LEGISLATIVE COMMITTEE MINUTES

SB167

Bill as Introduced

SB 167-FN-LOCAL - AS INTRODUCED

2023 SESSION

23-1050 10/05

SENATE BILL

167-FN-LOCAL

AN ACT

relative to green hydrogen energy and infrastructure.

SPONSORS:

Sen. Watters, Dist 4; Sen. Perkins Kwoka, Dist 21; Sen. Soucy, Dist 18; Sen.

Fenton, Dist 10; Sen. Rosenwald, Dist 13; Sen. Altschiller, Dist 24; Rep. McGhee,

Hills. 35

COMMITTEE:

Energy and Natural Resources

ANALYSIS

This bill adds green hydrogen facilities and infrastructure to renewable electric generation which provides fuel diversity, establishes green hydrogen business tax and property tax reduction programs, and establishes a green hydrogen advisory committee established in the department of energy.

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Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.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

AN ACT

 23

relative to green hydrogen energy and infrastructure.

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

1 Legislative Findings.

- I. The use of hydrogen derived from a clean energy resource, or green hydrogen, has the potential to be a zero- or very low-carbon source of energy for use in a variety of sectors, including high-heat industrial applications, zero-carbon electricity generation, and the gas distribution system. Green hydrogen will contribute to clean energy jobs in the solar energy, wind energy, energy efficiency, energy storage, electric vehicle industries, and other renewable energy industries.
- II. Green hydrogen has the potential to serve as a storage fuel, especially for offshore wind energy, to increase reliability in electricity generation, and to promote the transition of other forms of power generation to a zero-or very low-carbon source of energy. Green hydrogen can play a substantial role as a transportation fuel and as an industrial fuel.
- III. Green hydrogen infrastructure will enable New Hampshire businesses to develop generation and manufacturing facilities and take advantage of federal funding and investments from the offshore wind industry.
- 2 New Paragraphs; The Preservation and Use of Renewable Generation to Provide Fuel Diversity; Definitions Added. Amend RSA 362-H:1 by inserting after paragraph VI the following new paragraphs:
- VII. "Green hydrogen" means hydrogen derived from a clean energy resource that uses water as the source of the hydrogen. For purposes of green hydrogen electricity generation and hydrogen transmission, a green hydrogen project may include associated clean energy generation, including regenerative fuel cells, transmission, and other infrastructure. "Green hydrogen" electricity generation means a power plant technology in which an electrical generating unit creates electric power exclusively from electrolytic hydrogen, in a manner that produces zero carbon and copollutant emissions, using hydrogen fuel that is electrolyzed using a 100 percent renewable zero carbon emission energy source. The term does not include hydrogen produced using steam reforming or any other conversion technology that produces hydrogen from fossil fuel feedstock.
- VIII. "Green hydrogen facility" means any combination of a physically connected generator or generators, associated prime movers, and other associated property, including appurtenant land and improvements and personal property, that are normally operated together to produce 20 average megawatts or more of electric power, in order to:
 - (a) Produce green hydrogen through electrolysis technology;

SB 167-FN-LOCAL - AS INTRODUCED - Page 2 -

- 1 (b) Store or transport green hydrogen by means of a green hydrogen pipeline for the 2 transport or storage of green hydrogen or a green hydrogen storage system for the temporary storage 3 of green hydrogen in a vessel, pipeline, or geologic formation; or 4 (c) Convert green hydrogen back to electricity through a hydrogen-capable power 5 generation source... 6 "Regenerative fuel cell" means a device that produces hydrogen and oxygen from 7 electricity and water and alternately produces electrical energy and water from stored hydrogen and 8 oxygen. 9 3 New Sections; Green Hydrogen Production and Infrastructure. Amend RSA 362-H by 10 inserting after section 2 the following new sections: 11 362-H:3 Green Hydrogen Production and Infrastructure. 12 I. The production of green hydrogen by a green hydrogen facility shall be eligible for a credit 13 against the business profits tax. A credit of not more than 10 percent of the qualifying costs, 14 including land, improvements, construction, and equipment, for green hydrogen facility, green 15 hydrogen pipeline, or green hydrogen storage system, built after June 30, 2023 shall be applied 16 against the business profits tax under RSA 77-A. This credit shall also apply to plans to acquire new 17 regenerative fuel cell electricity generation that began operation on or after July 1, 2023. 18 II. The owner of a green hydrogen facility, a green hydrogen pipeline, or a green hydrogen 19 storage system shall be eligible under RSA 72:74 for the property tax reduction provided as a 20 payment in lieu of taxes as a renewable generation facility, for a period of 5 years. 21 III. Green hydrogen energy and infrastructure projects with a capacity to generate over 20 22 MW of energy shall be evaluated and approved by the site evaluation committee under RSA 162-H, 23 which shall have authority over siting, transportation, and storage. 24 362-H:4 Advisory Committee Established. There is a green hydrogen advisory committee 25 established in the department of energy. 26 I. The advisory committee shall consist of: 27 (a) The commissioner of the department of energy, or designee. 28 (b) The commissioner of the department of business and economic affairs, or designee. 29 (c) The commissioner of the department of environmental services, or designee. 30 (d) The chair of the site evaluation committee. (e) The chair of the public utilities commission, or designee. 31 32 (f) The chair of the New Hampshire port authority. 33 II. The advisory committee shall have the following duties: 34 (a) Examine the production of green hydrogen from any renewable energy source.
 - (b) Investigate and evaluate existing state and federal laws, regulations and funding sources and recommend legislation related to the production, use, distribution and storage of green hydrogen.

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SB 167-FN-LOCAL - AS INTRODUCED

- Page 3 -1 (c) Identify opportunities to integrate green hydrogen in the transportation, energy, 2 industrial, and other sectors. 3 Identify barriers to the widespread development of hydrogen and recommend 4 government policies to catalyze the deployment of hydrogen in the state economy. (e) Consider a plan to create, support, develop, or partner with a Hydrogen Hub in this 5 6 state, under federal funding provisions, and determine, how to maximize federal financial incentives to support Hub development. 7 8 (f) Consider the construction of a dedicated hydrogen pipeline or network of pipelines to 9 serve users of hydrogen in this state, including power generation, transportation, manufacturing, 10 and energy storage facilities. (g) Consider facilities that result in the blending of hydrogen into existing natural gas 11 transmission and distribution systems that serve residential, commercial, transportation, and 12 13 industrial uses. 14 (h) Streamline the permitting processes for hydrogen facilities and infrastructure. 15 including other carbon use applications and any other issues that the committee deems necessary. 16 (i) Examine cost-effective industrial rates for hydrogen production and flexible energy 17 generation configurations to maximize federal funding for hydrogen facilities, and serves the long-18 term interests of ratepayers, and cost-effectively avoids or defers distribution system costs. 19 (j) Review the safety standards regarding the production, use, distribution and storage 20 of hydrogen by state agencies. 21Consider regenerative fuel cell generation by utilities or private entities that 22 provides distribution system benefits, including, but not limited to, avoiding or deferring distribution 23 capacity upgrades, and enhancing distribution system reliability, including, but not limited to, 24 voltage or frequency improvements. III. The advisory committee shall report to the governor, the president of the senate, the 25 speaker of the house of representatives, the chair of senate energy and natural resources committee, 26 27 the chair of house science, technology, and energy committee on December 1 of each year on its 28 activities, findings, and recommendations. 4 New Paragraph; Division of Fire Safety; Green Hydrogen Facilities. Amend RSA 21-P:12 by 29 30 inserting after paragraph VIII the following new paragraph: IX. Participation in an advisory capacity in state agency siting of green hydrogen facilities, 31 transportation, and storage, and in the permitting and coordination of state agency response to
 - 5 New Paragraph; Business Profits Tax; Credit for Green Hydrogen Infrastructure. Amend RSA 77-A:5 by inserting after paragraph XVI the following new paragraph:

unless pipelines are regulated by the public utilities commission pursuant to RSA 362.

accidents at facilities that produce more than 20 MW of electricity, and associated transportation and storage involving green hydrogen as defined in RSA 362-H, and green hydrogen gas safety.

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SB 167-FN-LOCAL - AS INTRODUCED - Page 4 -

- 1 XVII. The tax credit computed under 362-H:3, I for green hydrogen production and
- 2 infrastructure.
- 3 6 Effective Date. This act shall take effect July 1, 2023.

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SB 167-FN-LOCAL- FISCAL NOTE AS INTRODUCED

AN ACT

relative to green hydrogen energy and infrastructure.

FISCAL IMPACT:

Due to time constraints, the Office of Legislative Budget Assistant is unable to provide a fiscal note for this bill, <u>as introduced</u>, at this time. When completed, the fiscal note will be forwarded to the Senate Clerk's Office.

AGENCIES CONTACTED:

Departments of Energy and Revenue Administration

SB 167-FN-LOCAL FISCAL NOTE AS INTRODUCED

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relative to green hydrogen energy and infrastructure.

FISCAL IMPACT:

[X] State

[] County

[X] Local

[] None

	Estimated Increase / (Decrease)			
STATE:	FY 2023	FY 2024	FY 2025	FY 2026
Appropriation	\$0	\$0	\$0	\$0
Revenue	\$0	Indeterminable	Indeterminable	Indeterminable
Expenditures	\$0	\$0	. \$0	\$0
Funding Source:	[X] General	[X] Education	[] Highway	[] Other

LOCAL:

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

METHODOLOGY:

This bill adds green hydrogen facilities and infrastructure to renewable electric generation which provides fuel diversity, establishes green hydrogen business tax and property tax reduction programs, and establishes a green hydrogen advisory committee established in the Department of Energy.

The Department of Revenue Administration is unable to determine the fiscal impact of this proposed legislation because it does not have information on the number of green hydrogen facilities, green hydrogen pipelines, or hydrogen storage systems that would be built after June 30, 2023 or the qualifying costs for each. The Department provided the following assumptions concerning the impact of the bill on state revenues:

- There would be an indeterminable increase in Business Profits Tax (BPT) to the extent
 the proposed BPT credit attracts new or existing business organizations into the green
 hydrogen industry. The timing of the revenue increase would depend on when the
 business organization is profitable after June 30, 2023.
- Relative to business organizations qualifying for the BPT credit based on plans to acquire
 new regenerative fuel cell electricity generation that began operation on or after July 1,
 2023, BPT revenue from such business organizations could also be reduced by the

- amount of credit claimed. Any impact would depend on when such regenerative fuel cell electricity generation come online and becomes profitable.
- Any increase to the BPT results in an increase to the General Fund and Education Trust Fund starting in FY 2024.
- The Department is unable to determine the fiscal impact of the bill on utility property tax revenue because it does not have information on the value of additional utility property that will be installed as a result of this bill. To the extent there are new utility properties installed, there would be an increase in utility property tax revenue and an associated increase to the Education Trust Fund starting in FY 2024.
- The provision to allow for five years of payments in lieu of taxes as a renewable generation facility, to the owner of a green hydrogen facility, a green hydrogen pipeline, or a green hydrogen storage system, would result in an indeterminable impact on municipal revenue.

The Department of Energy states this bill would have no fiscal impact on the Department. The Department assumes that the members of the advisory committee would be responsible for undertaking their duties, including writing the annual report, without regular support from staff from the Department of Energy.

AGENCIES CONTACTED:

Departments of Energy and Revenue Administration

SB 167-FN-LOCAL FISCAL NOTE AS AMENDED BY THE SENATE (AMENDMENT #2023-0407s)

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relative to green hydrogen energy and infrastructure.

FISCAL IMPACT:

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П		- 1	State

[] County

[X] Local

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Revenue .	\$0	Indeterminable	Indeterminable	Indeterminable
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AGENCIES CONTACTED:

Departments of Energy and Revenue Administration

SB 167-FN-LOCAL - AS AMENDED BY THE SENATE

02/09/2023 0407s

2023 SESSION

23-1050 10/05

SENATE BILL

167-FN-LOCAL

AN ACT

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Hills, 35

COMMITTEE:

Energy and Natural Resources

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23-1050 10/05

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Twenty Three

AN ACT

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

- 1 Legislative Findings.
- I. The use of hydrogen derived from a clean energy resource, or green hydrogen, has the potential to be a zero- or very low-carbon source of energy for use in a variety of sectors, including high-heat industrial applications, zero-carbon electricity generation, and the gas distribution system. Green hydrogen will contribute to clean energy jobs in the solar energy, wind energy, energy efficiency, energy storage, electric vehicle industries, and other renewable energy industries.
- II. Green hydrogen has the potential to serve as a storage fuel, especially for offshore wind energy, to increase reliability in electricity generation, and to promote the transition of other forms of power generation to a zero-or very low-carbon source of energy. Green hydrogen can play a substantial role as a transportation fuel and as an industrial fuel.
- III. Green hydrogen infrastructure will enable New Hampshire businesses to develop generation and manufacturing facilities and take advantage of federal funding and investments from the offshore wind industry.
- 2 New Paragraphs; The Preservation and Use of Renewable Generation to Provide Fuel Diversity; Definitions Added. Amend RSA 362-H:1 by inserting after paragraph VI the following new paragraphs:
- VII. "Green hydrogen" means hydrogen derived from a clean energy resource that uses water as the source of the hydrogen. For purposes of green hydrogen electricity generation and hydrogen transmission, a green hydrogen project may include associated clean energy generation, including regenerative fuel cells, transmission, and other infrastructure. "Green hydrogen" electricity generation means a power plant technology in which an electrical generating unit creates electric power exclusively from electrolytic hydrogen, in a manner that produces zero carbon and copollutant emissions, using hydrogen fuel that is electrolyzed using a 100 percent zero carbon emission energy source. The term does not include hydrogen produced using steam reforming or any other conversion technology that produces hydrogen from fossil fuel feedstock.
- VIII. "Green hydrogen facility" means any combination of a physically connected generator or generators, associated prime movers, and other associated property, including appurtenant land and improvements and personal property, that are normally operated together to produce 20 average megawatts or more of electric power, in order to:
 - (a) Produce green hydrogen through electrolysis technology;

SB 167-FN-LOCAL - AS AMENDED BY THE SENATE - Page 2 -

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(b) Store or transport green hydrogen by means of a green hydrogen pipeline for the transport or storage of green hydrogen or a green hydrogen storage system for the temporary storage of green hydrogen in a vessel, pipeline, or geologic formation; or Convert green hydrogen back to electricity through a hydrogen-capable power generation source. IX. "Regenerative fuel cell" means a device that produces hydrogen and oxygen from electricity and water and alternately produces electrical energy and water from stored hydrogen and oxygen. 3 New Sections; Green Hydrogen Production and Infrastructure. Amend RSA 362-H by inserting after section 2 the following new sections: 362-H:3 Green Hydrogen Production and Infrastructure. I. The production of green hydrogen by a green hydrogen facility shall be eligible for a credit against the business profits tax. A credit of not more than 10 percent of the qualifying costs or \$500,000, whichever is the lesser value, for investments in green hydrogen facilities and regenerative fuel cells brought into service after December 31, 2023, shall be applied against the business profits tax under RSA 77-A for a taxable period ending on or after December 31, 2024. No taxpayer may qualify for more than \$500,000 in any single taxable period. The aggregate total for this tax credit is \$5,000,000. If the total of applicants exceeds the cap, the funds shall be allocated proportionally. II. The owner of a green hydrogen facility brought into service after December 31, 2023 shall be eligible under RSA 72:74 for the property tax reduction provided as a payment in lieu of taxes as a renewable generation facility, for a period of 5 years. III. Green hydrogen energy and infrastructure projects with a capacity to generate over 20 MW of energy shall be evaluated and approved by the site evaluation committee under RSA 162-H. which shall have authority over siting, transportation, and storage. 362-H:4 Advisory Committee Established. There is a green hydrogen advisory committee established in the department of energy. I. The advisory committee shall consist of: (a) The commissioner of the department of energy, or designee. (b) The commissioner of the department of business and economic affairs, or designee. (c) The commissioner of the department of environmental services, or designee. (d) The chair of the site evaluation committee. (e) The chair of the public utilities commission, or designee. (f) The chair of the New Hampshire port authority. II. The advisory committee shall have the following duties:

(a) Examine the production of green hydrogen from any renewable energy source.

SB 167-FN-LOCAL - AS AMENDED BY THE SENATE - Page 3 -

(b) Investigate and evaluate existing state and federal laws, regulations and funding sources and recommend legislation related to the production, use, distribution and storage of green hydrogen.

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- (c) Identify opportunities to integrate green hydrogen in the transportation, energy, industrial, and other sectors.
- (d) Identify barriers to the widespread development of hydrogen and recommend government policies to catalyze the deployment of hydrogen in the state economy.
- (e) Consider a plan to create, support, develop, or partner with a Hydrogen Hub in this state, under federal funding provisions, and determine, how to maximize federal financial incentives to support Hub development.
- (f) Consider the construction of a dedicated hydrogen pipeline or network of pipelines to serve users of hydrogen in this state, including power generation, transportation, manufacturing, and energy storage facilities.
- (g) Consider facilities that result in the blending of hydrogen into existing natural gas transmission and distribution systems that serve residential, commercial, transportation, and industrial uses, and consider policy recommendations for inclusion of hydrogen production from fossil fuel feedstock.
- (h) Streamline the permitting processes for hydrogen facilities and infrastructure, including other carbon use applications and any other issues that the committee deems necessary.
- (i) Examine cost-effective industrial rates for hydrogen production and flexible energy generation configurations to maximize federal funding for hydrogen facilities, and serves the long-term interests of ratepayers, and cost-effectively avoids or defers distribution system costs.
- (j) Review the safety standards regarding the production, use, distribution and storage of hydrogen by state agencies.
- (k) Consider regenerative fuel cell generation by utilities or private entities that provides distribution system benefits, including, but not limited to, avoiding or deferring distribution capacity upgrades, and enhancing distribution system reliability, including, but not limited to, voltage or frequency improvements.
- III. The advisory committee shall report to the governor, the president of the senate, the speaker of the house of representatives, the chair of senate energy and natural resources committee, the chair of house science, technology, and energy committee on December 1 of each year on its activities, findings, and recommendations.
- 4 New Paragraph; Division of Fire Safety; Green Hydrogen Facilities. Amend RSA 21-P:12 by inserting after paragraph VIII the following new paragraph:
- IX. Participation in an advisory capacity in state agency siting of green hydrogen facilities, transportation, and storage, and in the permitting and coordination of state agency response to accidents at facilities that produce more than 20 MW of electricity, and associated transportation

SB 167-FN-LOCAL - AS AMENDED BY THE SENATE - Page 4 -

- and storage involving green hydrogen as defined in RSA 362-H, and green hydrogen gas safety, unless pipelines are regulated by the public utilities commission pursuant to RSA 362.
- 5 New Paragraph; Business Profits Tax; Credit for Green Hydrogen Infrastructure. Amend RSA
 77-A:5 by inserting after paragraph XVI the following new paragraph:
- 5 XVII. The tax credit computed under RSA 362-H:3, I for green hydrogen production and 6 infrastructure.
 - 6 Repeal; 2029; Business Profits Tax Credit. The following are repealed:
 - I. RSA 362-H:3, I, relative to the business profits tax credit for investments in green hydrogen facilities and regenerative fuel cells.
- II. RSA 77-A:5, XVII, relative to the use of the green hydrogen business profits tax credit.
- 11 7 Effective Date.

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- I. Section 6 of this act shall take effect January 1, 2029.
- 13 II. The remainder of this act shall take effect July 1, 2023.

SB 167-FN-LOCAL-FISCAL NOTE

AS AMENDED BY THE SENATE (AMENDMENT #2023-0407s)

AN ACT

relative to green hydrogen energy and infrastructure.

FISCAL IMPACT:

[X] State

[] County

[X] Local

[] None

	Estimated Increase / (Decrease)			
STATE:	FY 2023	FY 2024	FY 2025	FY 2026
Appropriation	\$0	\$0	\$0	\$0
Revenue	\$0	Indeterminable	Indeterminable	Indeterminable
Expenditures	\$0	\$0	\$0	\$0
Funding Source:	[X] General	[X] Education	[] Highway	[] Other

LOCAL:

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

METHODOLOGY:

This bill adds green hydrogen facilities and infrastructure to renewable electric generation which provides fuel diversity, establishes green hydrogen business tax and property tax reduction programs, and establishes a green hydrogen advisory committee established in the Department of Energy.

The Department of Revenue Administration is unable to determine the fiscal impact of this proposed legislation because it does not have information on the number of green hydrogen facilities, green hydrogen pipelines, or hydrogen storage systems that would be built after June 30, 2023 or the qualifying costs for each. The Department provided the following assumptions concerning the impact of the bill on state revenues:

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 hydrogen industry. The timing of the revenue increase would depend on when the
 business organization is profitable after June 30, 2023.
- Relative to business organizations qualifying for the BPT credit based on plans to acquire new regenerative fuel cell electricity generation that began operation on or after July 1, 2023, BPT revenue from such business organizations could also be reduced by the amount of credit claimed. Any impact would depend on when such regenerative fuel cell electricity generation come online and becomes profitable.

- Any increase to the BPT results in an increase to the General Fund and Education Trust Fund starting in FY 2024.
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The Department of Energy states this bill would have no fiscal impact on the Department. The Department assumes that the members of the advisory committee would be responsible for undertaking their duties, including writing the annual report, without regular support from staff from the Department of Energy.

AGENCIES CONTACTED:

Departments of Energy and Revenue Administration

SB 167-FN-LOCAL- FISCAL NOTE AS AMENDED BY THE SENATE (AMENDMENT #2023-0407s)

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relative to green hydrogen energy and infrastructure.

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

	Estimated Increase / (Decrease)			
STATE:	FY 2023	FY 2024	FY 2025	FY 2026
Appropriation	\$0	\$0	\$0	\$0
Revenue	\$0	Indeterminable	Indeterminable	Indeterminable
Expenditures	\$0	\$0	\$0	\$0
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Hills. 35

COMMITTEE:

Energy and Natural Resources

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- I. The use of hydrogen derived from a clean energy resource, or green hydrogen, has the potential to be a zero- or very low-carbon source of energy for use in a variety of sectors, including high-heat industrial applications, zero-carbon electricity generation, and the gas distribution system. Green hydrogen will contribute to clean energy jobs in the solar energy, wind energy, energy efficiency, energy storage, electric vehicle industries, and other renewable energy industries.
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- III. Green hydrogen infrastructure will enable New Hampshire businesses to develop generation and manufacturing facilities and take advantage of federal funding and investments from the offshore wind industry.
- 2 New Paragraphs; The Preservation and Use of Renewable Generation to Provide Fuel Diversity; Definitions Added. Amend RSA 362-H:1 by inserting after paragraph VI the following new paragraphs:
- VII. "Green hydrogen" means hydrogen derived from a clean energy resource that uses water as the source of the hydrogen. For purposes of green hydrogen electricity generation and hydrogen transmission, a green hydrogen project may include associated clean energy generation, including regenerative fuel cells, transmission, and other infrastructure. "Green hydrogen" electricity generation means a power plant technology in which an electrical generating unit creates electric power exclusively from electrolytic hydrogen, in a manner that produces zero carbon and copollutant emissions, using hydrogen fuel that is electrolyzed using a 100 percent zero carbon emission energy source. The term does not include hydrogen produced using steam reforming or any other conversion technology that produces hydrogen from fossil fuel feedstock.
- VIII. "Green hydrogen facility" means any combination of a physically connected generator or generators, associated prime movers, and other associated property, including appurtenant land and improvements and personal property, that are normally operated together to produce 20 average megawatts or more of electric power, in order to:
 - (a) Produce green hydrogen through electrolysis technology;

SB 167-FN-LOCAL - AS AMENDED BY THE SENATE - Page 2 -

- Page 2 -(b) Store or transport green hydrogen by means of a green hydrogen pipeline for the 1 transport or storage of green hydrogen or a green hydrogen storage system for the temporary storage 2 3 of green hydrogen in a vessel, pipeline, or geologic formation; or (c) Convert green hydrogen back to electricity through a hydrogen-capable power 4 5 generation source. 6 "Regenerative fuel cell" means a device that produces hydrogen and oxygen from electricity and water and alternately produces electrical energy and water from stored hydrogen and 7 8 oxygen. 3 New Sections; Green Hydrogen Production and Infrastructure. Amend RSA 362-H by 9 10 inserting after section 2 the following new sections: 362-H:3 Green Hydrogen Production and Infrastructure. 11 I. The production of green hydrogen by a green hydrogen facility shall be eligible for a credit 12 against the business profits tax. A credit of not more than 10 percent of the qualifying costs or 13 14 \$500,000, whichever is the lesser value, for investments in green hydrogen facilities and 15 regenerative fuel cells brought into service after December 31, 2023, shall be applied against the business profits tax under RSA 77-A for a taxable period ending on or after December 31, 2024. No 16 taxpayer may qualify for more than \$500,000 in any single taxable period. The aggregate total for 17 this tax credit is \$5,000,000. If the total of applicants exceeds the cap, the funds shall be allocated 18 19 proportionally. 20 II. The owner of a green hydrogen facility brought into service after December 31, 2023 shall be eligible under RSA 72:74 for the property tax reduction provided as a payment in lieu of taxes as 21 22 a renewable generation facility, for a period of 5 years. 23 III. Green hydrogen energy and infrastructure projects with a capacity to generate over 20 MW of energy shall be evaluated and approved by the site evaluation committee under RSA 162-H, 24 which shall have authority over siting, transportation, and storage. 25 362-H:4 Advisory Committee Established. There is a green hydrogen advisory committee 26 27 established in the department of energy. I. The advisory committee shall consist of: 28 (a) The commissioner of the department of energy, or designee. 29 (b) The commissioner of the department of business and economic affairs, or designee. 30 (c) The commissioner of the department of environmental services, or designee. 31 32 (d) The chair of the site evaluation committee. (e) The chair of the public utilities commission, or designee. 33 (f) The chair of the New Hampshire port authority. 34
 - (a) Examine the production of green hydrogen from any renewable energy source.

II. The advisory committee shall have the following duties:

35

36

SB 167-FN-LOCAL - AS AMENDED BY THE SENATE - Page 3 -

(b) Investigate and evaluate existing state and federal laws, regulations and funding sources and recommend legislation related to the production, use, distribution and storage of green hydrogen.

- (c) Identify opportunities to integrate green hydrogen in the transportation, energy, industrial, and other sectors.
- (d) Identify barriers to the widespread development of hydrogen and recommend government policies to catalyze the deployment of hydrogen in the state economy.
- (e) Consider a plan to create, support, develop, or partner with a Hydrogen Hub in this state, under federal funding provisions, and determine, how to maximize federal financial incentives to support Hub development.
- (f) Consider the construction of a dedicated hydrogen pipeline or network of pipelines to serve users of hydrogen in this state, including power generation, transportation, manufacturing, and energy storage facilities.
- (g) Consider facilities that result in the blending of hydrogen into existing natural gas transmission and distribution systems that serve residential, commercial, transportation, and industrial uses, and consider policy recommendations for inclusion of hydrogen production from fossil fuel feedstock.
- (h) Streamline the permitting processes for hydrogen facilities and infrastructure, including other carbon use applications and any other issues that the committee deems necessary.
- (i) Examine cost-effective industrial rates for hydrogen production and flexible energy generation configurations to maximize federal funding for hydrogen facilities, and serves the long-term interests of ratepayers, and cost-effectively avoids or defers distribution system costs.
- (j) Review the safety standards regarding the production, use, distribution and storage of hydrogen by state agencies.
- (k) Consider regenerative fuel cell generation by utilities or private entities that provides distribution system benefits, including, but not limited to, avoiding or deferring distribution capacity upgrades, and enhancing distribution system reliability, including, but not limited to, voltage or frequency improvements.
- III. The advisory committee shall report to the governor, the president of the senate, the speaker of the house of representatives, the chair of senate energy and natural resources committee, the chair of house science, technology, and energy committee on December 1 of each year on its activities, findings, and recommendations.
- 4 New Paragraph; Division of Fire Safety; Green Hydrogen Facilities. Amend RSA 21-P:12 by inserting after paragraph VIII the following new paragraph:
- IX. Participation in an advisory capacity in state agency siting of green hydrogen facilities, transportation, and storage, and in the permitting and coordination of state agency response to accidents at facilities that produce more than 20 MW of electricity, and associated transportation

SB 167-FN-LOCAL- FISCAL NOTE AS INTRODUCED

AN ACT

relative to green hydrogen energy and infrastructure.

FISCAL IMPACT:

[X] State

[] County

[X] Local

[] None

		Estimated Increase / (Decrease)			
STATE:	FY 2023	FY 2024	FY 2025	FY 2026	
Appropriation	\$0	\$0	\$0	\$0	
Revenue	\$0	Indeterminable	Indeterminable	Indeterminable	
Expenditures	\$0	\$0	\$0	\$0	
Funding Source:	[X] General	[X] Education	[] Highway	[] Other	

LOCAL:

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

METHODOLOGY:

This bill adds green hydrogen facilities and infrastructure to renewable electric generation which provides fuel diversity, establishes green hydrogen business tax and property tax reduction programs, and establishes a green hydrogen advisory committee established in the Department of Energy.

The Department of Revenue Administration is unable to determine the fiscal impact of this proposed legislation because it does not have information on the number of green hydrogen facilities, green hydrogen pipelines, or hydrogen storage systems that would be built after June 30, 2023 or the qualifying costs for each. The Department provided the following assumptions concerning the impact of the bill on state revenues:

- There would be an indeterminable increase in Business Profits Tax (BPT) to the extent
 the proposed BPT credit attracts new or existing business organizations into the green
 hydrogen industry. The timing of the revenue increase would depend on when the
 business organization is profitable after June 30, 2023.
- Relative to business organizations qualifying for the BPT credit based on plans to acquire new regenerative fuel cell electricity generation that began operation on or after July 1, 2023, BPT revenue from such business organizations could also be reduced by the amount of credit claimed. Any impact would depend on when such regenerative fuel cell electricity generation come online and becomes profitable.

SB 167-FN-LOCAL - AS AMENDED BY THE SENATE - Page 4 -

and storage involving green hydrogen as defined in RSA 362-H, and green hydrogen gas safety, 1 unless pipelines are regulated by the public utilities commission pursuant to RSA 362. 2 5 New Paragraph; Business Profits Tax; Credit for Green Hydrogen Infrastructure. Amend RSA 3 77-A:5 by inserting after paragraph XVI the following new paragraph: 4 XVII. The tax credit computed under RSA 362-H:3, I for green hydrogen production and 5 6 infrastructure. 6 Repeal; 2029; Business Profits Tax Credit. The following are repealed: 7 I. RSA 362-H:3, I, relative to the business profits tax credit for investments in green 8 9 hydrogen facilities and regenerative fuel cells. II. RSA 77-A:5, XVII, relative to the use of the green hydrogen business profits tax credit. 10 7 Effective Date. 11 12 I. Section 6 of this act shall take effect January 1, 2029.

II. The remainder of this act shall take effect July 1, 2023.

13

- Any increase to the BPT results in an increase to the General Fund and Education Trust Fund starting in FY 2024.
- The Department is unable to determine the fiscal impact of the bill on utility property tax revenue because it does not have information on the value of additional utility property that will be installed as a result of this bill. To the extent there are new utility properties installed, there would be an increase in utility property tax revenue and an associated increase to the Education Trust Fund starting in FY 2024.
- The provision to allow for five years of payments in lieu of taxes as a renewable generation facility, to the owner of a green hydrogen facility, a green hydrogen pipeline, or a green hydrogen storage system, would result in an indeterminable impact on municipal revenue.

The Department of Energy states this bill would have no fiscal impact on the Department. The Department assumes that the members of the advisory committee would be responsible for undertaking their duties, including writing the annual report, without regular support from staff from the Department of Energy.

AGENCIES CONTACTED:

Departments of Energy and Revenue Administration

SB 167-FN-LOCAL FISCAL NOTE AS AMENDED BY THE SENATE (AMENDMENT #2023-0407s)

AN	ACT	
ZXIX.	ΔUI	

relative to green hydrogen energy and infrastructure.

FISCAL IMPACT:

r	v	1	CILLI
	Λ		State

[] County

[X] Local

[] None

	Estimated Increase / (Decrease)			
STATE:	FY 2023	FY 2024	FY 2025	FY 2026
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Funding Source:	[X] General	[X] Education	[] Highway	[] Other

LOCAL:

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METHODOLOGY:

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- Relative to business organizations qualifying for the BPT credit based on plans to acquire
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 2023, BPT revenue from such business organizations could also be reduced by the

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The Department of Energy states this bill would have no fiscal impact on the Department. The Department assumes that the members of the advisory committee would be responsible for undertaking their duties, including writing the annual report, without regular support from staff from the Department of Energy.

AGENCIES CONTACTED:

Departments of Energy and Revenue Administration

Amendments

Amendment to SB 167-FN-LOCAL

Amend RSA 362-H:1, VII as inserted by section 2 of the bill by replacing it with the following:

VII. "Green hydrogen" means hydrogen derived from a clean energy resource that uses water as the source of the hydrogen. For purposes of green hydrogen electricity generation and hydrogen transmission, a green hydrogen project may include associated clean energy generation, including regenerative fuel cells, transmission, and other infrastructure. "Green hydrogen" electricity generation means a power plant technology in which an electrical generating unit creates electric power exclusively from electrolytic hydrogen, in a manner that produces zero carbon and copollutant emissions, using hydrogen fuel that is electrolyzed using a 100 percent zero carbon emission energy source. The term does not include hydrogen produced using steam reforming or any other conversion technology that produces hydrogen from fossil/fuel feedstock.

Amend RSA 362-H:3, I and II as inserted by section 3 of the bill by replacing it with the following:

 I. The production of green hydrogen by a green hydrogen facility shall be eligible for a credit against the business profits tax. A credit of not more than 10 percent of the qualifying costs or \$500,000, whichever is the lesser value, for investments in green hydrogen facilities and regenerative fuel cells brought into service after December 31, 2023, shall be applied against the business profits tax under RSA 77-A for a taxable period ending on or after December 31, 2024. No taxpayer may qualify for more than \$500,000 in any single taxable period. The aggregate total for this tax credit is \$5,000,000. If the total of applicants exceeds the cap, the funds shall be allocated proportionally.

II. The owner of a green hydrogen facility brought into service after December 31, 2023 shall be eligible under RSA 72:74 for the property tax reduction provided as a payment in lieu of taxes as a renewable generation facility, for a period of 5 years.

Amend RSA 362-H:4, II(g) as inserted by section 3 of the bill by replacing it with the following:

(g) Consider facilities that result in the blending of hydrogen into existing natural gas transmission and distribution systems that serve residential, commercial, transportation, and industrial uses, and consider policy recommendations for inclusion of hydrogen production from fossil fuel feedstock.

Amendment to SB 167-FN-LOCAL - Page 2 -

1	Amend the bill by replacing all after section 4 with the following:
2	
3	5 New Paragraph; Business Profits Tax; Credit for Green Hydrogen Infrastructure. Amend RSA
4	77-A:5 by inserting after paragraph XVI the following new paragraph:
5	XVII. The tax credit computed under RSA 362-H:3, I for green hydrogen production and
6	infrastructure.
7	6 Repeal; 2029; Business Profits Tax Credit. The following are repealed:
8	I. RSA 362-H:3, I, relative to the business profits tax credit for investments in green
9	hydrogen facilities and regenerative fuel cells.
10	II. RSA 77-A:5, XVII, relative to the use of the green hydrogen business profits tax credit.
11	7 Effective Date.
12	I. Section 6 of this act shall take effect January 1, 2029.
13	II. The remainder of this act shall take effect July 1, 2023.

Energy and Natural Resources February 7, 2023 2023-0407s 10/07

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11	7 Effective Date.
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Committee Minutes

SENATE CALENDAR NOTICE Energy and Natural Resources

Sen Kevin Avard, Chair Sen Howard Pearl, Vice Chair Sen Regina Birdsell, Member Sen David Watters, Member Sen Debra Altschiller, Member

Date: January 25, 2023

HEARINGS

	Thursday	02/02/20:	23			
	(Day)	(Date)				
Energy an	nd Natural Resources	State House 103	1:00 p.m.			
(Name of Committee)		(Place)	(Time)			
1:00 p.m.	SB 161	relative to low-moderate income community so	lar projects.			
1:15 p.m.	SB 166-FN	relative to electric grid modernization.				
1:30 p.m.	SB 167-FN-LOCAL	relative to green hydrogen energy and infrastru	ucture.			
1:45 p.m. customers co	SB 168 ommunity solar project.	relative to participation in a low-moderate inco	ome residential			
	EXECUTIVE SESSION MAY FOLLOW					
Sponsors:						

Sponsors:			
SB 161			
Sen. Perkins Kwoka	Sen. Watters	Sen. Altschiller	Rep. McWilliams
Rep. Muns, C	Rep. Preece		
SB 166-FN	-		
Sen. Watters	Sen. Perkins Kwoka	Sen. D'Allesandro	Sen. Fenton
Sen. Avard	Sen. Rosenwald	Sen. Altschiller	Sen. Chandley
Sen. Soucy	Rep. McWilliams	Rep. McGhee	•
SB 167-FN-LOCAL	-	-	
Sen. Watters	Sen. Perkins Kwoka	Sen. Soucy	Sen. Fenton
Sen. Rosenwald	Sen. Altschiller	Rep. McGhee	
SB 168		-	
Sen. Avard	Sen. Watters		

Nikolas Liamos 271-7875

Kevin A. Avard Chairman

Senate Energy and Natural Resources Committee

Nikolas Liamos 271-7875

SB 167-FN-LOCAL, relative to green hydrogen energy and infrastructure.

Hearing Date:

February 2, 2023

Time Opened:

2:31 p.m.

Time Closed:

2:56 p.m.

Members of the Committee Present: Senators Avard, Pearl, Birdsell, Watters and

Altschiller

Members of the Committee Absent: None

Bill Analysis: This bill adds green hydrogen facilities and infrastructure to renewable electric generation which provides fuel diversity, establishes green hydrogen business tax and property tax reduction programs, and establishes a green hydrogen advisory committee established in the department of energy.

Sponsors:

Sen. Watters

Sen. Perkins Kwoka

Sen. Soucy

Sen. Fenton

Sen. Rosenwald

Sen. Altschiller

Rep. McGhee

Who supports the bill: Senator David Watters (SD 4), Marc Brown, Sam Evans Brown, James Andrews, Jim Monahan, Joe Harrison, Hayden Smith, Senator Cindy Rosenwald (SD 13), Senator Donna Soucy (SD 18), Susan Richman, Judith Saum, Anne Grossi, Kate Coon, Senator Rebbecca Perkins Kwoka (SD 21), Margaret Longley, Marc Brown, and Senator Donovan Fenton (SD 10)

Who opposes the bill: Julie Smith, Susan Liebowitz, Barbara Southard, Jeanne Torpey, Andrew Jones, Gary Devore, Claudia Damon, Nancy Brennan, Patricia Martin, Susan Moore, Tom St. Martin, Lois Cote, Judith Johnson, Gregory Davis, Alfrieda Eglund, Ann Rettew, Kim Marie Fudge, Edna Bernier, Louise Spencer, Misty Crompton, John Keegan, Kent Hackmann, Catherine Corkery, and Carla Bilingham

Who is neutral on the bill: Keen Meng Wong, and Josh Elliott

Summary of testimony presented in support:

Senator David Watters

Senate District 4

- Senator David Watters introduced Senate Bill 167-FN.
- Senator Watters stated that besides offshore wind energy, hydrogen energy is likely to be one of the largest and transformative energy sources in the future.

- Senator David Watters stated the benefits of hydrogen energy; it has a vast potential for power generation, industrial uses which need a high energy fuel, and for transportation such as interstate trucking.
- Senator Watters stated that there are rapid technological advancements that make electrolyzing hydrogen cheaper.
- Senator Watters stated that the rapid technological advancements are a result of highlevel investments by governments and energy companies, which means the competitive prices are due to make hydrogen energy extremely competitive.
- Senator Watters stated that this bill would make New Hampshire ready for hydrogen energy.
- Senator Watters stated that hydrogen energy can be utilized in New Hampshire as a storage fuel for offshore wind.
- Senator Watters stated that marine hydrogen is becoming a popular fuel source for boats.
- Senator Watters stated that hydrogen energy has the potential to replace coal generators and other expensive fuel sources in New Hampshire.
- Senator Watters stated that Senate Bill 167-FN is modeled on similar legislation other states have passed.
- Senator Watters noted that the definitions in SB 167-FN need some work. Some of the definitions that need to be changed are: the blending of hydrogen into natural gas, the use of excess heat generation from existing power plants, and the definition of hydrogen to an industry standard like non carbon sources.
- Senator Watters stated that SB 167-FN would provide a tax credit against the business profits tax to produce green hydrogen by a green hydrogen facility.
- Senator Watters stated that currently hydrogen is permitted and evaluated by a local fire marshal, SB 167-FN would dictate the state fire marshal to oversee in conjecture with the local fire marshal to monitor and permit hydrogen used for fuel sources.
- Senator Watters noted that SB 167-FN would establish a hydrogen energy advisory council, which would work with the state and utilities to oversee legislative efforts at the agency level and the legislative and executive levels.
- Senator Watters stated that page 3 of SB 167-FN would establish barriers for hydrogen energy.
- Senator Watters stated that New Hampshire needs to be open to business for new and innovative kinds of energy.

James Andrews

President and CEO, Granite Shore Power

- James Andrews stated that Granite Shore Power is a wholesale electric generator.
- Mr. Andrews stated that his company has 11 diverse fuel generators in New Hampshire.
- Mr. Andrews stated that his generators are essential-power-generators to-ISO New England.
- Mr. Andrews stated that GSP strongly supports an energy transition to hydrogen power.
- Mr. Andrews stated that it is crucial for New Hampshire to invest capital in local energy producers and support infrastructure projects.

- Mr. Andrews stated that New Hampshire has a favorable tax climate to attract businesses for future infrastructure projects.
- Mr. Andrews stated that GSP strongly supports the hydrogen advisory committee established in SB 167-FN.

Jim Monahan

The Dupont Group

- Jim Monahan stated that he supports SB 167-FN but the definitions are too broad.
- Mr. Monahan explained that he would like to see New Hampshire's definition of hydrogen in line with the federal government's definition.
- Mr. Monahan stated that if the definitions in SB 167-FN are left as broad as they currently are, then New Hampshire may lose out on capital investment opportunities.

Summary of testimony presented in opposition: None

Neutral Information Presented:

Keen Meng Wong

Department of Revenue Administration

- Keen Meng Wong stated that the Department of Revenue Administration has no
 position on Senate Bill 167-FN, but there are portions that concern the DRA like the tax
 credit.
- Mr. Meng Wong stated that one of the concerns of the DRA is on page 3. The DRA
 would like a number or ratio listed per each credit as well as a definition for a
 qualifying cost.
- Mr. Meng Wong stated that the DRA would like to see language that includes a triggering point for when a tax credit can be claimed by a company.
- Mr. Meng Wong stated that the DRA also has an issue with the effective date in relation to a taxable period. The DRA would like the effective date to take place at the start of a taxable period.

Josh Elliott

Director of Policy and Programs, Department of Energy

- Josh Elliott stated that the Department of Energy has a concern with Senate Bill 167-FN.
- Mr. Elliott stated that the department has a concern with the make-up of the advisory committee. As SB 167-FN currently reads one seat on the committee goes to the director of the Public Utilities Commission and one seat goes to the chair of the site evaluation committee, they are the same person so the that would give one person the power of two votes.

NPL

Speakers

Senate Energy and Natural Resources Committee SIGN-IN SHEET

ate: 2/2/2023

Time: 1:30 p.m.

SB 167-FN AN ACT relative to green hydrogen energy and infrastructure

Name/Representing (please print neatly)					
Den David Watters (SO 4)	Support 🔽	Oppose	Speaking?	Yes/	No □_
Marc Brown Consumer Energy Alliging	Support.	Oppose	Speaking?	Yes	No □
Josh Elliott	Support	Oppose	Speaking?	Yes 🔀	No
Sam Evans-Bour	Support	Oppose	Speaking?	Yes	No W
JAMES ANDREWS	Support	Oppose	Speaking?	Yes	No 🗆
Keen Meng Wong	Support	Oppose	Speaking?	Yes	No
Som Evans Boun JAMES ANDREWS Keen Meng Wong Jim Manahan The Dypant Grap Jol Herrison, Rewild Remark	Support	Oppose	Speaking?	Yes	No
Doe Herrison, Rewild Renauch	Support (Oppose	Speaking?	Yes	No
	Support	Oppose	Speaking?	Yes	No
	Support	Oppose	Speaking?	Yes	No
	Support	Oppose	Speaking?	Yes	No
	Support	Oppose	Speaking?	Yes	No
	Support	Oppose	Speaking?	Yes	No
	Support	Oppose	Speaking?	Yes	No
	Support	Oppose	Speaking?	Yes	No
	Support	Oppose	Speaking?	Yes	No
	Support	Oppose	Speaking?	Yes	No □
	Support	Oppose	Speaking?	Yes	No
· ·	Support	Oppose	Speaking?	Yes	No □

Senate Remote Testify

Energy and Natural Resources Committee Testify List for Bill SB167 on 2023-02 Support: 11 Oppose: 25

Name	<u>Title</u>	Representing	<u>Position</u>
Smith, Hayden	A Member of the Public	Myself	Support Support
Smith, Julie	A Member of the Public	Myself	Oppose
Rosenwald, Cindy	An Elected Official	SD 13	Support
soucy, donna	An Elected Official	SD 18	Support
Liebowitz, Susan	A Member of the Public	Myself	Oppose
Richman, Susan	A Member of the Public	Myself	Oppose
Saum, Judith	A Member of the Public	Myself	Support
Southard, Barbara	A Member of the Public	Myself	Support
Thomas, A	A Member of the Public	Myself	Oppose
Grossi, Anne	A Member of the Public	Myself	Support
Coon, Kate	A Member of the Public	Myself	Support
Torpey, Jeanne	A Member of the Public	Myself	Oppose
Perkins Kwoka, Senator Rebecca	An Elected Official	Myself '	Support
Jones, Andrew	A Member of the Public	Myself	Oppose
Devore, Gary	A Member of the Public	Myself	Oppose
Damon, Claudia	A Member of the Public	Myself	Oppose
Brennan, Nancy	A Member of the Public	Myself	Oppose
Martin, Patricia	A Member of the Public	Myself	Oppose
ore, Susan	A Member of the Public	Myself	Oppose
_ Martin, tom	A Member of the Public	Myself	` Oppose
Cote, Lois	A Member of the Public	Myself	Oppose
Johnson, Judith	A Member of the Public	Myself	Oppose
Davis, Gregory	A Member of the Public	Myself	Oppose
Englund, Alfrieda	An Elected Official	Myself	Oppose
Rettew, Ann	A Member of the Public	Myself	Oppose
Fudge, Kim Marie	A Member of the Public	Myself	Oppose
Bernier, Edna	A Member of the Public	Myself	Oppose
longley, margaret	A Member of the Public	Myself	Support
Spencer, Louise	A Member of the Public	Myself	Oppose
Crompton, Misty	A Member of the Public	Myself	Oppose
Brown, Marc	A Lobbyist	Consumer Energy alliance	Support
Keegan, John	A Member of the Public	Myself	Oppose
Fenton (SD 10), Senator Donovan	An Elected Official	Myself	Support
Hackmann, Kent	A Member of the Public	Myself	Oppose
Corkery, Catherine	A Lobbyist	NH Sierra Club	Oppose
Billingham, Carla	A Member of the Public	Myself	Oppose

Testimony

NH SENATE ENERGY AND NATURAL RESOURCES COMMITTEE SENATE BILL 167-FN-LOCAL COMMITTEE HEARING FEBRUARY 2, 2023

PREPARED REMARKS

INTRODUCTION

Good afternoon, Chairman Avard and Committee Members. My name is James Andrews, and I am President and CEO of Granite Shore Power testifying in support of Senate Bill 167.

ABOUT GRANITE SHORE POWER

Granite Shore Power is a wholesale electric generator providing over one gigawatt of seasonal and peaking electric generation from its eleven fuel-diverse generating stations located throughout New Hampshire.

Granite Shore Power has operated these facilities since its acquisition of the assets from Public Service Company of New Hampshire in 2018 following the state mandated divestiture.

Granite Shore Power's generating stations are essential resources within ISO-New England, assuring reliable electricity to the families and businesses of New Hampshire when needed most.

From our earliest days, GSP's message has been consistent and clear. Our generating fleet can be depended on whether on our coldest nights or hottest days, and we serve as an essential and safe bridge to the next generation of energy resources in New Hampshire.

We strongly support such a transition, and will play our important role providing power to businesses and families in our region during that process.

We encourage a constructive dialogue about how best to achieve our shared decarbonization goals and advancing a renewable <u>and reliable</u> energy infrastructure for the New England region.

If New Hampshire is going to benefit from energy transition and renewable energy opportunities — not only decarbonization efforts but also economic growth — it is imperative that state encourage capital be invested directly in New Hampshire to support infrastructure projects.

New Hampshire is well suited to take advantage of its highly qualified trade professionals and educational institutions, and its favorable tax climate, to compete for the businesses that will support projects; and most importantly, its existing major infrastructure necessary to transition the region to the next generation of energy resources and drive New Hampshire commerce.

SUPPORT FOR BILL

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We commend the Sponsor and Co-Sponsors for putting SB 167 forward, and we strongly support it.

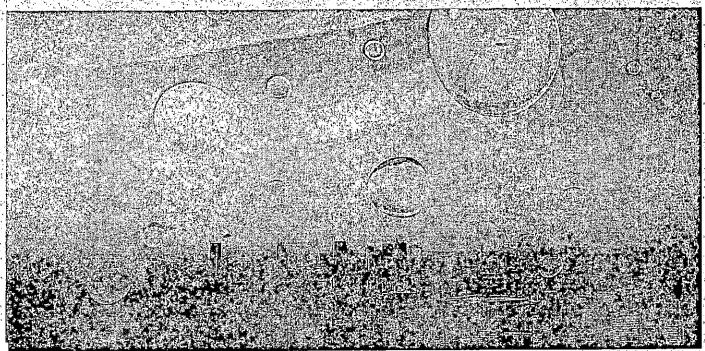
This bill will help New Hampshire lead the way enabling energy and infrastructure projects that are truly transformative. Moreover, establishing an Advisory Committee that actively engages the private sector – and will recommend sound policies – is the right thing to do.

That Committee will consider legislation that will incentivize new investments we need, and optimize siting to adjacent existing infrastructure. It is critical that this work begin now, so we are not disadvantaged by other states acting more aggressively.

We should lead in this area, and this bill will help New Hampshire do just that.

Thank you for the opportunity to share our views.

Feb 02, 2023. | Print Edition. | Video Economy, Business Tech Markets Opinion Life & Arts Real Estate WSJ Magazine



Can e-Fuels Drive the Hydrogen Revolution?

Clean and carbon-neutral, e-fuels are a direct substitute for fossil fuels.

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There is no doubt that hydrogen is emerging as an important player in the battle against climate change. The International Energy Agency describes hydrogen as a key pillar of decarbonization for industry and has compiled a database of close to 1,000 low-carbon hydrogen projects. The market for green, or zero-emission, hydrogen alone is forecast to grow from \$444 million in 2021 to almost \$4.4 billion by 2026—a compound annual growth rate of 58%3.

The challenge will be to convert this palpable enthusiasm into practical applications. It is true that hydrogen has been worked with for decades and that the technology required to produce it without carbon-dioxide emissions is relatively proven. But it has yet to be successfully scaled. Also, the comprehensive value chain required—spanning production, transport, storage and utilization—is in its very early stages.

Scaling Up a New Asset Class

"Green hydrogen is a new asset class," says Elena Robciuc, a Houston-based managing director of the Energy+ Group at Societe energie. "This is tremendously exciting for both developers and financiers; but alongside the opportunity there are also challenges."

Feb 02, 2023 | Print Edition | Video

World U.S. Politics Economy Business Tech Markets Opinion Life & Arts Real Estate WSJ, Magazine





E-fuels are a clean, carbon-neutral, direct sul fuels.

Even if it does, current global electrolyzer manufacturing capacity is below 10 gigawatts a year, while above can be as large as 2 gigawatts to 5 gigawatts each. Consequently, every developer is scrambli production, notes Ms. Robciuc

Beyond that, hydrogen is hard to work with: the molecule is so small and light that it is difficult to co require expensive new infrastructure to be built—from salt caverns for storage to pipelines and shi

One solution to increase hydrogen transportation and storage efficiency is to cool the hydrogen fro reduces its volume by 800 times; however, the hydrogen must be refrigerated to negative 423 degre**RELATED CONTENT ROW** significant energy.

OUR SPONSOR

Chile and the Rise of Sustainability-Linked Finan

Refine and Apply

A much better solution is to convert hydrogen into other products. These include so-called electrofuels, or e-fuels. Meg Gentle, executive director of HIF Global, a startup in this sector that is being advised by Societe Generale, says: "E-fuels are a clean, carbonneutral, direct substitute for fossil fuels that are made of green hydrogen and recycled CO2. E-fuels are produced using proven technologies and can be used in today's cars, trucks, ships, and airplanes without modifications." This makes e-fuels a practical and immediate way to reduce carbon emissions, ahead of tightening standards—such as those being imposed in California—and longer term solutions.

The hurdle, to date, has been cost. This is what makes the recently passed U.S. Inflation Reduction Act (IRA)4 a game changer. Not only does it contain a massive \$370 billion of clean energy incentives and tax credits, for developers of low-carbon hydrogen and efuel projects, there is the potential to combine multiple tax incentives together. Beyond that, they may even be able to monetize carbon credits generated in the process.

Roughly, that means a U.S. green hydrogen producer could receive up to \$3 a kilogram in incentives - a meaningful amount as they work to reduce costs from around \$6 a kilogram currently to the \$2 a kilogram or so which many experts see as the level needed to achieve marker competitiveness and hence real scale. The IRA has the potential to turn marginal clean hydrogen and e-fuels developments profitable, and we therefore see it as a very strong catalyst for this industry," says Ms. Robcluc.

To counteract this more muscular U.S. industrial policy, the European Union is considering simplifying its own state aid rules in a bid to continue to attract clean-energy investments.





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Putting a Project Together

Sound economics and the ability to overcome technical challenges are of course essential, but such projects also need other elements to be successful. Foremost among these is a long-term agreement with an offtaker willing to buy all or most of the future production. With an offtaker in place, a developer is able to attract financing on attractive terms. HIF Global, for example, is selling the output of its first plant in Chile into the European markets, primarily Germany, given the price premium that Europeans are willing to pay for clean fuels.

The financing part of the overall equation requires a management team that investors, lenders, customers and, indeed, regulators have confidence in. "We feel confident that the same approach that has successfully unlocked the investment required to build a 400 million ton per annum Liquified Natural Gas (LNG) industry can be implemented to roll out the infrastructure for the required millions of tons of e-fuels," says Ms. Gentle.

Societe Generale, one of the key financial advisors in the U.S. LNG market, is alming to play the same lead role with this new asset class as it supports its clients in driving the energy transition.

Sources:



- 1. IEA Global Hydrogen Review
- 2. IEA Hydrogen Projects Database
- 3. Markets and Markets
- 4. Inflation Reduction Act

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February 2, 2023

Senate Energy and Natural Resources Committee New Hampshire State House 107 N. Main St. Room 103 Concord, NH 03301

RE: NEUTRAL - SB 167 Relative to Green Hydrogen Energy and Infrastructure

Dear Chair Avard, Vice Chair Pearl, and the Distinguished Members of the Senate Committee on Energy and Natural Resources,

On behalf of the United States Hydrogen Alliance (USHA), I write today to express our neutral position on SB 167. USHA is comprised of original equipment manufacturers, technology providers, and public entities that are focused on the accelerated deployment of hydrogen and fuel cell technologies in the commercial and industrial sectors, including fuel cell electric vehicles in hard-to-electrify applications like trucking, busing, locomotive, aviation, maritime, and off-road equipment. Our organization assists states in developing impactful hydrogen and fuel cell policies across the country.

Hydrogen is a critical feature of a decarbonized energy and transportation future. USHA thanks Senator Watters for recognizing a need to incorporate hydrogen into the state's energy strategy. We appreciate working closely with the Senator's office to ensure the State of New Hampshire successfully builds a new energy economy, in addition to supporting existing energy and transportation endeavors.



We sincerely appreciate the opportunity to provide comment to the committee. Please do not hesitate to reach out to me at (818) 642-8064 and via email, at roxana@ushydrogenalliance.org if there are any questions, concerns, or general interest in understanding the full possibilities of hydrogen and fuel cells in the commercial and industrial sectors.

Very sincerely,

Roxana Bekemohammadi

Founder & Executive Director

United States Hydrogen Alliance

K. Bekenshammadi

Complete Document

Can Be Viewed

In Bill Folder



Incentives for Clean Hydrogen Production in the Inflation Reduction Act

This report analyzes the impacts of two tax credits on the costs of hydrogen production models from the National Renewable Energy Laboratory.

Date

Nov. 9, 2022

Authors

Alan Krupnick and Aaron Bergman

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Voting Sheets

Senate Energy and Natural Resources Committee EXECUTIVE SESSION RECORD 2023-2024 Session

	Bill # 80 167- FN			
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Senate Energy and Natural Resources Committee EXECUTIVE SESSION RECORD

2023-2024 Session

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Senate Finance Committee EXECUTIVE SESSION

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Committee Report

STATE OF NEW HAMPSHIRE

SENATE

REPORT OF THE COMMITTEE FOR THE CONSENT CALENDAR

Tuesday, February 7, 2023

THE COMMITTEE ON Energy and Natural Resources

to which was referred SB 167-FN-LOCAL

AN ACT

relative to green hydrogen energy and infrastructure.

Having considered the same, the committee recommends that the Bill

OUGHT TO PASS WITH AMENDMENT

BY A VOTE OF: 5-0

AMENDMENT # 0407s

Senator David Watters For the Committee

Senate Bill 167-FN provides the framework for green hydrogen infrastructure in New Hampshire. SB 167-FN adds green hydrogen facilities and infrastructure to renewable electric generation. By adding green hydrogen energy into renewable electric generation, it provides fuel diversity, establishes a green hydrogen business tax and property tax program reduction program, and establishes a green hydrogen advisory committee established in the department of energy. Additionally, the committee amendment establishes a clear definition for green hydrogen. SB 167-FN paves the way for New Hampshire to begin to incorporate new forms and innovations in energy.

Nikolas Liamos 271-7875

FOR THE CONSENT CALENDAR

ENERGY AND NATURAL RESOURCES

SB 167-FN-LOCAL, relative to green hydrogen energy and infrastructure. Ought to Pass with Amendment, Vote 5-0. Senator David Watters for the committee.

Senate Bill 167-FN provides the framework for green hydrogen infrastructure in New Hampshire. SB 167-FN adds green hydrogen facilities and infrastructure to renewable electric generation. By adding green hydrogen energy into renewable electric generation, it provides fuel diversity, establishes a green hydrogen business tax and property tax program reduction program, and establishes a green hydrogen advisory committee established in the department of energy. Additionally, the committee amendment establishes a clear definition for green hydrogen. SB 167-FN paves the way for New Hampshire to begin to incorporate new forms and innovations in energy.

STATE OF NEW HAMPSHIRE

SENATE

REPORT OF THE COMMITTEE

Wednesday, February 15, 2023

THE COMMITTEE ON Finance

to which was referred SB 167-FN-LOCAL

AN ACT

relative to green hydrogen energy and infrastructure.

Having considered the same, the committee recommends that the Bill

OUGHT TO PASS

BY A VOTE OF: 7-0

Senator Cindy Rosenwald For the Committee

Deb Martone 271-4980

8/16/23, 2:31 PM Bill_Status

General Court of New Hampshire - Bill Status System

Docket of SB167

Docket Abbreviations

Bill Title: relative to green hydrogen energy and infrastructure.

Official Docket of SB167.:

Date	Body	Description
1/20/2023	S	Introduced 01/19/2023 and Referred to Energy and Natural Resources; SJ 5
1/25/2023	S .	Hearing: 02/02/2023, Room 103, SH, 01:30 pm; SC 8
2/7/2023	S	Committee Report: Ought to Pass with Amendment #2023-0407s, 02/09/2023; Vote 5-0; CC; SC 9A
2/9/2023	S	Committee Amendment #2023-0407s, AA, VV; 02/09/2023; SJ 6
2/9/2023	S	Ought to Pass with Amendment 2023-0407s, MA, VV; Refer to Finance Rule 4-5; 02/09/2023; SJ 6
2/15/2023	S	Committee Report: Ought to Pass, 02/22/2023; SC 11
2/22/2023	S	Ought to Pass: MA, VV; OT3rdg; 02/22/2023; SJ 8
3/20/2023	Н	Introduced (in recess of) 03/16/2023 and referred to Science, Technology and Energy
3/28/2023	Н	Public Hearing: 04/10/2023 10:30 am LOB 302-304
4/11/2023	Н	Full Committee Work Session: 04/17/2023 01:00 pm LOB 302-304
4/11/2023	Н	Executive Session: 04/18/2023 09:00 am LOB 302-304
4/25/2023	Н	Majority Committee Report: Inexpedient to Legislate SB167-FN-LOCAL 04/18/2023 (Vote 11-9; RC)
4/25/2023	Н	Minority Committee Report: Ought to Pass
5/4/2023	Н	Inexpedient to Legislate: MA DV 187-186 05/04/2023 HJ 13 P. 44

NH House	NH Senate
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General Court of New Hampshire - Bill Status System

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4/25/2023	Н	Minority Committee Report: Ought to Pass
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