had an important value to the grid and ratepayer.
  - Mr. Weeks said he would send the study to the committee. While the report is a few years old, it is the most comprehensive report available.

Madeleine Mineau – provided written testimony
Executive Director, Clean Energy New Hampshire

- NH should aim higher in its solar penetration. Reaching 5.4% in Class II by 2025 is achievable.
- While NH's RPS goal is 25% by 2025, Vermont's RPS is 75% by 2032; Massachusetts is 35% by 2030 and increasing by 1% every year thereafter until 100%. Massachusetts also has a goal to achieve 1600 MW from solar by 2020.
- Currently, there is a lack of demand for Class II Renewable Energy Certificates (RECs). Increasing the obligation for Class II RECs would increase Class II REC demand, which would increase the value of Class II RECs.
- If there are concerns about significant costs to the ratepayer, the PUC has the authority to delay up to one year any given year's incremental increase in Class I and II per RSA 362-F:4.
- Senator Feltes asked if Ms. Mineau would be amenable to an amendment similar to SB 129 dealing with an exemption period for certain electrical supply contracts (RSA 362-F:15).
  - Ms. Mineau said she would be open to such an amendment.

Summary of testimony presented in opposition:

Marc Brown

President, New England Ratepayers Association

- SB 168 has the potential to increase electricity costs to ratepayers by $30 million dollars a year by 2025. This analysis was reached, assuming that Class II RECs are trading at 90% of their Alternative Compliance Payment (ACP) price.
- From 2019 to 2025, the cost to ratepayers would be $123 million more than ratepayers would otherwise pay if Class II obligations remained on their current path.
- Solar is growing in NH, it is not stagnant - since 2015, small scale photovoltaic (PV) generation is up 350%. NH's solar generation is not comparable to other states, but NH's growth is exceeding other states.
- By 2020, renewable sources like wind and solar will be economically competitive with other non-renewable sources. Subsidies like the RPS will no longer be needed. The market should determine the best energy source.
- Businesses are concerned about expanding into NH due to high costs of electricity. SB 168, by artificially speeding up the introduction of renewable energy, will not help lower those costs.
- Senator Feltes asked if Mr. Brown's ratepayer cost calculations included the value of distributed generation.
    - Mr. Brown said his calculations did not include the value of distributed generation.
- Senator Feltes asked if Mr. Brown's ratepayer costs calculations included the value of peak load shaving.
    - Mr. Brown said his calculations did not include the value of peak load shaving.
- Senator Feltes asked if Mr. Brown's ratepayer cost calculations included the value of reducing NH's regional transmission charges.
    - Mr. Brown said his calculations did not include the value of reducing NH's regional transmission charges.
- Senator Feltes asked if Mr. Brown's ratepayer cost calculations included an off-set for the energy that would have to be purchased, regardless of the status of renewable energy.
    - Mr. Brown said that his ratepayer cost calculations focused on the value of Class II Renewable Energy Credits (RECs) alone. He did not account for the overall cost of energy.
- Senator Feltes asked if the NERA membership would view a similar bill differently if it focused on increasing natural gas use over solar.
    - Mr. Brown said NERA would not view a similar bill differently. If a bill was proposed that offered an incentive for natural gas that was paid by ratepayers, NERA would oppose it. NERA has been opposed to the bailout of the Exelon Mystic Station in Massachusetts.
    - Mr. Brown spoke to the Regional Network Service (RNS) rates, which are rates of interest on regional transmission projects. Massachusetts has invested a great deal in distributed energy resources (DERs) and energy efficiency to lower their regional transmission costs. However, their regional transmission costs have actually increased. There is not a direct correlation between DERs and lower RNS charges. He said he could provide those numbers to the committee.
- Senator Bradley asked if the manner Mr. Brown used to calculate REC costs amount to approximately $30 million per year.
    - Mr. Brown clarified that the cost to ratepayers would increase as the obligation increased. By 2020, the cost would be $10 million. By 2021, the cost would be $14 million. By 2022, the cost would be $18 million. By 2023, $22 million. By 2024, $25 million. By 2025, under $30 million. After 2025, the cost would be an additional $30 million a year.

Neutral Information Presented: None.

GJR, edited by Cameron Lapine.
Date Hearing Report completed: March 12, 2019.

Speakers

Senate Energy & Natural Resources Committee
SIGN-IN SHEET

Date: Tuesday, March 12th, 2019 **Time:** 10:00 a.m.

SB 168 AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

Name/Representing *(please print neatly)*

Sen. Dan Feltes SD #15	Support ☑	Oppose ☐	Speaking?	Yes ☑	No ☐
Sen Fuller Clark SD #21	Support ☒	Oppose ☐	Speaking?	Yes ☐	No ☒
Karen Cranton PUC	Support ☐	Oppose ☐	Speaking?	Yes ☐	No ☐
Ted Vansant NEC Solar	Support ☒	Oppose ☐	Speaking?	Yes ☒	No ☐
Dorothy Currier	Support ☒	Oppose ☐	Speaking?	Yes ☐	No ☒
Madeleine Mineau	Support ☒	Oppose ☐	Speaking?	Yes ☒	No ☐
Ruth M. Heath self	Support ☒	Oppose ☐	Speaking?	Yes ☐	No ☒
Marc Brown NECEA	Support ☐	Oppose ☒	Speaking?	Yes ☒	No ☐
Sue Darling EC Hleaction	Support ☒	Oppose ☐	Speaking?	Yes ☐	No ☒
Margaret Watkins NH Audubon	Support ☒	Oppose ☐	Speaking?	Yes ☐	No ☒
Rebecca Perencevich Concord self	Support ☒	Oppose ☐	Speaking?	Yes ☐	No ☐
Liz Anne Platt Concord self	Support ☒	Oppose ☐	Speaking?	Yes ☐	No ☒
Sarah Thorne self	Support ☑	Oppose ☐	Speaking?	Yes ☐	No ☑
Patricia A. Martin self	Support ☑	Oppose ☐	Speaking?	Yes ☐	No ☑
Melissa Hinebauch self	Support ☒	Oppose ☐	Speaking?	Yes ☐	No ☒
Melissa Birchard CLF	Support ☐	Oppose ☐	Speaking?	Yes ☐	No ☒
Dan Weeks, Revision Energy	Support ☑	Oppose ☐	Speaking?	Yes ☑	No ☐
	Support ☐	Oppose ☐	Speaking?	Yes ☐	No ☐
	Support ☐	Oppose ☐	Speaking?	Yes ☐	No ☐
	Support ☐	Oppose ☐	Speaking?	Yes ☐	No ☐

Senate Energy & Natural Resources Committee
SIGN-IN SHEET

Date: Tuesday, March 12th, 2019 **Time:** 10:00 a.m.

SB 168 AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

Name/Representing *(please print neatly)*	Support	Oppose	Speaking?	Yes	No
Catherine M Corkery NH Sierra Club	☒	☐	Speaking?	☐	☒
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐

Senate Energy & Natural Resources Committee

SIGN-IN SHEET

Date: Tuesday, March 12th, 2019 **Time:** 10:00 a.m.

SB 168 AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

Name/Representing ***(please print neatly)***

Name/Representing	Support	Oppose	Speaking?	Yes	No
Melissa Birchard CLF	☒	☐	Speaking?	☐	☒
Erik Shifflett Granite State Solar	☒	☐	Speaking?	☐	☒
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐
	☐	☐	Speaking?	☐	☐

Testimony

REVISION ENERGY

Testimony in Support of SB 168 - March 12, 2019

Dan Weeks, Director of Market Development

SB 168 is an important step toward increasing New Hampshire's energy independence, reducing energy costs, and strengthening our local economy. As the solar industry leader in New Hampshire, ReVision Energy strongly supports any proposal to raise the Class II Renewable Portfolio Standard, including the 5.4% RPS by 2025 currently contained in SB 168.

That said, we are concerned this modest goal over the next six years will leave much of the economic, public health, and environmental benefits of homegrown renewable energy on the table and keep NH far behind neighboring states. We therefore encourage this Committee to consider amending SB 168 to achieve 10% or higher Class II RPS by 2025, and we strongly support other measures such as SB 124 to continue raising Class I and Class II RPS beyond 2025 toward a goal of 100% clean renewable energy by 2040.

Regardless of the final amount, raising the Renewable Portfolio Standard for solar beyond its measly 0.7% today will send an unmistakable signal to citizens and the private sector that New Hampshire is open for business and committed to (1) saving all ratepayers money; (2) improving public health and the environment; and (3) adding thousands of clean tech jobs to attract and retain young workers and bolster our local economy.

(1) Saving all ratepayers money

Contrary to certain arguments made by clean energy opponents, increasing solar penetration with the help of RPS will bring cost-saving benefits to all ratepayers, not just the families and businesses that decide to go solar. In its 2017 net metering study, the NH Public Utilities Commission found no evidence of a "cost shift" from solar generators to the rate paying public – and that was prior to the PUC ruling which cut the distribution reimbursement to small customer-generators by 75% (large customer-generators over 100 kWac receive 0% reimbursement for distribution or transmission when delivering electricity to the grid).

A second NH study conducted by the Acadia Center in 2015 determined that "the value of solar to the grid – and ratepayers connected to the grid – ranges from 19-24 cents/kWh, with additional societal values of 6.7 cents/kWh" – roughly 50% more than the full retail cost of electricity today. Similar studies in Maine and Massachusetts have found that same "reverse cost-shift" is occurring, whereby private investments in solar deliver net public benefits because of the coincidence of solar generation with peak system demand, which saves transmission costs and can even eliminate the need for costly and polluting peaker power plants.

Beyond New England, a 2016 Brookings Institution assessment of all the available data from state PUCs, academic journals, and the federal government found that "the accumulating national literature on costs and benefits of net metering [concludes] that the economic benefits of net

metering actually outweigh the costs and impose no significant cost increase for non-solar customers. Far from a net cost, net metering is in most cases a net benefit—for the utility and for non-solar rate-payers."

(2) Protecting public health and the environment

The US Energy Information Agency reported last month that New Hampshire's energy-related emissions of carbon dioxide were 13.8 million metric tons. CO2, the most abundant greenhouse gas, has been classified as a pollutant by the US EPA and is responsible for accelerating the pace of global warming to an unprecedented degree. According to data from NHDES, approximately 100 Granite Staters a year die prematurely from respiratory ailments related to carbon pollution, a direct result of New Hampshire's reliance on fossil fuels from smoke stacks and tailpipes to meet a majority of our energy needs today. The public health cost of treating unnecessary respiratory ailments is estimated at $1 billion annually. Recent studies have also found the health of New Hampshire's wildlife – an important driver of our state's multibillion-dollar tourism industry – is threatened by carbon emissions and resulting global warming, with over 70% of young moose dead from tick infestations, and loons and countless other species also under threat.

Raising Class II RPS to just 5.4% under SB 168 would contribute to a meaningful reduction in CO2 emissions by offsetting more than 500,000 metric tons of carbon dioxide each year. That is equivalent to the annual emissions of more than 120,000 average cars and over 300,000 tons of coal.

(3) Adding jobs and economic investment

Although New Hampshire currently gets just 0.6% of its electricity from solar, the 80 MW of installed solar capacity already represents $214 million in local investment and nearly 1,000 local, full-time jobs. Adding close to 80 MW of new solar per year to reach the approximately 600 MW required by SB 168 at 5.4% of current peak load (11 million MWh per year) would result in up to $1 billion in new private-sector solar investments and thousands more jobs in-state.

If we took a page from Massachusetts' book and raised RPS to 16% today and 2% per year in the future, we would be well on our way to the $6 billion in solar investment and 11,530 jobs created in the Bay State to-date. The bulk of those well-paying jobs are in the trades, an important source of opportunity for young people who may lack four-year college degrees and would otherwise find themselves trapped in low-skill, low-wage jobs or unemployed. Our company is fully committed to expanding such opportunities for the more than 50 electrical apprentices on our team through our recently launched trade school, ReVision Energy Technical Center.

In conclusion, SB 168 represents a modest yet important step forward for New Hampshire's burgeoning clean energy industry, and a boon ratepayers and the general public. Instead of sending over $5 billion of our hard-earned money out of state (and abroad) each year to buy dirty, non-renewable power, New Hampshire could invest that money in building a homegrown clean energy economy and becoming energy self-sufficient in the name of "live free or die."

CLEAN ENERGY NH

Your Voice in All Energy Matters

RE: 2019 SB72, SB168, SB124

Clean Energy NH is the Granite State's leading clean energy advocate, dedicated to supporting policies and programs that strengthen our state's economy, protect public health, and conserve natural resources. We are a member-based non-profit representing over 500 individual, business, and municipal members.

NEW HAMPSHIRE'S RENEWABLE PORTFOLIO STANDARD (RPS)

The RPS is NH's only existing policy that statutorily promotes renewable energy, making it a crucial policy for growing out clean tech economy, creating new high-paying jobs, increasing energy independence, and protecting the environment. This policy requires 25.2% of NH's electricity to come from renewable sources by the year 2025 and represents a very small fraction of a ratepayer's monthly bill (average $0.0023/kWh), yet provides tremendous economic and environmental benefits for NH.

Renewable generation types are split into classes, each with annual generation goals (maintained by the Public Utilities Commission):

- Class I: New renewable Energy
  - Class I: Thermal energy (solar thermal, biomass, geothermal)
- Class II: New solar
- Class III: Existing biomass/methane
- Class IV: Existing small hydropower

Utilities and other electricity suppliers are required to procure electricity from the above sources annually by purchasing Renewable Energy Certificates (RECs) in an open market. One REC represents one megawatt hour of renewable energy generated by the sources above, including solar, biomass, geothermal, wind, hydro, etc. This "REC market" provides a source of income for renewable energy projects, making it an important aspect of project economics for both existing and new projects.

The RPS also establishes the state's Renewable Energy Fund (REF) which provides rebates for renewable energy projects. According to statute, electric suppliers are required to pay Alternative Compliance Payments (ACPs) if they cannot purchase enough RECs on the market. ACPs fund the REF, managed by the PUC, and annually distributes millions of dollars to solar, biomass, wind, and hydro projects that benefit businesses and communities across the state. These funds have leveraged vast sums of private investment with average grant/rebate to private investment ratio of 6:1.

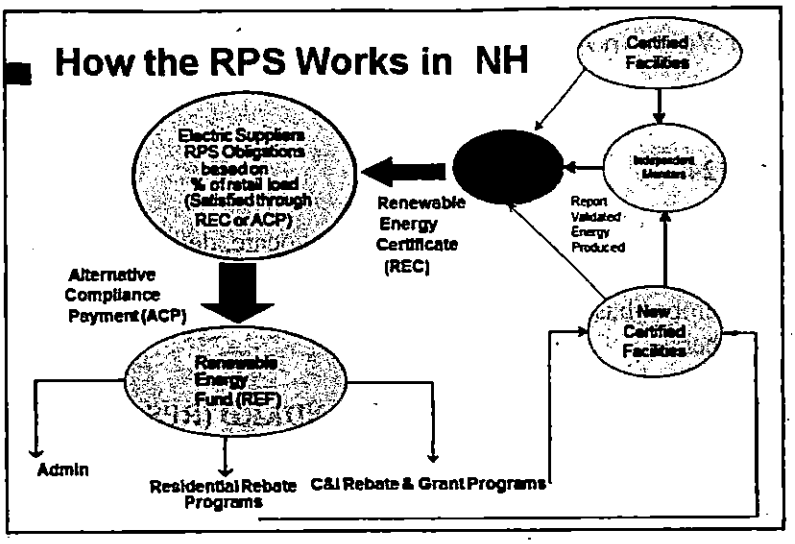


Figure 1: The Renewable Porfolio Standards and how the REC market operates with the Renewable Energy Fund (credit PUC Renewable Energy Fund Report)

The state of solar class 2 RECs is well explained in the recent 2018 RPS review report by the NH PUC: "**New Hampshire's Class II REC market has recently experienced a decline in REC prices as the demand for these RECs has declined. In addition, all electricity providers can claim a credit, calculated by the Commission, using capacity from interconnected net metered facilities that do not apply for REC authorization for their Class II compliance obligation. The credit has grown annually and, in compliance year 2017, exceeded the obligation.**" The capacity factor associated with this free REC credit is 20% which is unrealistically high for solar which contributes to an artificially inflated credit.

Two things are required for a healthy, robust REC market and ACP revenues to the REF:

(1) Strong annual percentage goals for each class, to insure adequate demand for REC purchase on the open market
(2) Elimination of "REC sweeping" by which utilities get free credit for unregistered RECs to satisfy their obligation.

SB168 helps address the low demand by increasing the requirements for class II solar. Therefore, CENH supports this bill as a method to support both the growth of new solar projects across the state and to support existing renewable energy projects.

Beyond the REC market, NH is on-pace to meet the original RPS goal established by 2025. Our current goal of 0.7% solar by 2025 is very conservative compared to the ambitious goals of our neighboring New England states such as Vermont and Massachusetts. Our state should not be left behind in the transition to the clean energy economy or be responsible for increased shares of regional transmission costs, a projected reality unless NH keeps pace with renewable energy and energy efficiency implementation.

Therefore, it is also prudent to enact legislation to set new goals so the RPS can continue obligation increases after 2025. Clean Energy NH strongly supports **SB124.** This bill would continue the obligations for increasing the amount of renewable electricity generation, ensuring long term certainty so that the clean energy industry in NH remains strong, that our state keeps pace with the rest of the NE region in clean energy development, and to continue the transition to the clean energy economy that increases energy independence and decreases emissions from carbon-based energy sources.

RENEWABLE ENERGY CERTIFICATES (RECS) & REC SWEEPING

Renewable energy certificates are a key component of renewable energy projects, as described above. RSA 362-F:6, II-a allows utilities to count unregistered RECs against their compliance obligations. As a result, recently utilities have been able to meet their entire compliance obligation with these "free" RECs (known as "REC sweeping"). Therefore, they are not purchasing RECs in the market, which has caused a drastic reduction in REC values, as low as $5.00/MWh in class II. The PUC's recent RPS review recognized this as a problem and recommended a drastic reduction the allowed capacity factor for unregistered RECs.

SB72 is necessary in order to fulfill the purpose of NH's Renewable Portfolio Standards and protect consumer confidence.

This bill will also help address consumer confusion over Renewable Energy Credits. Currently, homeowners and businesses often don't market their RECs because they think that by "holding" onto them, they forgo the REC revenue and that they will help to increase the total amount of renewable energy in our system because utilities will have to buy more RECs elsewhere. In fact, without their consent, their RECs are being taken and credited towards required obligations having the opposite effect on supply and demand.

When RECs can be used reliably to obtain financing for renewable energy projects, then it lowers the overall financing costs of projects for residents and businesses, thus bringing more projects online that can help lower the overall cost of electricity for all ratepayers by increasing distributed generation, fuel diversity, reduced peak demand, and transmission needs.

Therefore, Clean Energy NH supports the passage of SB72 to eliminate REC sweeping, fulfill the original purpose of the RPS, and protect consumer investment.

We urge you to support SB72, SB168, and SB124.

Madeleine Mineau
Executive Director
madeleine@cleanenergynh.org
607-592-6184

Roberge, Griffin

From: Shulock, David <David.Shulock@puc.nh.gov>
Sent: Monday, March 11, 2019 3:15 PM
To: FullerClark, Martha; Feltes, Dan; Watters, David; Giuda, Bob; Bradley, Jeb; Roberge, Griffin
Subject: Hearings 3-12 re: SB 72, SB 124, SB 165, and SB 168

To the Committee:

Public Utilities Commission staff thanks you for the opportunity to offer the following comments with regard to the bills that Senate Energy & Natural Resources will hear tomorrow, March 12.

SB72: The Public Utilities Commission intends to recommend that the net metering credit in RSA 362-F:6, II-a be revised rather than repealed. Specifically, the commission will recommend reducing the applicable capacity factor, which will have the effect of reducing the credit. Eliminating the credit would cause ratepayers to pay more for RPS compliance than would modifying the capacity factor even though many of the net-metered facilities upon which the credit is based have received rebates from the renewable energy fund (which is ultimately funded through higher rates). If the net metering credit remains in statute, the commission intends to adopt procedures that will make its calculation less administratively burdensome for utilities and commission staff.

SB124: Commission staff does not understand the calculations in the proposed amendment to RSA 362-F:3, I (b) (Lines 8-11 of the bill). We have tried running the numbers several ways but cannot reconcile the yearly increases with the overall increases by 2040. However, if we use the percentage increases specified in the bill, and treat Class I useful thermal as a "carve out" of Class I (as it is normally treated), we calculate a total for Class I of 28.5 percent and for Class I useful thermal of 5.6 percent. Consequently, we would recommend that you replace 31.5 percent with 28.5 percent and 5.2 percent with 5.6 percent on Line 11 of the bill.

SB165: Commission staff would recommend that you change the date of the report on line 16 of the bill from December 31, 2019 to July 1, 2020. The three low income solar facilities that have been developed using grants from the renewable energy fund are scheduled to file an annual report with the commission in February, 2020. Changing the report date to July 1, 2020 will allow commission staff to provide a more meaningful report using actual data.

SB168: Commission staff would recommend changing Lines 11 and 12 of the bill to read: "percent beginning in 2025. Classes III and IV shall remain at the same percentages from 2015 through 2025 except as provided in RSA 362-F:4, V-VI." This technical change is due because of the passage of time. The construction currently in the bill made sense prior to 2019 (see Line 9), but no longer does now that we are in the midst of that year.

Karen Cramton would like to speak to SB72 and SB124, as the commission's positions on those bills bear some explanation. With regard to SB165 and SB168, Karen will be at the hearings and available to answer questions should you have any.

Best regards,

David Shulock

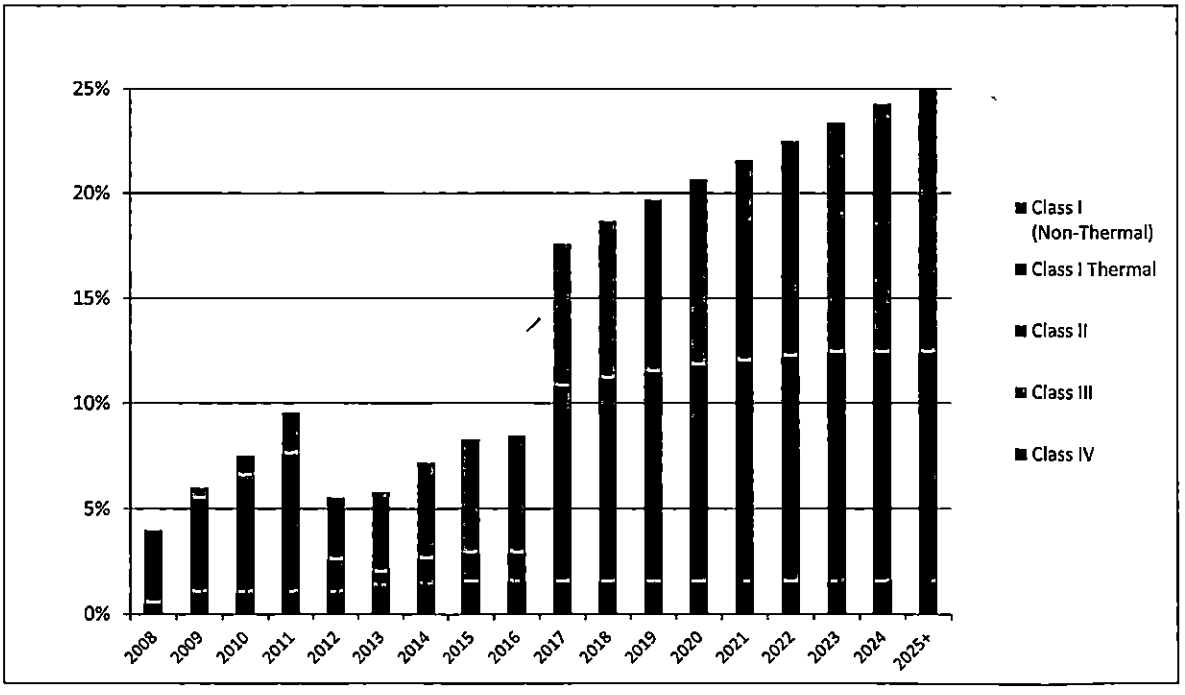
David J. Shulock
General Counsel
New Hampshire Public Utilities Commission
21 S. Fruit Street, Suite 10

Concord, NH 03301-2429
603.271.2431 (phone)
603.271.3878 (fax)

Senate Bill 168

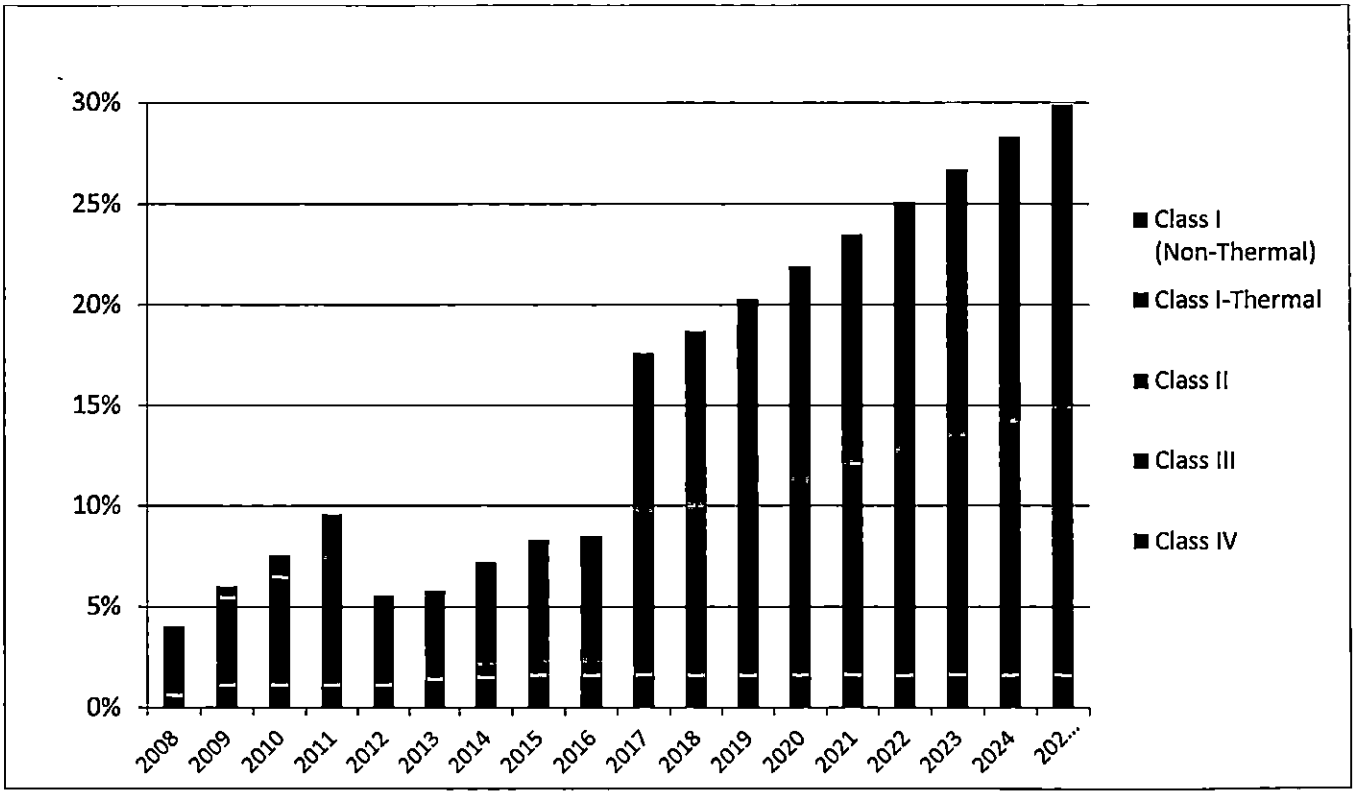
Current RPS Law

Calendar Year	Class IV	Class III	Class II	Class I-Thermal	Class I (Non-Thermal)	Total RPS Requirement
2008	**0.50%**	**3.50%**	**0.00%**	0.00%	0.00%	**4.00%**
2009	**1.00%**	**4.50%**	**0.00%**	0.00%	0.50%	**6.00%**
2010	**1.00%**	**5.50%**	**0.04%**	0.00%	1.00%	**7.54%**
2011	**1.00%**	**6.50%**	**0.08%**	0.00%	2.00%	**9.58%**
2012	**1.00%**	**1.40%**	**0.15%**	0.00%	3.00%	**5.55%**
2013	**1.30%**	**0.50%**	**0.20%**	0.00%	3.80%	**5.80%**
2014	**1.40%**	**0.50%**	**0.30%**	0.40%	4.60%	**7.20%**
2015	**1.50%**	**0.50%**	**0.30%**	0.60%	5.40%	**8.30%**
2016	**1.50%**	**0.50%**	**0.30%**	0.60%	5.60%	**8.50%**
2017	**1.50%**	**8.00%**	**0.30%**	1.00%	6.80%	**17.60%**
2018	**1.50%**	**8.00%**	**0.50%**	1.20%	7.50%	**18.70%**
2019	**1.50%**	**8.00%**	**0.60%**	1.40%	8.20%	**19.70%**
2020	**1.50%**	**8.00%**	**0.70%**	1.60%	8.90%	**20.70%**
2021	**1.50%**	**8.00%**	**0.70%**	1.80%	9.60%	**21.60%**
2022	**1.50%**	**8.00%**	**0.70%**	2.00%	10.30%	**22.50%**
2023	**1.50%**	**8.00%**	**0.70%**	2.20%	11.00%	**23.40%**
2024	**1.50%**	**8.00%**	**0.70%**	2.20%	11.90%	**24.30%**
2025+	**1.50%**	**8.00%**	**0.70%**	2.20%	12.80%	**25.20%**



Senate Bill 168

Calendar Year	Class IV	Class III	Class II	Class I-Thermal	Class I (Non-Thermal)	Total RPS Requirement
2008	0.50%	3.50%	0.00%	0.00%	0.00%	4.00%
2009	1.00%	4.50%	0.00%	0.00%	0.50%	6.00%
2010	1.00%	5.50%	0.04%	0.00%	1.00%	7.54%
2011	1.00%	6.50%	0.08%	0.00%	2.00%	9.58%
2012	1.00%	1.40%	0.15%	0.00%	3.00%	5.55%
2013	1.30%	0.50%	0.20%	0.00%	3.80%	5.80%
2014	1.40%	0.50%	0.30%	0.40%	4.60%	7.20%
2015	1.50%	0.50%	0.30%	0.60%	5.40%	8.30%
2016	1.50%	0.50%	0.30%	0.60%	5.60%	8.50%
2017	1.50%	8.00%	0.30%	1.00%	6.80%	17.60%
2018	1.50%	8.00%	0.50%	1.20%	7.50%	18.70%
2019	1.50%	8.00%	1.20%	1.40%	8.20%	20.30%
2020	1.50%	8.00%	1.90%	1.60%	8.90%	21.90%
2021	1.50%	8.00%	2.60%	1.80%	9.60%	23.50%
2022	1.50%	8.00%	3.30%	2.00%	10.30%	25.10%
2023	1.50%	8.00%	4.00%	2.20%	11.00%	26.70%
2024	1.50%	8.00%	4.70%	2.20%	11.90%	28.30%
2025+	1.50%	8.00%	5.40%	2.20%	12.80%	29.90%



Roberge, Griffin

From: Cramton, Karen <Karen.Cramton@puc.nh.gov>
Sent: Thursday, March 14, 2019 3:47 PM
To: Roberge, Griffin
Subject: Senate follow-up - RPS

Hi Griffin,

As follow up to the hearings on Senate bills 168 and 124, the following resources may be helpful to the Senators. These resources highlight and summarize various RPS and solar policies throughout New England, and nationally.

SB168 – class II obligations

- DSIRE – RPS with solar or distributed generation (DG) provisions (U.S. map with solar and/or DG provisions by state)
  http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2017/02/RPS_carveout_4.pdf

- ISO-NE Distributed Generation Forecast Working Group – 2019 Draft PV Forecast – state solar forecasts
  Each states contributes information which is then used in the development of ISO-NE's solar forecast. The presentation not only describes the regional forecast, it also provides a summary, by state, of policies that are considered by ISO-NE when developing their PV forecast. Each state's solar policies are summarized; MA- slide 16, CT – slide 17, VT – slide 19, NH- slide 20, RI- slide 21 and ME – slide 22.
  https://www.iso-ne.com/static-assets/documents/2019/02/draft_2019_forecast_final.021519.pdf

SB124 – RPS after 2025

- DSIRE – RPS policies (map with RPS policies by state)
  http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2018/10/Renewable-Portfolio-Standards-2018.pdf

Please let me know if you have any questions.

Thanks,
Karen

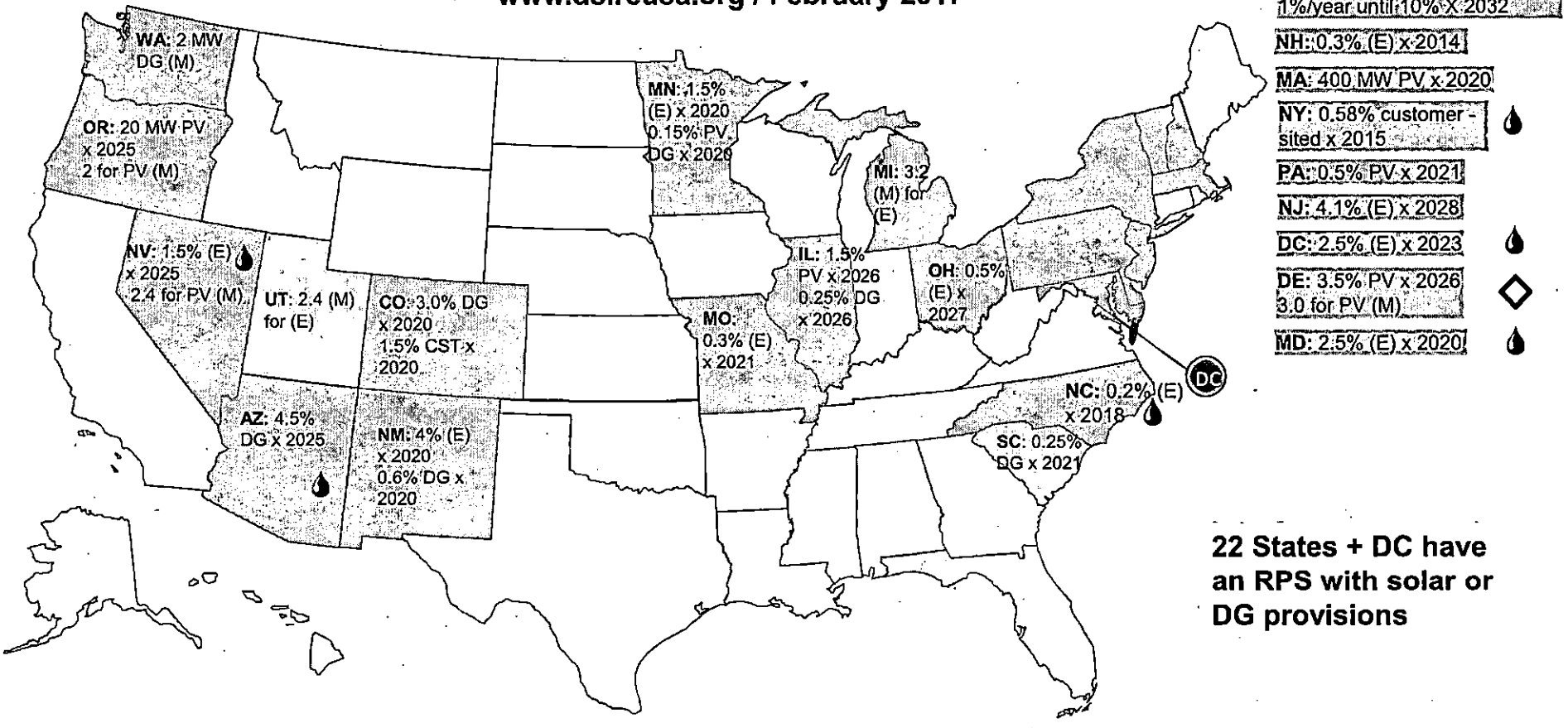
Karen Cramton
Director, Sustainable Energy Division
New Hampshire Public Utilities Commission
21 South Fruit Street
Concord, NH 03301-2429
603-271-6012
karen.cramton@puc.nh.gov

DSIRE® | NC CLEAN ENERGY TECHNOLOGY CENTER

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Renewable Portfolio Standards (RPS) with Solar or Distributed Generation Provisions

www.dsireusa.org / February 2017



22 States + DC have an RPS with solar or DG provisions

- Renewable Portfolio Standard with solar/distributed generation (DG) provision
- Renewable Portfolio Goal with solar/DG provision

(E): Solar Electric
PV: Solar Photovoltaic
DG: Distributed Generation
(M): Multipliers
(CST): Customer - Sited

- Delaware allows certain fuel cell systems to qualify for the PV carve-out
- Solar water heating counts toward solar/DG provision

ISO new england

Draft 2019 Photovoltaic (PV) Forecast

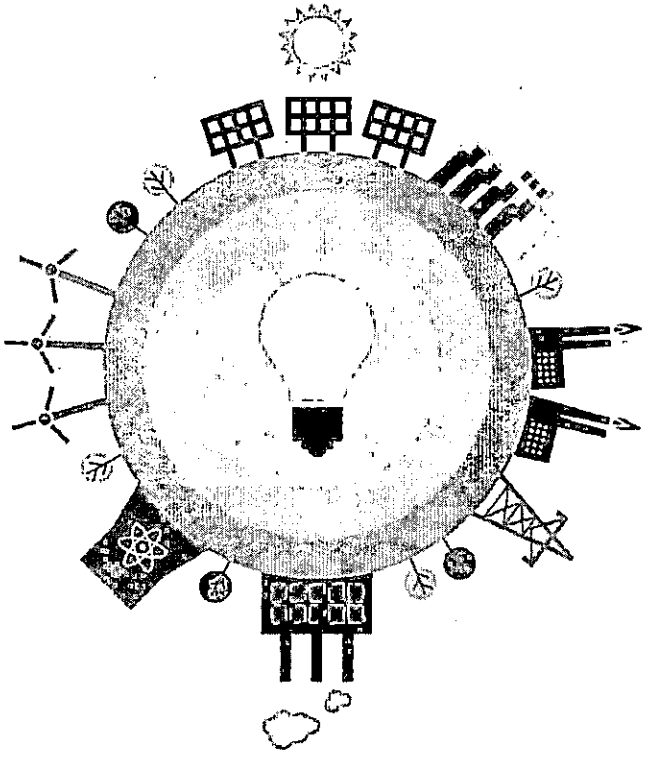
Distributed Generation Forecast Working Group

Jon Black

MANAGER, LOAD FORECASTING

Outline

- Introduction and Background
- 2018 PV Growth: Forecast vs. Reported
- Forecast Assumptions and Inputs
- Draft 2019 PV Forecast - Nameplate
- Next Steps for the 2019 Capacity, Energy, Loads, and Transmission (CELT) Forecast



INTRODUCTION & BACKGROUND

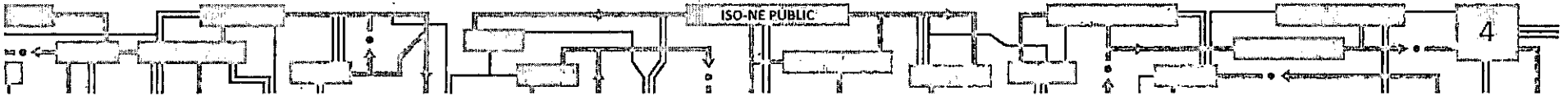
Introduction

- The majority of state-sponsored distributed PV does not participate in wholesale markets, but reduces the system load observed by ISO
- The long-term PV forecast helps the ISO determine future system load characteristics that are important for the reliable planning and operation of the system
- To properly account for PV in long-term planning, the finalized PV forecast will be categorized as follows:
  1. PV as a capacity resource in the Forward Capacity Market (FCM)
  2. Non-FCM Energy Only Resources (EOR) and Generators
  3. Behind-the-meter PV (BTM PV)

Similar to energy efficiency (EE), behind-the-meter PV is reconstituted into historical loads*

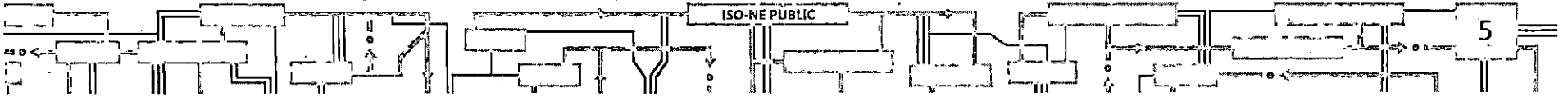
The 2019 gross load forecast reflects loads without PV load reductions

**Existing BTM PV decreases the historical loads seen by the ISO, which are an input to the gross load forecast*



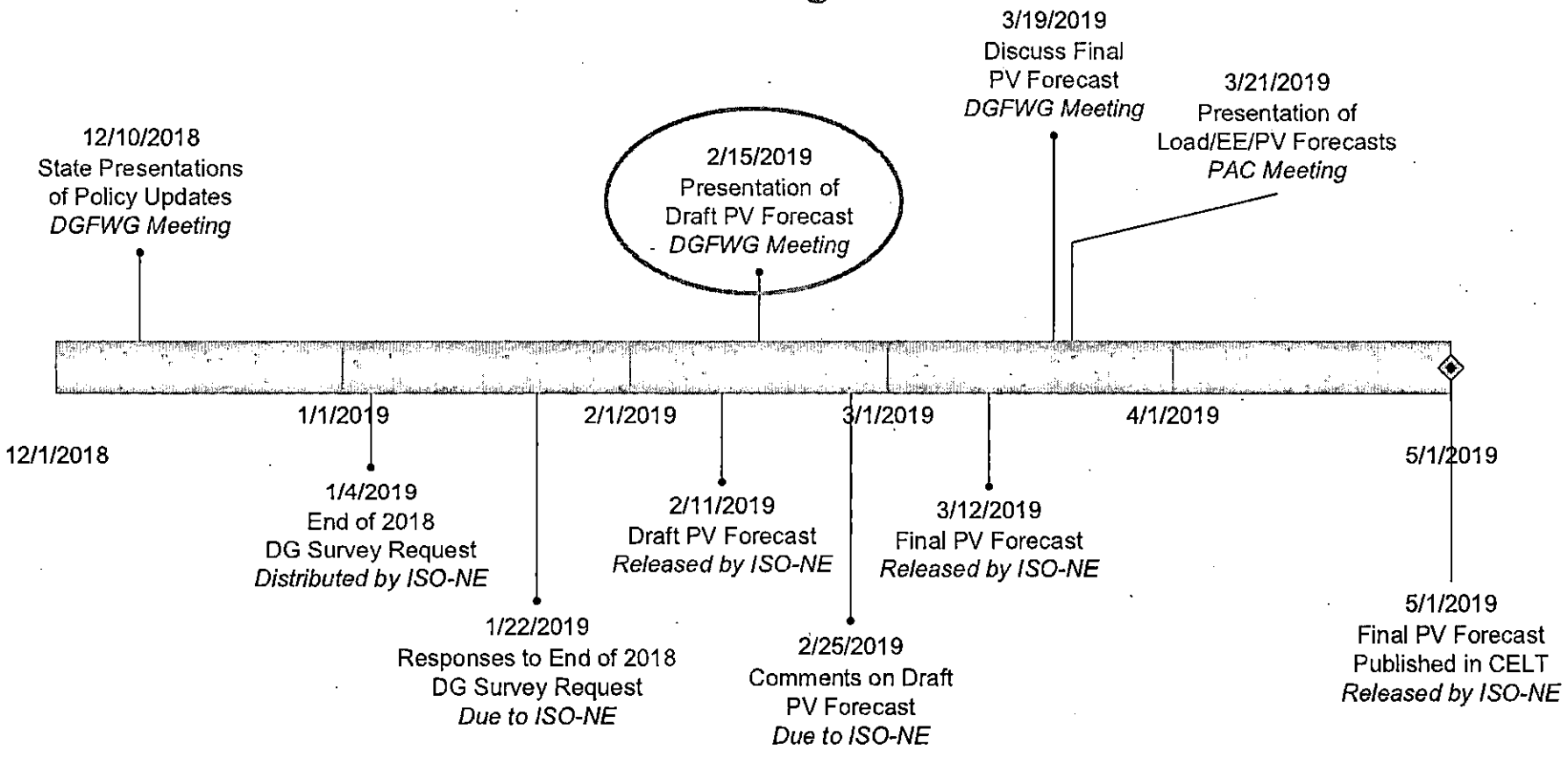
Background: PV Forecast Focuses on DG

- The focus of the DGFWG is distributed generation projects:
  - "…defined as those that are typically 5 MW or less in nameplate capacity and are interconnected to the distribution system (typically 69 kV or below) according to state-jurisdictional interconnection standards."
- Therefore, the forecast does not consider policy drivers supporting larger-scale projects (i.e., those >5 MW)
  - E.g., projects planned as part of the three-state Clean Energy RFP
- Large projects are generally accounted for as part of ISO's interconnection process and participate in wholesale markets



2019 PV Forecast Schedule

Meetings



Milestones

The PV Forecast Incorporates State Public Policies and Is Based on Historical Data

- The PV forecast process is informed by ISO analysis and by input from state regulators and other stakeholders through the Distributed Generation Forecast Working Group (DGFWG)
- The PV forecast methodology is straightforward, intuitive, and rational
- The forecast is meant to be a reasonable projection of the anticipated growth of out-of-market, distributed PV resources to be used in ISO's System Planning studies, consistent with its role to ensure prudent planning assumptions for the bulk power system
- The forecast reflects and incorporates state policies and the ISO does not explicitly forecast the expansion of existing state policies or the development of future state policy programs

Forecast Focuses on State Policies in All Six New England States

- A policy-based forecasting approach has been chosen to reflect the observation that trends in distributed PV development are in large part the result of policy programs developed and implemented by the New England states
- The ISO makes no judgment regarding state policies, but rather utilizes the state goals as a means of informing the forecast
- In an attempt to control related ratepayer costs, states often factor anticipated changes in market conditions directly into policy design, which are therefore implicit to ISO's policy considerations in the development of the forecast

Many Factors Influence the Future Commercialization Potential of PV

Policy Drivers

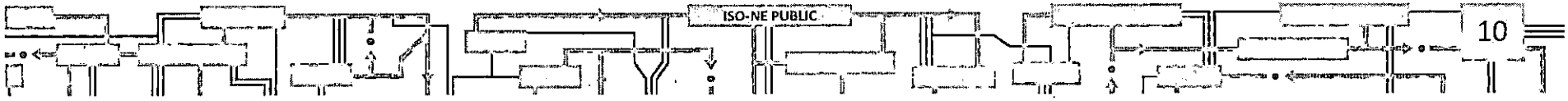
- Feed-in-tariffs (FITs)/Long-term procurement
- State Renewable Portfolio Standards (RPS) programs
- Net energy metering (NEM) and retail rate structure
- Federal investment tax credit (ITC) and federal depreciation
- Federal trade policy

Other Drivers

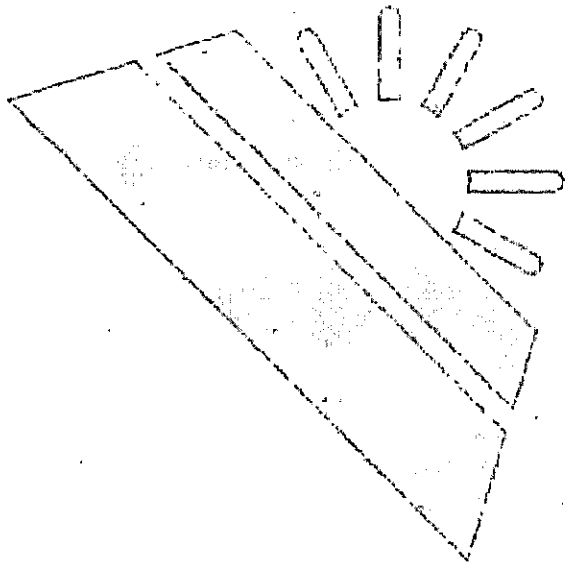
- Role of private investment in PV development
- Future equipment and installation costs
- Future wholesale and retail electricity costs
- Interconnection costs and issues

Summary: Draft CELT 2019 PV Forecast

- The 2019 forecast reflects:
  - PV development trends in the region
  - Discussions with stakeholders and data exchange with the New England states and Distribution Owners
- According to data provided by Distribution Owners, approximately 493 MW of PV development occurred in 2018, totaling about 2,884 MW installed across the region
  - Values include FCM, EOR, and BTM PV projects < 5 MW_{ac} in nameplate capacity
- Approximately 3,716 MW of PV development is projected from 2019 through 2028 for a total of 6,599 MW in 2028
  - Values include FCM, EOR, and BTM PV projects < 5 MW_{ac} in nameplate capacity
- Overall, the draft 2019 PV forecast projects steadier PV growth over the forecast horizon than last year's forecast



Background and Forecast Review Process



- The draft 2019 forecast will be discussed today
- Stakeholders provided comments on the draft forecast are due by February 25, 2019
- The final PV forecast will be discussed at the March 19th DGFWG, and will be published in the 2019 CELT (Section 3):
  - See: https://www.iso-ne.com/system-planning/system-plans-studies/celt/

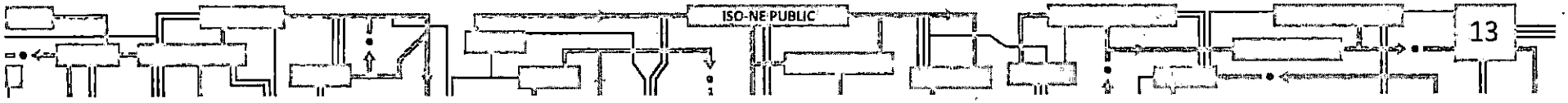
2018 PV GROWTH: FORECAST VS. REPORTED

20: PV Growth

Total Nameplate Capacity

- Comparison of the state-by-state 2018 PV growth and the reported growth for 2018 reported by utilities is tabulated below
  - Values include FCM, EOR, and BTM PV projects < 5 MW_{ac} in nameplate capacity
- Regionally, 2018 growth reported by utilities totaled 493.3 MW, which is 18 MW higher than the forecast growth
  - Results vary by state

State	2018 Reported Growth	2018 Forecast Growth	Difference
CT	98.7	88.6	10.1
MA	269.0	296.7	-27.7
ME	7.9	10.2	-2.2
NH	14.2	13.8	0.3
RI	54.4	34.5	19.9
VT	49.1	31.5	17.6
Region	493.3	475.3	18.0



FORECAST ASSUMPTIONS AND INPUTS

Federal Investment Tax Credit

- The federal residential and business Investment Tax Credit (ITC) is a key driver of PV development in New England
- There are no changes to the ITC since the 2017 forecast

Residential ITC

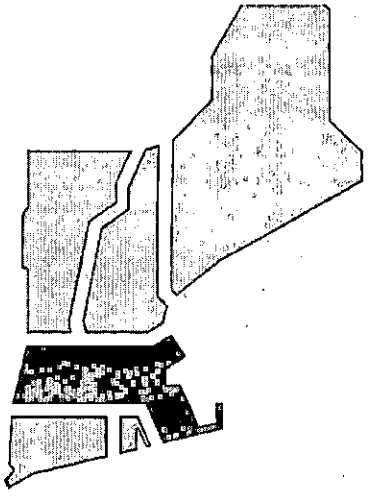
Maximum Allowable Residential ITC	
Year	**Credit**
2016	30%
2017	30%
2018	30%
2019	30%
2020	26%
2021	22%
Future Years	0%

Business ITC

ITC by Date of Construction Start	
Year construction starts	**Credit**
2016	30%
2017	30%
2018	30%
2019	30%
2020	26%
2021	22%
2022	10%
Future Years	10%

Sources: http://programs.dsireusa.org/system/program/detail/658 **and** http://programs.dsireusa.org/system/program/detail/1235

Massachusetts Forecast Methodology and Assumptions

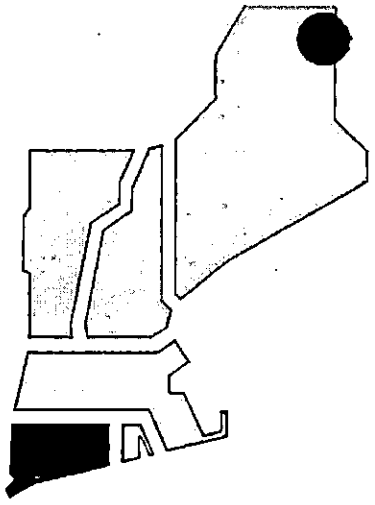


- MA DPU's 12/10/18 DGFWG presentation serves as primary source for MA policy information
- MA Distribution Owners survey results:
  - 1,871.3 MW_{AC} installed by 12/31/18
- Solar Carve-Out Renewable Energy Certificate (SREC) program
  - A total of 2,416 MW_{DC} will be developed as part of SREC-I and SREC-II
    - 2,306.4 MW_{DC} installed by 12/31/18
    - Remaining 106.9 MW_{DC} will be installed in 2019 (84.4 MW_{AC} assuming an 83% AC-to-DC ratio)
- Solar Massachusetts Renewable Target (SMART) Program
  - Program 1,600 MW_{AC} goal achieved over the period 2019-2024 (5+ years)
    - Assume program capacity is divided over years as tabulated below

Year	2019	2020	2021	2022	2023	2024
%	15	20	20	20	20	5
MW	240	320	320	320	320	80

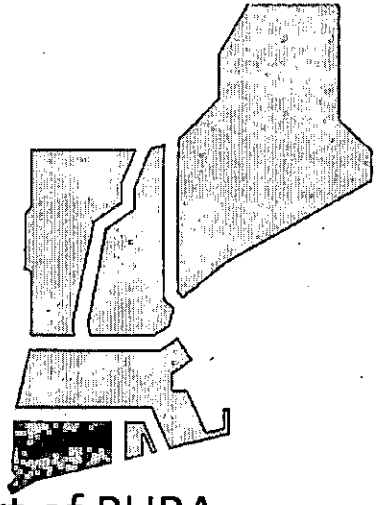
- Post-policy development assumed to occur such that 320 MW is carried forward from 2023 onward at constant rate throughout the remaining years of the forecast period, and post-policy discount factors are applied as necessary

Connecticut Forecast Methodology and Assumptions



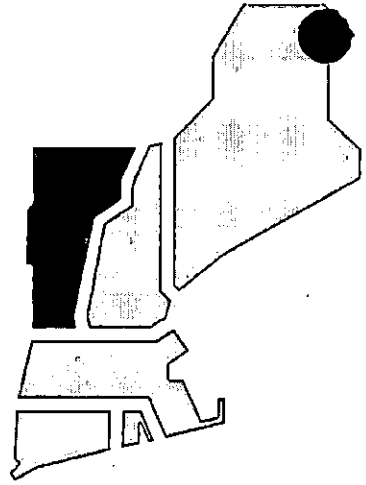
- CT DEEP's 12/10/18 DGFWG presentation serves as primary source for CT policy information
- CT Distribution Owner survey results
  - 464.3 MW_{AC} installed by 12/31/18
- LREC/ZREC program assumptions
  - 121.7 MW remaining, divided evenly over 4 years, 2019-2022
- Residential Solar Investment Program (RSIP) assumptions
  - Remaining 84 MW, divided evenly over 2 years, 2019-2020
- Other policy-driven projects:
  - DEEP Small Scale Procurement (< 5MW)
    - 4.98 MW project in service in 2020
  - Shared Clean Energy Facility (SCEF) Pilot Program
    - 3.62 MW project in service in 2019
    - 1.6 MW project in service in 2020

Connecticut Forecast Methodology and Assumptions *continued*



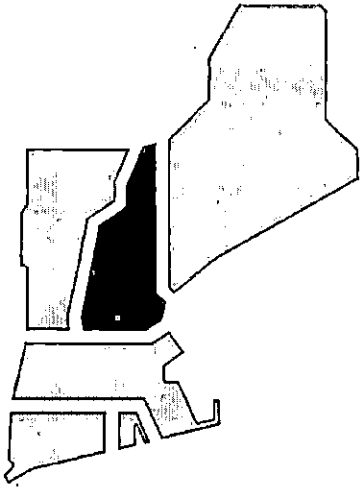
- CT WISE "Successor" programs
  - Design and implementation details of successor programs to SCEF, RSIP, and ZREC are currently being discussed as part of PURA Docket No. 18-08-33
  - Since these programs are not yet finalized, estimated MWs and start/end dates associated with these programs have been incorporated into the 2019 forecast, with post-policy discount factors applied

Vermont Forecast Methodology and Assumptions



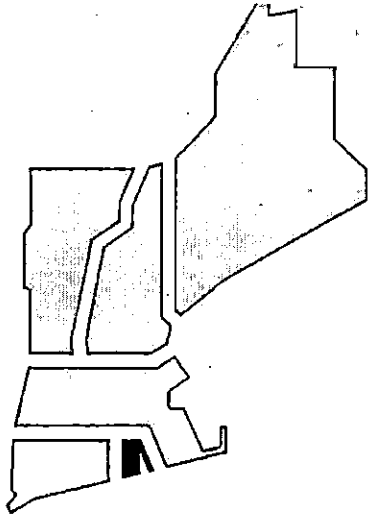
- VT DPS' 12/10/18 DGFWG presentation serves as the primary source for VT policy information
- VT Distribution Owner survey results
  - 306.3 MW_{AC} installed by 12/31/18
- DG carve-out of the Renewable Energy Standard (RES)
  - Assume 85% of eligible resources will be PV and a total of 25 MW/year will develop
- Standard Offer Program
  - Will promote a total of 110 MW of PV (of the 127.5 MW total goal)
  - All forward-looking renewable energy certificates (RECs) from Standard Offer projects will be sold to utilities and count towards RES DG carve-out]
- Net metering
  - In all years after 2019 (see below), all renewable energy certificates (RECs) from net metered projects will be sold to utilities and count towards RES DG carve-out, resulting in 25 MW/year as stated above
- For 2019, a total of 35 MW is anticipated in VT, which is in excess of the 25 MW/year due to the RES DG carve-out
  - This reflects expectations that, similar to the past couple of years, PV development will be greater than that needed for compliance with the RES DG carve out for one more year

New Hampshire Forecast Methodology and Assumptions



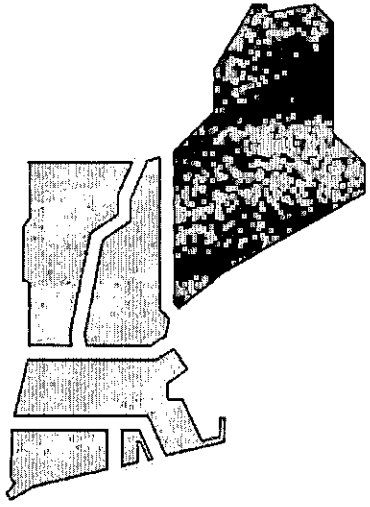
- NH PUC's 12/10/18 DGFWG presentation serves as the primary source for NH policy information
- NH Distribution Owners survey results
  - 83.8 MW_{AC} installed by 12/31/18
  - 14.2 MW_{AC} installed in 2018
- Assume the Net Energy Metering Tariff (NEM 2.0, effective September 2017), continues to support the 2018 rate of growth throughout the forecast horizon
  - No limit on state-wide aggregate net metered capacity

Rh de Island Forecast Methodology and Assumptions



- RI OER's 12/10/18 DGFWG presentation serves as the primary source for RI policy information
- RI Distribution Owners reported a total of 62.2 MW of growth in 2018
- DG Standards Contracts (DGSC) program
  - A total of 33.6 MW of 40 MW program goal will be PV
  - Approximately 11.1 MW cancelled/terminated, will be procured as part of 2019 REGP (see below) ; assumed 33.3% of capacity goes into service in each of next 3 years
- Renewable Energy Growth Program (REGP)
  - Assume REGP supports 36 MW_{DC}/year of PV throughout forecast horizon
    - Convert: 36 MW_{DC} = 29.88 MW_{AC} (83% AC-to-DC ratio assumed)
  - Approximately 10.4 MW_{AC} cancelled/terminated from previous program procurements; assumed 33.3% of capacity goes into service in each of next 3 years
- Renewable Energy Development Fund, Net Metering, and Virtual Net Metering (VNM)
  - No limit on state-wide aggregate net metered capacity
  - Significant VNM project interest activity over recent two years
  - Assumed to yield 20 MW/year over the forecast horizon

Maine Forecast Methodology and Assumptions



- ME PUC's 12/10/18 DGFWG presentation serves as the primary source for ME policy information
- ME Distribution Owners reported a total of 7.9 MW of PV growth in 2018
- Assume the new Net Energy Billing Rule (effective April 1, 2018), with gradually reduced rates of compensation, continues to support the 2018 rate of growth throughout the forecast horizon
  - No limit on state-wide aggregate net metered capacity

Discount Factors

- Discount factors are:
  - Developed and incorporated into the forecast to ensure a degree of uncertainty in future PV commercialization is considered
  - Developed for two types of future PV inputs to the forecast, and all discount factors are applied equally in all states
  - Applied to the forecast inputs (see slide 29) to determine total nameplate capacity for each state and forecast year

Policy-Based *PV that results from state policy*	Post-Policy *PV that may be installed after existing state policies end*
Discounted by values that increase over the forecast horizon up to a maximum value of 15%	**Discounted by 35-50% due to the high degree of uncertainty associated with possible future expansion of state policies and/or future market conditions required to support PV commercialization in the absence of policy expansion**

Discount Factors Used in Draft 2019 Forecast

Policy-Based

Forecast	Final 2018	Draft 2019
2019	10%	10%
2020	10%	10%
2021	15%	15%
2022	15%	15%
2023	15%	15%
2024	15%	15%
2025	15%	15%
2026	15%	15%
2027	15%	15%
2028	N/A	15%

Post-Policy

Forecast	Final 2018	Draft 2019
2019	36.7%	35.0%
2020	38.3%	36.7%
2021	40.0%	38.3%
2022	41.7%	40.0%
2023	43.3%	41.7%
2024	45.0%	43.3%
2025	46.7%	45.0%
2026	48.3%	46.7%
2027	50.0%	48.3%
2028	N/A	50.0%

Draft 2019 Forecast Inputs

Pre-Discounted Nameplate Values

States	Pre-Discount Annual Total MW (AC nameplate rating)											Totals
	Thru 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
CT	464.3	76.0	101.3	114.7	114.7	84.3	84.3	84.3	84.3	84.3	84.3	**1,376.5**
MA	1871.3	324.4	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0	**5,075.7**
ME	41.4	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	**120.8**
NH	83.8	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	**225.5**
RI	116.7	57.0	57.0	57.0	49.9	49.9	49.9	49.9	49.9	49.9	49.9	**636.9**
VT	306.3	35.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	**566.3**
re-Discount Annual Policy-Based MWs	2883.8	514.6	503.1	454.6	447.4	417.0	177.0	97.0	97.0	97.0	97.0	**5,785.4**
re-Discount Annual Post-Policy MWs	0.0	0.0	22.3	84.3	84.3	84.3	324.3	404.3	404.3	404.3	404.3	**2,216.3**
re-Discount Annual Total (MW)	2883.8	514.6	525.4	538.8	531.7	501.2	501.2	501.2	501.2	501.2	501.2	**8,001.6**
re-Discount Cumulative Total (MW)	2883.8	3,398.4	3,923.8	4,462.6	4,994.2	5,495.5	5,996.7	6,497.9	6,999.2	7,500.4	8,001.6	**8,001.6**

Notes:

(1) The above values **are not the forecast**, but rather pre-discounted inputs to the forecast (see slides 20-26 for details)

(2) Yellow highlighted cells indicate that values contain post-policy MWs

(3) All values include FCM Resources, non-FCM Settlement Only Generators and Generators (per OP-14), and load reducing PV resources

(4) All values represent end-of-year installed capacities

2018 PV NAMEPLATE CAPACITY FORECAST

Includes FCM, non-FCM EOR, and BTM PV

Fin.. 2018 PV Forecast

Nameplate Capacity, MW_{ac}

States	Annual Total MW (AC nameplate rating)											Totals
	Thru 2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
CT	365.6	88.6	86.8	89.8	80.6	72.9	53.7	52.2	50.6	49.0	47.4	**1,037.3**
MA	1602.3	**296.7**	228.0	228.0	215.3	215.3	215.3	215.3	135.1	130.9	126.7	**3,608.9**
ME	33.5	10.2	10.2	10.2	9.6	9.6	9.6	9.6	9.6	9.6	9.6	**131.4**
NH	69.7	13.8	13.8	13.8	13.1	13.1	13.1	13.1	13.1	13.1	13.1	**202.7**
RI	62.2	34.5	34.5	31.4	29.6	29.6	29.6	29.6	29.6	29.6	29.6	**370.2**
VT	257.2	**31.5**	22.5	22.5	21.3	21.3	21.3	21.3	21.3	21.3	21.3	**482.5**
Regional - Annual (MW)	2390.5	475.3	395.8	395.8	369.5	361.9	342.7	341.1	259.3	253.5	247.7	5,832.9
Regional - Cumulative (MW)	2390.5	2865.8	3261.6	3657.4	4026.9	4388.8	4731.4	5072.5	5331.8	5585.3	5832.9	5,832.9

Notes:

(1) Forecast values include FCM Resources, non-FCM Energy Only Generators, and behind-the-meter PV resources

(2) The forecast values are net of the effects of discount factors applied to reflect a degree of uncertainty in the policy-based forecast

(3) All values represent end-of-year installed capacities

(4) Forecast does not include forward-looking PV projects > 5MW in nameplate capacity

Draft 2019 PV Forecast

Nameplate Capacity, MW_{ac}

States	Annual Total MW (AC nameplate rating)											Totals
	Thru 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
CT	464.3	68.4	85.2	77.8	76.4	49.1	47.7	46.3	44.9	43.5	42.1	**1,046.0**
MA	1871.3	292.0	288.0	272.0	272.0	272.0	204.0	176.0	170.7	165.3	160.0	**4,143.2**
ME	41.4	7.1	7.1	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	**109.7**
NH	83.8	12.7	12.7	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	**205.6**
RI	116.7	51.3	51.3	48.5	42.4	42.4	42.4	42.4	42.4	42.4	42.4	**564.6**
VT	306.3	31.5	22.5	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	**530.3**
Regional - Annual (MW)	**2883.8**	**463.1**	**466.9**	**438.3**	**430.8**	**403.6**	**334.2**	**304.8**	**298.0**	**291.3**	**284.6**	**6,599.4**
Regional - Cumulative (MW)	**2883.8**	**3346.9**	**3813.8**	**4252.2**	**4683.0**	**5086.6**	**5420.8**	**5725.5**	**6023.6**	**6314.9**	**6599.4**	**6,599.4**

Notes:

(1) Forecast values include FCM Resources, non-FCM Energy Only Generators, and behind-the-meter PV resources

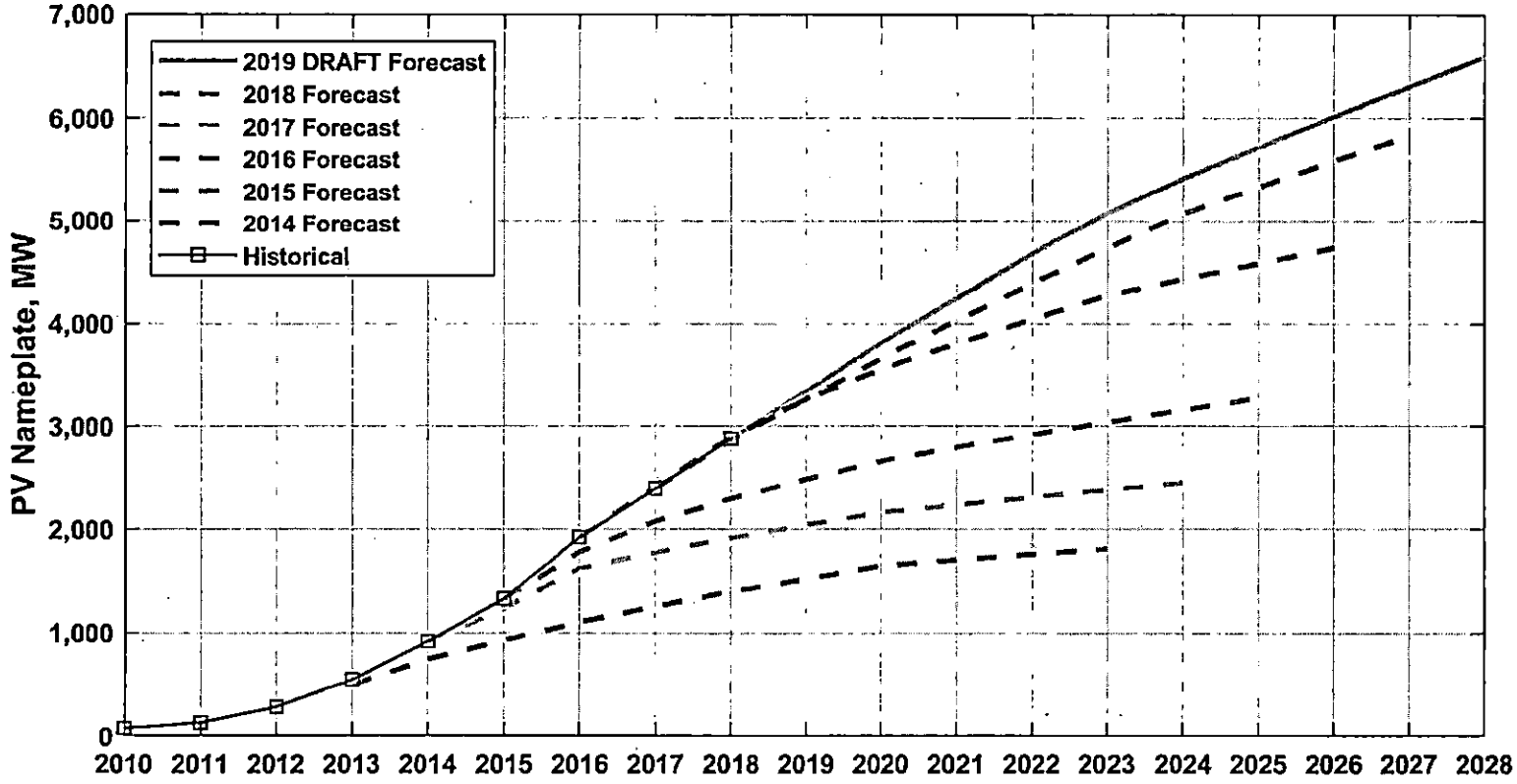
(2) The forecast values are net of the effects of discount factors applied to reflect a degree of uncertainty in the policy-based forecast

(3) All values represent end-of-year installed capacities

(4) Forecast does not include forward-looking PV projects > 5MW in nameplate capacity

PV Nameplate Capacity Growth

Historical vs. Forecast



NEXT STEPS:
FINAL 2019 CELT PV FORECAST

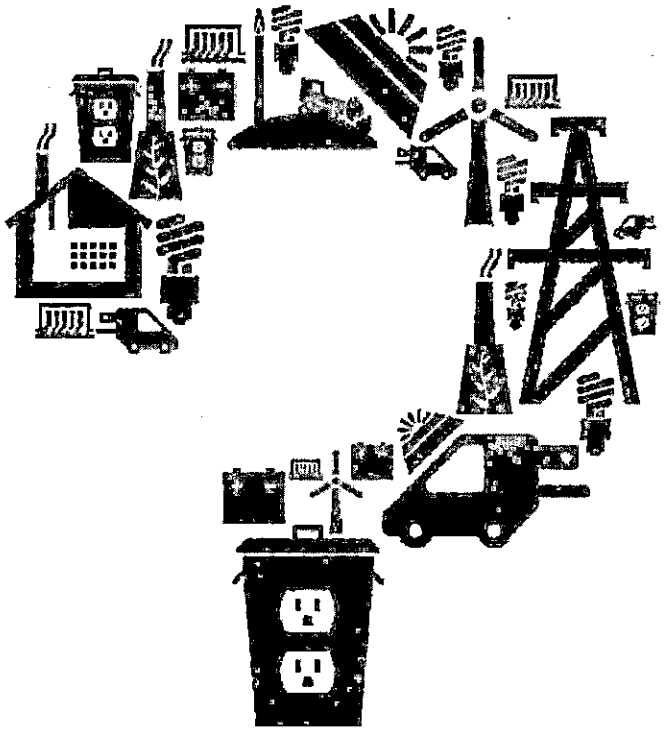
Next Steps for CELT 2019

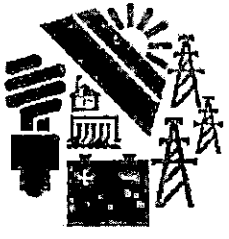
- Once the 2019 nameplate PV forecast is finalized, ISO will:
  - Break down the forecast by market participation category
    - For reference, approximately 63% of PV was behind-the-meter at the end of 2017; however, note that BTM shares differ across states
  - Create the PV energy forecast
  - Develop the estimated summer peak load reductions
  - Accounting for PV panel degradation will be same as last year
- ISO will reconstitute BTM PV into the historical loads used to develop the long-term gross load forecast
  - Overall accounting in the net load forecast will be the same
  - As in prior forecasts, three PV categories will be used for CELT 2019:
    1. PV as a capacity resource in the FCM
    2. EOR
    3. BTM PV
- ISO will use the same approach as previous forecasts to estimate the geographic distribution of the PV forecast
  - Assumes future development is in existing areas of PV development

We Want Your Feedback …

- Please share your comments today
- ISO requests written comments on draft 2019 PV forecast by February 25, 2019 @ 5:00 p.m.
- Please submit comments to DGFWGMatters@iso-ne.com

Questions





Voting Sheets

Senate Energy & Natural Resources Committee

EXECUTIVE SESSION RECORD

2019-2020 Session

Bill # SB 168

Hearing date: 03/12/2019

Executive Session date: 03/19/2019

Motion of: Amendment 1129s **Vote:** 5-0

Committee Member	Present	Made by	Second	Yes	No
Sen. Fuller Clark, Chair	✓			✓	
Sen. Feltes, Vice Chair	✓	✓		✓	
Sen. Watters	✓		✓	✓	
Sen. Bradley	✓			✓	
Sen. Giuda	✓			✓	

Motion of: OTPA **Vote:** 3-2

Committee Member	Present	Made by	Second	Yes	No
Sen. Fuller Clark, Chair	✓			✓	
Sen. Feltes, Vice Chair	✓	✓		✓	
Sen. Watters	✓		✓	✓	
Sen. Bradley	✓				✓
Sen. Giuda	✓				✓

Motion of: _____ **Vote:** _____

Committee Member	Present	Made by	Second	Yes	No
Sen. Fuller Clark, Chair					
Sen. Feltes, Vice Chair					
Sen. Watters					
Sen. Bradley					
Sen. Giuda					

Reported out by: Feltes

Notes: _____

Committee Report

STATE OF NEW HAMPSHIRE

SENATE

REPORT OF THE COMMITTEE

Tuesday, March 19, 2019

THE COMMITTEE ON Energy and Natural Resources

to which was referred **SB 168**

AN ACT relative to class 2 obligations under the electric renewable portfolio standards.

Having considered the same, the committee recommends that the Bill

OUGHT TO PASS WITH AMENDMENT

BY A VOTE OF: 3-2

AMENDMENT # 1180s

Senator Dan Feltes
For the Committee

Griffin Roberge 271-7875

ENERGY AND NATURAL RESOURCES

SB 168, relative to class 2 obligations under the electric renewable portfolio standards.
Ought to Pass with Amendment, Vote 3-2.
Senator Dan Feltes for the committee.

General Court of New Hampshire - Bill Status System

Docket of SB168

Docket Abbreviations

Bill Title: relative to class 2 obligations under the electric renewable portfolio standards.

Official Docket of **SB168.**:

Date	Body	Description
1/22/2019	S	**Introduced** 01/03/2019 and Referred to Energy and Natural Resources; **SJ 4**
3/6/2019	S	**Hearing:** 03/12/2019, Room 103, SH, 10:00 am; **SC 13**
3/20/2019	S	Committee Report: Ought to Pass with Amendment **#2019-1180s**, 03/28/2019; **SC 15**
3/28/2019	S	Committee Amendment **#2019-1180s**, AA, VV; 03/28/2019; **SJ 11**
3/28/2019	S	**Ought to Pass with Amendment** 2019-1180s, **RC** 14Y-10N, MA; OT3rdg; 03/28/2019; **SJ 11**
4/1/2019	H	Introduced 03/20/2019 and referred to Science, Technology and Energy **HJ 11** P. 73
4/10/2019	H	Public Hearing: 04/17/2019 02:00 pm LOB 304
5/6/2019	H	Full Committee Work Session: 05/07/2019 09:55 am LOB 304
5/1/2019	H	==RECESSED== Executive Session: 05/07/2019 10:00 am LOB 304
5/7/2019	H	Subcommittee Work Session: 05/09/2019 01:30 pm LOB 304
5/8/2019	H	==CONTINUED== Executive Session: 05/15/2019 10:30 am LOB 304
5/22/2019	H	Majority Committee Report: Ought to Pass with Amendment **#2019-1894h** for 06/05/2019 **(Vote 12-7; RC) HC 27** P. 20
5/22/2019	H	Minority Committee Report: Inexpedient to Legislate
6/6/2019	H	Amendment **#2019-1894h**: AA VV 06/06/2019 **HJ 18** P. 8
6/6/2019	H	**Ought to Pass with Amendment** 2019-1894h: MA **RC** 217-139 06/06/2019 **HJ 18** P. 8
6/13/2019	S	Sen. Fuller Clark Moved to Concur with the House Amendment, **RC** 14Y-10N, MA; 06/13/2019; **SJ 20**
6/28/2019	H	Enrolled 06/27/2019 **HJ 20** P. 53
6/28/2019	S	Enrolled (In recess 06/27/2019); **SJ 21**
7/24/2019	S	Vetoed by Governor 07/19/2019
9/19/2019	S	Notwithstanding the Governor's Veto, Shall SB 168 Become Law: **RC** 14Y-10N, Veto Sustained, lacking the necessary two-thirds vote; 09/19/2019; **SJ 22**

NH House	NH Senate

Other Referrals

Senate Inventory Checklist for Archives

Bill Number: SB 168 **Senate Committee:** ENG

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

X Final docket found on Bill Status

Bill Hearing Documents: {Legislative Aides}

X Bill version as it came to the committee
X All Calendar Notices
X Hearing Sign-up sheet(s)
X Prepared testimony, presentations, & other submissions handed in at the public hearing
X Hearing Report
X 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):

X - amendment # 1129s X - amendment # 1180s
___ - amendment # _____ ___ - amendment # _____

X Executive Session Sheet
X 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)
X Governor's Veto Message

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

X as amended by the senate X as amended by the house
X final version

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

_____ _____
Committee Aide **Date**

Senate Clerk's Office RM

July 19, 2019

Governor's Veto Message Regarding Senate Bill 168

By the authority vested in me, pursuant to part II, Article 44 of the New Hampshire Constitution, on July 19th, 2019, I have vetoed Senate Bill 168, relative to class 2 obligations under the electric renewable portfolio standards.

This bill is crony capitalism at its worst. This bill comes directly from the solar lobby to boost their profits while forcing higher costs onto ratepayers. The goal set forward in this bill is unattainable in such a short time period. The result of failing to reach the unattainable goal will be a $30 million annual penalty to all ratepayers, including seniors and those on fixed incomes because of higher Renewable Energy Credit prices.

For the reasons stated above, I have vetoed Senate Bill 168.

Respectfully submitted,

Christopher T. Sununu
Governor