Decarbonization Analysis For The Vermont Legislative Joint Fiscal Office

1. ***Parties.*** This is a contract for services ("Contract") between the State of Vermont, Legislative Joint Fiscal Office (hereafter called "State" or "JFO"), and Resources for the Future (RFF), 1616 P St. NW, Washington, D.C. 20036, (hereafter called "Contractor"). It is the Contractor's responsibility to contact the Vermont Department of Taxes to determine if, by law, the Contractor is required to have a Vermont Department of Taxes Business Account Number.

2. ***Subject Matter.*** The subject matter of this Contract is personal services generally on the subject of providing an analysis of decarbonization methods in Vermont. The Contractor is expected to provide the services outlined in the Request for Proposals for "Providing an Analysis of Decarbonization Methods in Vermont" dated July 2, 2018, ("RFP") and the July 20, 2018, response titled "A Proposal in Response To RFP on Providing an Analysis of Decarbonization Methods in Vermont" ("Response") submitted by Contractor. Detailed services to be provided are described in Attachment A.

3. ***Maximum Amount.*** In consideration of the services to be performed by Contractor, the State agrees to pay Contractor, in accordance with the payment provisions specified in Attachment B, a sum not to exceed $119,961.00.

4. ***Contract Term.*** The period of Contractor's performance shall begin on August 13, 2018 and end on March 1, 2019.

5. ***Approvals.*** Under Title 3 Section 311(a)(8), approvals are not required from the Attorney General.

6. ***Entire Agreement.*** This Contract, including the RFP, the Response, and any attachments, represents the entire agreement between the Parties. If there is any conflict or inconsistency between the Contract and the RFP or Response, the order of preference will be the Contract and attachments, the RFP, the Response, and any amendments.

7. ***Amendment.*** No changes, modifications, or amendments in the terms and conditions of this Contract shall be effective unless reduced to writing, numbered and signed by the authorized representative of the State and Contractor. Any change to the deliverable dates set forth in Attachment A shall be considered an amendment to the agreement.

8. ***Cancellation.*** This Contract may be cancelled by either party by giving written notice at least thirty (30) days in advance. In the event of cancellation the parties will negotiate payments for work and related obligations through the cancellation date.

9. ***Confidentiality.*** In performance of the Contract, the Contractor may have access to information, communications, or data that are confidential under Vermont law 2 V.S.A. § 502(b)(2), 2 V.S.A. § 404(c), or as otherwise confidential by state or federal law. The Contractor shall be required to maintain the confidentiality of any information accessed in its performance of the Contract. All requests to the Contractor for information acquired under the Contract shall be referred to the State.

10. ***Disclosure Agreement.*** Under this Contract, the Contractor shall not release, disclose, or make a statement to third persons, including but not limited to the media, data, information, files,

documents, or other materials generated, compiled, or maintained in connection with this Contract. After the term of the Contract has ended, Contractor agrees not to disclose any such information clearly marked as "confidential" by JFO for as long as the information remains unpublished. However, Contractor may disclose information that is already in the public domain or subsequently enters the public domain through no fault of Contractor.

11. ***Use of Name.*** Contractor and State shall obtain written permission from each other before using the name, symbols, and/or marks of the other in any form of advertising in connection with this Contract or the services provided hereunder. This shall not include legally required disclosure by Contractor or State that identifies the existence of the Contract.

12. ***Rights in Document and Data.*** The Contractor agrees that the data, reports, studies, and specifications prepared by the Contractor under the terms of this Contract shall be the joint property of the Contractor and the State upon termination or completion of the work. The State shall have the right to use all work products without restriction or limitation and without compensation to the Contractor other than that provided for in this Contract.

13. ***Limitation on Indemnification; Liability.*** State has no legal authority to indemnify Contractor.

14. ***Attachments.*** This Contract consists of twenty-two (22) pages including the following attachments that are incorporated herein:

Attachment A – Specifications of work to be performed.
Attachment B – Payment provisions.
Attachment C – "Standard State Provisions for Contracts and Grants," a preprinted form
Attachment D – Enacted language
Attachment E – Proposal Submitted by RFF July 20, 2018

WE THE UNDERSIGNED PARTIES AGREE TO BE BOUND BY THIS CONTRACT

By the State of Vermont:

Date: 8/15/18

Signature: [signature]

Name: Stephen Klein, Chief Fiscal Officer, Vermont Legislative Joint Fiscal Office

By the Contractor

Date: 8/15/2018

Signature: [signature]

Name: Terri O'Brien, VP Finance and Administration, RFF

ATTACHMENTS

ATTACHMENT A: SPECIFICATIONS OF WORK TO BE PERFORMED

ATTACHMENT B: PAYMENT PROVISIONS

ATTACHMENT C: STANDARD STATE PROVISIONS FOR CONTRACTS AND GRANTS
REVISED DECEMBER 15, 2017

ATTACHMENT D: ENACTED LANGUAGE

ATTACHMENT E: PROPOSAL SUBMITTED BY RFF July 20, 2018

ATTACHMENT A - SPECIFICATIONS OF WORK TO BE PERFORMED

The subject matter of this Contract is personal services generally on the subject of providing an analysis of decarbonization methods in Vermont.

SCOPE OF WORK

1. DESCRIPTION OF SERVICES. Act 11 of the 2018 Special Session requires that the Joint Fiscal Committee shall contract for independent professional assistance to analyze the costs and benefits for Vermont of adopting and implementing policies to reduce greenhouse gas (GHG) emissions caused by Vermont's consumption of fossil fuels. (See Attachment D for the specific enacted language.)

The analysis shall include the comparative ability or potential of the policies to address the following broad goals:

1. Achieve reductions in GHG emissions
2. Spur economic development in the State
3. Encourage innovation in the State
4. Cause shifts in employment, including job creation, job loss, and sectors affected
5. Affect the cost of living in Vermont

The analysis will also consider how the given policies will affect State revenues, sources of energy used, different end-use sectors of the economy, and the distribution of costs and benefits across different household income groups.

The analysis will look at the economic and environmental effects resulting directly from the pricing and regulatory approaches (Vermont-only and regional implementation) listed below, as well as the effects of how any revenues generated from such approaches are allocated. This includes possible rebate or distribution options connected with a pricing approach to mitigate some of the hardship for low-income and/or rural Vermonters.

- Pricing approaches
    - Fee-invest-and-tax-cuts as in H.412 (2015)
    - Fee-and-income tax reform as in H.528 (2017)
    - Fee-and-dividend as in H.531 (2017) – The Vermont Case for Carbon Dividends
    - Fee-and-property tax reform as in H.532 (2017)
    - Fee-and-sales tax reform as in H.533 (2017)
    - Fee-and-rebate as in H.791 or S.284 (2018) – The ESSEX Plan

- Regulatory approaches
    - Expanding cap-and-trade if Vermont joined the Western Climate Initiative (WCI)
    - Expanding cap-and-trade if RGGI covered transportation fuels as considered in the Transportation and Climate Initiative (TCI)

The approaches to be analyzed quantitatively will be agreed upon by the parties, with a minimum of four approaches to be analyzed quantitatively.

The core analysis will be done with a newly developed dynamic multi-region multi-sector model with supplemental and complementary analysis from three other models.

In addition to these quantitative analyses, the contractor shall also provide a qualitative discussion of alternative methods for reducing GHG emissions caused by Vermont's consumption of fossil fuels. Those alternative methods will include the pricing and regulatory approaches listed above that are not analyzed quantitatively as well as some non-pricing and non-cap-and-trade approaches such as increased conservation measures and other alternatives.

The contractor will work to ensure that its analysis is produced, to the extent possible, in a transparent and understandable fashion that can inform legislators and Vermonters generally who are closely following the carbon emissions discussion and in a manner that can be the base for future evaluative efforts. The success of this work will be judged on its technical merit as well as on its transparent and understandable presentation. For example, the contractor will develop various groups (e.g., households by income category or urban/rural location, businesses by firm size) and perhaps case studies of sample families and companies to the extent possible.

2. DELIVERABLES

The contractor shall use its models to prepare a written Final Report that summarizes the work they have performed. In addition, the contractor shall prepare status updates and engage with the Vermont community.

Deliverables include the following:

- 2.1 Status update via a call with JFO every other week or as needed until the final report is complete.
- 2.2 Report outline and full progress report on all modeling on or before October 15, 2018.
- 2.3 Draft report on or before December 10, 2018.
- 2.4 Final report, outcomes, and spreadsheet model on or before January 15, 2019.
- 2.5 Public Meetings and presentations between January 15 and February 15, 2019.
- 2.6 Additional analysis of approaches up through February 15, 2021.

The report shall include an executive summary as well as more detailed discussion of the work done including each requirement as defined in the Scope of Work.

The State shall determine whether the status updates, draft report, and final report are acceptable based on the following criteria: Timeliness, breadth and depth of material covered, clarity, and meeting the requirements of the Statement of Work.

During September 2018, the contractor will conduct at least two public meetings in person to inform stakeholders of the context of the decarbonization methods project. Between January 15 and February 15, 2019, the contractor will be available for up to three days for presentations of the report to legislative committees and other stakeholders and the public.

At the conclusion of the Final Report, the contractor will deliver to JFO the spreadsheet of outcomes and the spreadsheet model. For two years following the conclusion of the Final Report, Contractor will provide output from model runs (no modifications) to Vermont at no cost. Vermont may ask for additional modeling of approaches with limited modifications such as alternative price paths or coverage at no cost.

ATTACHMENT B - PAYMENT PROVISIONS

1. **Maximum Allowable Amount.** In consideration of work performed under this Contract, the State agrees to pay the Contractor a sum not to exceed $119,961.00, which is inclusive of all direct, indirect, travel, and other expenses.

2. **Payment Schedule.** Upon acceptable completion of each deliverable, the payment schedule shall be as follows:
   Payment for milestones completed:

1.	Contract signed	$ 15,000
2.	Outline (on or before Oct 15, 2018)	$ 20,000
3.	Draft Report (on or before Dec 10, 2018)	$ 25,000
4.	Final Report (on or before Jan 15, 2019)	$ 30,000
5.	Project Completion (on or before Mar 1, 2019)	$ 29,961

3. **Payment Terms.**

   2. Invoices. The Contractor shall be paid based on documentation and itemization of work performed and included in invoicing. All invoices presented for payment under this Contract shall be fully itemized and shall contain sufficient detail of services, including a summary of work done and hours worked by staff member. Charges by the Contractor for late payment of invoices are prohibited.

   3. Payment Terms. The Contractor shall be paid no later than 30 days after receipt of an invoice. Any services outside the Contract shall not be allowed. The State shall not be responsible for any unauthorized expenses of the Contractor. The payment of an invoice by the State does not prejudice the right of the State to object to or question that invoice or any other invoice or matter in relation thereto. The State may reduce any payment to adjust for an overpayment or may increase a payment to account for an underpayment on subsequent invoices.

Invoices should be rendered to Joyce Manchester and Daniel Dickerson:

Joint Fiscal Office
1 Baldwin Street
Montpelier, VT 05633-5301

ATTACHMENT C: STANDARD STATE PROVISIONS FOR CONTRACTS AND GRANTS

REVISED DECEMBER 15, 2017

1. Definitions: For purposes of this Attachment, "Party" shall mean the Contractor, Grantee or Subrecipient, with whom the State of Vermont is executing this Agreement and consistent with the form of the Agreement. "Agreement" shall mean the specific contract or grant to which this form is attached.

2. Entire Agreement: This Agreement, whether in the form of a contract, State-funded grant, or Federally-funded grant, represents the entire agreement between the parties on the subject matter. All prior agreements, representations, statements, negotiations, and understandings shall have no effect.

3. Governing Law, Jurisdiction and Venue; No Waiver of Jury Trial: This Agreement will be governed by the laws of the State of Vermont. Any action or proceeding brought by either the State or the Party in connection with this Agreement shall be brought and enforced in the Superior Court of the State of Vermont, Civil Division, Washington Unit. The Party irrevocably submits to the jurisdiction of this court for any action or proceeding regarding this Agreement. The Party agrees that it must first exhaust any applicable administrative remedies with respect to any cause of action that it may have against the State with regard to its performance under this Agreement. Party agrees that the State shall not be required to submit to binding arbitration or waive its right to a jury trial.

4. Sovereign Immunity: The State reserves all immunities, defenses, rights or actions arising out of the State's sovereign status or under the Eleventh Amendment to the United States Constitution. No waiver of the State's immunities, defenses, rights or actions shall be implied or otherwise deemed to exist by reason of the State's entry into this Agreement.

5. No Employee Benefits For Party: The Party understands that the State will not provide any individual retirement benefits, group life insurance, group health and dental insurance, vacation or sick leave, workers compensation or other benefits or services available to State employees, nor will the State withhold any state or Federal taxes except as required under applicable tax laws, which shall be determined in advance of execution of the Agreement. The Party understands that all tax returns required by the Internal Revenue Code and the State of Vermont, including but not limited to income, withholding, sales and use, and rooms and meals, must be filed by the Party, and information as to Agreement income will be provided by the State of Vermont to the Internal Revenue Service and the Vermont Department of Taxes.

6. Independence: The Party will act in an independent capacity and not as officers or employees of the State.

7. Defense and Indemnity: The Party shall defend the State and its officers and employees against all third party claims or suits arising in whole or in part from any act or omission of the Party or of any agent of the Party in connection with the performance of this Agreement. The State shall notify the Party in the event of any such claim or suit, and the Party shall immediately retain counsel and otherwise provide a complete defense against the entire claim or suit. The State retains the right to participate at its own expense in the defense of any claim. The State shall have the right to approve all proposed settlements of such claims or suits.

After a final judgment or settlement, the Party may request recoupment of specific defense costs and may file suit in Washington Superior Court requesting recoupment. The Party shall be entitled to recoup costs only upon a showing that such costs were entirely unrelated to the defense of any claim arising from an act or omission of the Party in connection with the performance of this Agreement.

The Party shall indemnify the State and its officers and employees if the State, its officers or employees become legally obligated to pay any damages or losses arising from any act or omission of the Party or an agent of the Party in connection with the performance of this Agreement.

Notwithstanding any contrary language anywhere, in no event shall the terms of this Agreement or any document furnished by the Party in connection with its performance under this Agreement obligate the State to (1) defend or indemnify the Party or any third party, or (2) otherwise be liable for the expenses or reimbursement, including attorneys' fees, collection costs or other costs of the Party or any third party.

8. Insurance: Before commencing work on this Agreement the Party must provide certificates of insurance to show that the following minimum coverages are in effect. It is the responsibility of the Party to maintain current certificates of insurance on file with the State through the term of this Agreement. No warranty is made that the coverages and limits listed herein are adequate to cover and protect the interests of the Party for the Party's operations. These are solely minimums that have been established to protect the interests of the State.

Workers Compensation: With respect to all operations performed, the Party shall carry workers' compensation insurance in accordance with the laws of the State of Vermont. Vermont will accept an out-of-state employer's workers' compensation coverage while operating in Vermont provided that the insurance carrier is licensed to write insurance in Vermont and an amendatory endorsement is added to the policy adding Vermont for coverage purposes. Otherwise, the party shall secure a Vermont workers' compensation policy, if necessary to comply with Vermont law.

General Liability and Property Damage: With respect to all operations performed under this Agreement, the Party shall carry general liability insurance having all major divisions of coverage including, but not limited to:

Premises - Operations

Products and Completed Operations

Personal Injury Liability

Contractual Liability

The policy shall be on an occurrence form and limits shall not be less than:

$1,000,000 Each Occurrence

$2,000,000 General Aggregate

$1,000,000 Products/Completed Operations Aggregate

$1,000,000 Personal & Advertising Injury

Automotive Liability: The Party shall carry automotive liability insurance covering all motor vehicles, including hired and non-owned coverage, used in connection with the Agreement. Limits of coverage shall not be less than $500,000 combined single limit. If performance of this Agreement involves construction, or the transport of persons or hazardous materials, limits of coverage shall not be less than $1,000,000 combined single limit.

Additional Insured. The General Liability and Property Damage coverages required for performance of this Agreement shall include the State of Vermont and its agencies, departments, officers and employees as Additional Insureds. If performance of this Agreement involves construction, or the transport of persons or hazardous materials, then the required Automotive Liability coverage shall include the State of Vermont and its agencies, departments, officers and employees as Additional Insureds. Coverage shall be primary and non-contributory with any other insurance and self-insurance.

Notice of Cancellation or Change. There shall be no cancellation, change, potential exhaustion of aggregate limits or non-renewal of insurance coverage(s) without thirty (30) days written prior written notice to the State.

9. Reliance by the State on Representations: All payments by the State under this Agreement will be made in reliance upon the accuracy of all representations made by the Party in accordance with this Agreement, including but not limited to bills, invoices, progress reports and other proofs of work.

10. False Claims Act: The Party acknowledges that it is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 *et seq.* If the Party violates the Vermont False Claims Act it shall be liable to the State for civil penalties, treble damages and the costs of the investigation and prosecution of such violation, including attorney's fees, except as the same may be reduced by a court of competent jurisdiction. The Party's liability to the State under the False Claims Act shall not be limited notwithstanding any agreement of the State to otherwise limit Party's liability.

11. Whistleblower Protections: The Party shall not discriminate or retaliate against one of its employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act. Further, the Party shall not require such employees or agents to forego monetary awards as a result of such disclosures, nor should they be required to report misconduct to the Party or its agents prior to reporting to any governmental entity and/or the public.

12. Location of State Data: No State data received, obtained, or generated by the Party in connection with performance under this Agreement shall be processed, transmitted, stored, or transferred by any means outside the continental United States, except with the express written permission of the State.

13. Records Available for Audit: The Party shall maintain all records pertaining to performance under this agreement. "Records" means any written or recorded information, regardless of physical form or characteristics, which is produced or acquired by the Party in the performance of this agreement. Records produced or acquired in a machine readable electronic format shall be maintained in that format. The records described shall be made available at reasonable times during the period of the Agreement and for three years thereafter or for any period required by law for inspection by any authorized representatives of the State or Federal Government. If any litigation, claim, or audit is started before the expiration of the three-year period, the records shall be retained until all litigation, claims or audit findings involving the records have been resolved.

14. Fair Employment Practices and Americans with Disabilities Act: Party agrees to comply with the requirement of 21 V.S.A. Chapter 5, Subchapter 6, relating to fair employment practices, to the full extent applicable. Party shall also ensure, to the full extent required by the Americans with Disabilities Act of 1990, as amended, that qualified individuals with disabilities receive equitable access to the services, programs, and activities provided by the Party under this Agreement.

15. Set Off: The State may set off any sums which the Party owes the State against any sums due the Party under this Agreement; provided, however, that any set off of amounts due the State of Vermont as taxes shall be in accordance with the procedures more specifically provided hereinafter.

16. Taxes Due to the State:

1. Party understands and acknowledges responsibility, if applicable, for compliance with State tax laws, including income tax withholding for employees performing services within the State, payment of use tax on property used within the State, corporate and/or personal income tax on income earned within the State.
2. Party certifies under the pains and penalties of perjury that, as of the date this Agreement is signed, the Party is in good standing with respect to, or in full compliance with, a plan to pay any and all taxes due the State of Vermont.
3. Party understands that final payment under this Agreement may be withheld if the Commissioner of Taxes determines that the Party is not in good standing with respect to or in full compliance with a plan to pay any and all taxes due to the State of Vermont.
4. Party also understands the State may set off taxes (and related penalties, interest and fees) due to the State of Vermont, but only if the Party has failed to make an appeal within the time allowed by law, or an appeal has been taken and finally determined and the Party has no further legal recourse to contest the amounts due.

17. Taxation of Purchases: All State purchases must be invoiced tax free. An exemption certificate will be furnished upon request with respect to otherwise taxable items.

18. Child Support: (Only applicable if the Party is a natural person, not a corporation or partnership.) Party states that, as of the date this Agreement is signed, he/she:

1. is not under any obligation to pay child support; or
2. is under such an obligation and is in good standing with respect to that obligation; or
3. has agreed to a payment plan with the Vermont Office of Child Support Services and is in full compliance with that plan.

Party makes this statement with regard to support owed to any and all children residing in Vermont. In addition, if the Party is a resident of Vermont, Party makes this statement with regard to support owed to any and all children residing in any other state or territory of the United States.

19. Sub-Agreements: Party shall not assign, subcontract or subgrant the performance of this Agreement or any portion thereof to any other Party without the prior written approval of the State. Party shall be responsible and liable to the State for all acts or omissions of subcontractors and any other person performing work under this Agreement pursuant to an agreement with Party or any subcontractor.

In the case this Agreement is a contract with a total cost in excess of $250,000, the Party shall provide to the State a list of all proposed subcontractors and subcontractors' subcontractors, together with the identity of those subcontractors' workers compensation insurance providers, and additional required or requested information, as applicable, in accordance with Section 32 of The Vermont Recovery and Reinvestment Act of 2009 (Act No. 54).

Party shall include the following provisions of this Attachment C in all subcontracts for work performed solely for the State of Vermont and subcontracts for work performed in the State of Vermont: Section 10 ("False Claims Act"); Section 11 ("Whistleblower Protections"); Section 12 ("Location of State Data"); Section 14 ("Fair Employment Practices and Americans with Disabilities Act"); Section 16 ("Taxes Due the State"); Section 18 ("Child Support"); Section 20 ("No Gifts or Gratuities"); Section 22 ("Certification Regarding Debarment"); Section 30 ("State Facilities"); and Section 32.A ("Certification Regarding Use of State Funds").

20. No Gifts or Gratuities: Party shall not give title or possession of anything of substantial value (including property, currency, travel and/or education programs) to any officer or employee of the State during the term of this Agreement.

21. Copies: Party shall use reasonable best efforts to ensure that all written reports prepared under this Agreement are printed using both sides of the paper.

22. Certification Regarding Debarment: Party certifies under pains and penalties of perjury that, as of the date that this Agreement is signed, neither Party nor Party's principals (officers, directors, owners, or partners) are presently debarred, suspended, proposed for debarment, declared ineligible or excluded from participation in Federal programs, or programs supported in whole or in part by Federal funds.

Party further certifies under pains and penalties of perjury that, as of the date that this Agreement is signed, Party is not presently debarred, suspended, nor named on the State's debarment list at: http://bgs.vermont.gov/purchasing/debarment

23. Conflict of Interest: Party shall fully disclose, in writing, any conflicts of interest or potential conflicts of interest.

24. Confidentiality: Party acknowledges and agrees that this Agreement and any and all information obtained by the State from the Party in connection with this Agreement are subject to the State of Vermont Access to Public Records Act, 1 V.S.A. § 315 et seq.

25. Force Majeure: Neither the State nor the Party shall be liable to the other for any failure or delay of performance of any obligations under this Agreement to the extent such failure or delay shall have been wholly or principally caused by acts or events beyond its reasonable control rendering performance illegal or impossible (excluding strikes or lock-outs) ("Force Majeure"). Where Force Majeure is asserted, the nonperforming party must prove that it made all reasonable efforts to remove, eliminate or minimize such cause of delay or damages, diligently pursued performance of its obligations under this Agreement, substantially fulfilled all non-excused obligations, and timely notified the other party of the likelihood or actual occurrence of an event described in this paragraph.

26. Marketing: Party shall not refer to the State in any publicity materials, information pamphlets, press releases, research reports, advertising, sales promotions, trade shows, or marketing materials or similar communications to third parties except with the prior written consent of the State.

27. Termination:

1. **Non-Appropriation:** If this Agreement extends into more than one fiscal year of the State (July 1 to June 30), and if appropriations are insufficient to support this Agreement, the State may cancel at the end of the fiscal year, or otherwise upon the expiration of existing appropriation authority. In the case that this Agreement is a Grant that is funded in whole or in part by Federal funds, and in the event Federal funds become unavailable or reduced, the State may suspend or cancel this Grant immediately, and the State shall have no obligation to pay Subrecipient from State revenues.
2. **Termination for Cause:** Either party may terminate this Agreement if a party materially breaches its obligations under this Agreement, and such breach is not cured within thirty (30) days after delivery of the non-breaching party's notice or such longer time as the non-breaching party may specify in the notice.
3. **Termination Assistance:** Upon nearing the end of the final term or termination of this Agreement, without respect to cause, the Party shall take all reasonable and prudent measures to facilitate any transition required by the State. All State property, tangible and intangible, shall be returned to the State upon demand at no additional cost to the State in a format acceptable to the State.

28. Continuity of Performance: In the event of a dispute between the Party and the State, each party will continue to perform its obligations under this Agreement during the resolution of the dispute until this Agreement is terminated in accordance with its terms.

29. No Implied Waiver of Remedies: Either party's delay or failure to exercise any right, power or remedy under this Agreement shall not impair any such right, power or remedy, or be construed as a waiver of any such right, power or remedy. All waivers must be in writing.

30. State Facilities: If the State makes space available to the Party in any State facility during the term of this Agreement for purposes of the Party's performance under this Agreement, the Party shall only use the space in accordance with all policies and procedures governing access to and use of State facilities which shall be made available upon request. State facilities will be made available to Party on an "AS IS, WHERE IS" basis, with no warranties whatsoever.

31. Requirements Pertaining Only to Federal Grants and Subrecipient Agreements: If this Agreement is a grant that is funded in whole or in part by Federal funds:

1. **Requirement to Have a Single Audit:** The Subrecipient will complete the Subrecipient Annual Report annually within 45 days after its fiscal year end, informing the State of Vermont whether or not a Single Audit is required for the prior fiscal year. If a Single Audit is required, the Subrecipient will submit a copy of the audit report to the granting Party within 9 months. If a single audit is not required, only the Subrecipient Annual Report is required.

   For fiscal years ending before December 25, 2015, a Single Audit is required if the subrecipient expends $500,000 or more in Federal assistance during its fiscal year and must be conducted in accordance with OMB Circular A-133. For fiscal years ending on or after December 25, 2015, a Single Audit is required if the subrecipient expends $750,000 or more in Federal assistance during its fiscal year and must be conducted in accordance with 2 CFR Chapter I, Chapter II, Part 200, Subpart F. The Subrecipient Annual Report is required to be submitted within 45 days, whether or not a Single Audit is required.

2. **Internal Controls:** In accordance with 2 CFR Part II, §200.303, the Party must establish and maintain effective internal control over the Federal award to provide reasonable assurance that the Party is managing the Federal award in compliance with Federal statutes, regulations, and the terms and conditions of the award. These internal controls should be in compliance with guidance in "Standards for Internal Control in the Federal Government" issued by the Comptroller General of the United States and the "Internal Control Integrated Framework", issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).
3. **Mandatory Disclosures:** In accordance with 2 CFR Part II, §200.113, Party must disclose, in a timely manner, in writing to the State, all violations of Federal criminal law involving fraud, bribery, or gratuity violations potentially affecting the Federal award. Failure to make required disclosures may result in the imposition of sanctions which may include disallowance of costs incurred, withholding of payments, termination of the Agreement, suspension/debarment, etc.

32. Requirements Pertaining Only to State-Funded Grants:

1. **Certification Regarding Use of State Funds:** If Party is an employer and this Agreement is a State-funded grant in excess of $1,001, Party certifies that none of these State funds will be used to interfere with or restrain the exercise of Party's employee's rights with respect to unionization.
2. **Good Standing Certification (Act 154 of 2016):** If this Agreement is a State-funded grant, Party hereby represents: (i) that it has signed and provided to the State the form prescribed by the Secretary of Administration for purposes of certifying that it is in good standing (as provided in Section 13(a)(2) of Act 154) with the Agency of Natural Resources and the Agency of Agriculture, Food and Markets, or otherwise explaining the circumstances surrounding the inability to so certify, and (ii) that it will comply with the requirements stated therein.

(End of Standard Provisions)

ATTACHMENT D: ENACTED LANGUAGE

Act 11 2018 Special Session
An Act Relating to Making Appropriations for the Support of Government, Financing Education and Vital Records

Sec. C.110(b)

(3) Study regulatory and market decarbonization mechanisms: The Joint Fiscal Committee shall contract for independent professional assistance to analyze the costs and benefits for Vermont of adopting and implementing policies to reduce GHG emissions caused by Vermont's consumption of fossil fuels. There is $120,000 appropriated in Sec. C.1000(a)(1) of this act to the Joint Fiscal Committee for this study.

(A) The analysis shall include the comparative ability or potential of the policies to achieve reductions in GHG emissions; to spur economic development in the State; to encourage innovation in the State; to cause shifts in employment, including job creation, job loss, and sectors affected; and to affect the cost of living in Vermont.

(B) The Joint Fiscal Office and the contractor shall consult with the Climate Commission and the Chairs of the House Committees on Energy and Technology and on Natural Resources, Wildlife, and Water Resources and the Senate Committee on Natural Resources and Energy. On or before January 15, 2019, the Joint Fiscal Office shall submit the analysis to those same standing committees, with a copy to the Climate Commission.

ATTACHMENT E: PROPOSAL SUBMITTED BY RFF

A proposal in response to

Request for Proposal Providing an Analysis of Decarbonization Methods in Vermont

July 20, 2018

Background and Experience

Resources for the Future (RFF) is an independent, nonprofit research institution in Washington, DC. RFF's mission is to improve environmental, energy, and natural resource decisions through impartial economic research and policy engagement. RFF is committed to being the most widely trusted source of research insights and policy solutions leading to a healthy environment and a thriving economy. Members of RFF's Energy and Climate Program have decades of experience delivering research and solutions to cost-effectively reduce greenhouse gas emissions and advance a reliable and clean energy system.

RFF launched its Carbon Pricing Initiative six years ago. During that time, we have significantly expanded our analytical capacity by developing and enhancing five economic models built to address carbon pricing policy design. Moreover, during these past two years, policymaker interest has increased exponentially, despite the current Administration's lack of interest toward climate policies. RFF has directly engaged and supplied analysis and expertise to Senate and House staff (Democrats and Republicans) as they prepare comprehensive federal carbon tax legislation, to stakeholder groups advocating for federal carbon taxes, and importantly, to a dozen individual states and regions as they reform existing cap and trade programs or consider new carbon pricing regimes.

RFF has become one of the premier, "go to" sources of analytical insight for policymakers. Over the past year alone, RFF has engaged with:

- The Senate Energy and Public Works Committee/Office of Senator Carper (D-DE);
- The Senate Finance Committee (both D and R sides);
- Rep. Curbelo (R-FL)'s office; RFF provided primary analysis of the bill for Curbelo's staff.
- Rep. Maloney (D-NY)'s office;
- Rep. John Larson (D-CT)'s office;
- The offices of Senators Whitehouse (D-RI) and Schatz (D-HI) as they released their updated American Opportunity Carbon Fee Act, for which RFF provided the primary analysis;
- The state of California, providing significant input into the design of their extended cap-and-trade program;
- The state of Virginia, as they consider entry into the Regional Greenhouse Gas Initiative;
- The state of Maryland, as they consider uses of the value of emissions allowances to promote the goals of the RGGI program;
- The Regional Greenhouse Gas Initiative state collaboration, helping the states to develop the concept of an Emissions Containment Reserve to help manage price volatility in the RGGI market;

- Policymakers and analysts in Massachusetts, New Jersey, New York, Rhode Island, Vermont, Oregon, Washington, and other states considering new or expanded carbon pricing programs;
- Republican/conservative-leaning stakeholder groups including the Alliance for Market Solutions, the Climate Leadership Council, and the Niskanen Center; and
- The individuals and groups putting together a municipal carbon tax proposal for the District of Columbia.

Project Plan

Project Overview

RFF proposes to conduct for the State of Vermont a forward-looking analysis of the costs and benefits for Vermont of adopting and implementing policies to reduce greenhouse gas (GHG) emissions caused by Vermont's consumption of fossil fuels.

RFF will use a suite of modeling tools to quantitatively evaluate and compare alternative pricing and regulatory approaches, including at least four of the pricing approaches listed on pages 2 and 3 of the RFP, and including at least one of the regulatory policies listed on page 3 of the RFP. This will include comparative analysis of the potential of the policies to:

- Achieve reductions in GHG emissions;
- Spur economic development in the State;
- Encourage innovation in the State*;
- Cause shifts in employment, including job creation, job loss, and sectors affected; and
- Affect the cost of living in Vermont.

The analysis will also consider how the given policies will affect:

- State revenues,
- Sources of energy used,
- Different end-use sectors of the economy, and
- The distribution of costs and benefits across different household income groups.

The analysis will look at the economic and environmental effects resulting directly from the pricing or regulatory approaches, as well as the effects of how any revenues generated from such approaches are allocated. This includes possible rebate or distribution options connected with a pricing approach to mitigate some of the hardship for low-income and/or rural Vermonters.

The core analysis will be done with a newly developed dynamic multi-region multi-sector model with supplemental and complementary analysis from three other models. Brief model descriptions are included below, in the section on "Data Sets and Models."

RFF team members have existing knowledge of the regulatory system for Vermont's emissions, Vermont's current decarbonization initiatives, and relevant data sets. RFF will build on this knowledge through collaboration and engagement with the JFO, State employees (including legislative and agency staff) and other Vermont stakeholders, as discussed below.

*The RFP includes the goal of "encourag[ing] innovation in the State." RFF recognizes the importance of the goal to Vermont, but is unable to provide quantitative analysis of innovation drivers across pricing and regulatory approaches at this time. We will, however, provide a qualitative assessment in our report.

Project Management Structure

Dr. Marc Hafstead and Kristin Hayes will jointly manage the project. Dr. Hafstead will be primarily responsible for managing all modeling and report preparation. Ms. Hayes will support the project implementation, with a focus on outreach and communication. Wesley Look will also play a fundamental role in organizing our stakeholder outreach efforts. Other team members will report directly to Dr. Hafstead and Ms. Hayes.

Major Project Milestones

As specified in the RFP, RFF proposes to begin work on August 1, 2018. A report outline and a progress report will be provided no later than October 15, 2018. A complete draft report will be provided to JFO no later than December 10, 2018, and the final report will be provided no later than January 15, 2019.

RFF anticipates that a majority of the modeling work necessary to calibrate the models to Vermont will be completed by October 15, 2018, and will provide a full progress report on all modeling specified below by that date.

Structure of Final Report

The final report will include an executive summary and a full report produced in a format accessible to a non-technical audience. The report will also include detailed appendices for a more technical audience.

Stakeholder Engagement Strategy

RFF staff, in close collaboration with the JFO, will conduct a thorough stakeholder engagement process to ensure the analysis will have maximum relevance and value to the State and people of Vermont. While we intend to develop the exact outreach strategy in partnership with the JFO, we propose the following as a starting point for that discussion:

- 2-3 public meetings prior to the analysis, intended to:
    - Set the stage for and contextualize this research exercise (e.g. in reference to: the 2016 Vermont Comprehensive Energy Plan, the emissions goals in 10 V.S.A. Sec 578, the Vermont Climate Action Commission's December 2017 recommendations and the Sec.C.110(b) language in H.16, previous studies like the Vermont Total Energy Study and the recently updated Vermont Greenhouse Gas Emissions Inventory, various Vermont legislative proposals, and the regional, national and global state of play on climate change policy)
    - Outline the research goals & timeline,
    - Introduce RFF,
    - Solicit input on the research approach, and
    - Identify stakeholder priorities and concerns;

- 2-3 public meetings following the analysis, intended to:
    - Educate stakeholders on research findings,
    - Solicit feedback on further research priorities, and
    - Facilitate brainstorming on the application of research findings.

The above meetings will be held in person in different regions of the state to ensure broad participation and the inclusion of a diversity of perspectives. In addition, we propose to host two webinars -- one prior to and one following the analysis -- to augment in-person meetings.

In addition to close collaboration with the JFO, RFF would aim to facilitate stakeholder engagement with the input and collaboration of Vermont-based organizations (subject to their willingness and availability), including:

- The Vermont Regional Planning Commissions;
- The Vermont Regional Development Corporations;
- The Vermont League of Cities and Towns;
- Chambers of commerce; and
- The Vermont Council on Rural Development.

<u>Engagement with the JFO and Other State Bodies</u>

To ensure our research approach meets the State's needs, RFF will plan a kick-off meeting with the JFO, as well as any future iteration of the Governor's Climate Commission and the Chairs of the House Committees on Energy and Technology and on Natural Resources, Wildlife, and Water Resources and the Senate Committee on Natural Resources and Energy as desired and deemed appropriate by the JFO (at the discretion of the JFO, the kick-off meeting can be in person or via video-conferencing). RFF will also hold in-person meetings, including presentations on the final report, with the same above groups at the completion of the study. In addition, RFF will hold monthly update sessions with the JFO, to be conducted over the phone or a video-conferencing platform (such as Zoom or Skype), according to the JFO's preferences. RFF will also be available for communication with the JFO on an as-needed basis.

As stated briefly above, RFF will build on its knowledge of Vermont regulatory systems and data sources through collaboration and engagement with the JFO, State employees (including legislative and agency staff) and other Vermont stakeholders. In addition to collaboration on stakeholder engagement, outlined above, RFF anticipates calling on the Vermont Department of Labor for assistance with data on employment and wages, and perhaps other agencies for assistance gaining access to other datasets as needed.

Project Staffing

Marc Hafstead, Fellow and Director, Carbon Pricing Initiative

Marc Hafstead joined RFF in 2013 from Stanford University. Dr. Hafstead received his PhD in Economics from Stanford followed by a two year appointment as a postdoctoral fellow at the Stanford

Institute for Economic Policy Research. He is a leading researcher on the evaluation of climate and energy policies. With Stanford Professor and RFF University Fellow Lawrence H. Goulder, he runs the Goulder-Hafstead Energy-Environment-Economy (E3) Computable General Equilibrium (CGE) model. This sophisticated multi-sector model of the United States has been used to model cap-and-trade programs, carbon taxes, clean energy standards, and gasoline taxes. Their work is featured in the book *Confronting the Climate Challenge: US Policy Options* from Columbia University Press. Dr. Hafstead's work has been featured in the popular press, including The Wall Street Journal, The Washington Post, CNNMoney, and Axios. He also regularly talks with both staffers on Capitol Hill and key stakeholders about the impacts of climate and energy policies.

Marc will be the lead modeler for the proposed work and the lead author of the report.

Roberton C. Williams III, Senior Fellow

Rob Williams studies both environmental policy and tax policy, with a particular focus on interactions between the two. In addition to his role at RFF, he is a professor at the University of Maryland, College Park and a research associate of the National Bureau of Economic Research. He was previously an associate professor at the University of Texas, Austin; a visiting research scholar at the Stanford Institute for Economic Policy Research; and an Andrew W. Mellon Fellow at the Brookings Institution. Williams has served as a coeditor of both the *Journal of Public Economics* and the *Journal of Environmental Economics and Management*.

Rob will assist in modeling and policy design, but will primarily be involved in preparing the final report.

Dallas Burtraw, Darius Gaskins Senior Fellow

Dallas Burtraw is one of the nation's foremost experts on environmental regulation in the electricity sector. For two decades, he has worked on creating a more efficient and politically rational method for controlling air pollution. He also studies electricity restructuring, competition, and economic deregulation. He is particularly interested in incentive-based approaches for environmental regulation, the most notable of which is a tradable permit system, and recently has studied ways to introduce greater cost-effectiveness into regulation under the Clean Air Act.

Burtraw's current areas of research include analysis of the distributional and regional consequences of various approaches to national climate policy. He also has conducted analysis and provided technical support in the design of carbon dioxide emissions trading programs in the Northeast states, California, and the European Union. Burtraw and his colleagues recently completed a major project on estimating benefits of the value of natural resources in the Adirondack Park through surveying area residents on their willingness to pay for improvements. Also with colleagues, he studied the cost-effectiveness of various policies for promoting renewable energy.

Burtraw recently served on the National Academy of Sciences Board on Environmental Studies and Toxicology and on the U.S. Environmental Protection Agency's Advisory Council on Clean Air Compliance Analysis. He also served on California's Economic and Allocation Advisory Committee advising the governor's office and the Air Resources Board on implementation of the state's climate law.

Dallas will lead on the incidence modeling work described below.

Anthony Paul, Fellow

Anthony Paul is a fellow at RFF and a PhD candidate in the Department of Geography and Environmental Engineering at Johns Hopkins University with advisor Dr. Benjamin Hobbs. Paul received an MS in economics from the University of Wisconsin, Madison, in 2006. He focuses his research on the power sector in the United States and related issues of regulation, economics, and the environment, and is published in a range of economics and energy policy journals. He has been the lead developer of the RFF Haiku Electricity Market Model since its inception in 1998.

Paul's current areas of research include analysis of a clean energy standard approach to federal climate policy, and the role of the details of the policy design. He also studies a federal carbon tax and the welfare impacts of tax revenue allocation as well as the regulation of greenhouse gas emissions from electricity generators under the Clean Air Act. He is interested in research to identify second-best policies that have political feasibility and that can achieve nearly first-best outcomes. New areas of research are hedging strategies for power generation capacity owners, and complementarity modeling of energy systems. Paul's past work includes analysis and technical support for the Regional Greenhouse Gas Initiative, the AB32 program in California, the development of federal global warming legislation, and regulatory processes of the US Environmental Protection Agency and the US Department of Energy.

Anthony will lead on the electricity sector modeling work described below.

Wesley Look, Senior Research Associate

Wesley Look joined RFF as a senior research associate in 2017. Previously, Look served as Advisor on Energy and Environment to the US Senate Finance Committee and ranking member Senator Ron Wyden (D-OR). Look advised Senator Wyden on a range of clean energy and climate policies, including the senator's energy policy portfolio on the Senate Energy Committee. From 2007 to 2010, Look advised US cities on climate and energy policy as Program Officer with the International Council for Local Environmental Initiatives (ICLEI). Look is an expert on carbon pricing policy design. Look holds a Master in Public Policy from Harvard University, a Master of Science from the Massachusetts Institute of Technology and a BA from Wesleyan University.

Wes will lead on this project's stakeholder engagement activities, and play a further substantive role in both policy design, modeling, and preparing the final report

Kristin Hayes, Program Director, Energy and Climate Program

Kristin Hayes joined Resources for the Future in 2009, originally supporting a large-scale, multiyear project assessing the effectiveness and costs of a range of national US energy policy alternatives. She now acts as director for RFF's Energy and Climate Program, helping to develop strategy and manage initiatives on natural gas development, domestic carbon pricing options, North American energy integration, and other energy and climate topics. Hayes also has primary responsibilities for a number of convening and communications efforts related to RFF's energy- and climate-related work.

Kristin will support overall project implementation, with a focus on outreach and communications.

Amelia Keyes, Research Assistant

Amelia Keyes joined RFF as a Research Assistant in 2017. Previously, Keyes worked as a Research Economist on energy and environmental policy at the White House Council of Economic Advisors and as a Research Associate at NERA Economic Consulting. Keyes received a BA in economics from Columbia University. Keyes' current research focuses on market-based climate policy and electricity sector regulation. Keyes develops and manages RFF's Carbon Tax Incidence Model.

Amelia will assist Dallas on the incidence analysis and provide support to other team members as needed.

Data Sets and Models

Regional Dynamic General Equilibrium Model

Researchers at RFF have recently developed a new dynamic multi-region multi-sector model specifically designed to answer questions related to subnational climate policies. The model is a regional extension of the Goulder-Hafstead E3 model, a dynamic model of the US economy used by RFF to evaluate the impacts of federal climate policy proposals over time. The model uses the IMPLAN 2015 50-state social accounting matrix with state-by-state trade flows. To the extent possible, RFF will use data provided by the Vermont Department of Labor to supplement the model dataset. For the Vermont analysis, the model will include 6 regions: Vermont, Rest of New England, Rest of Northeast, Midwest, South, and West. The model will be able to quantitatively compare alternative pricing and regulatory approaches to address: reductions in GHG emissions, changes in state revenues, macroeconomic impacts in Vermont, the shifts in employment across sectors, and the cost of living in Vermont.

Reduced-Form Emissions Tool

To aid in the analysis of potential GHG emissions reductions across policies, RFF will utilize a reduced-form emissions tool calibrated to Vermont. This tool will allow for users to quickly evaluate how differences in both the GHGs covered and the economic sectors covered by climate policy affect total emissions reductions and state revenue.

Incidence Modeling

RFF has developed a model designed to calculate the economic incidence of a carbon policy for households grouped by income or expenditures. The model will take as inputs the results from the Regional Dynamic General Equilibrium Model on predicted price and quantity changes from carbon policies. The model will then use data from the Consumer Expenditure Survey, the State Energy Data System and the National Income and Product Accounts and estimates from the Congressional Budget Office and the HAIKU Electricity Model to estimate the shares of consumer and producer surplus that accrue to each household grouping. The final outputs of the model are estimates of welfare changes for each household grouping.

Where Vermont-specific data are not available–as is the case in the Consumer Expenditure Survey–the model will use Eastern region data. Although this approach does not account for variation between states in the Eastern region, it does have the advantage of reducing bias because the Consumer Expenditure microdata are meant to be representative of regional and not state-level data.

Haiku Electricity Model

The Haiku electricity market model is a simulation of the power sector in the contiguous U. S. through 2050. The model is detailed on the supply and demand side of electricity markets, the fuel sectors that serve power markets, and the technology and airborne emissions policies that affect the power sector including federal and state programs. The model was built originally in 1998 and has fueled dozens of peer-reviewed publications in addition to being the tool that has driven targeted policy research in collaboration with various federal, state, and regional organizations.

Haiku has recently undergone its second major overhaul to reformulate it in a state-of-the-art framework called a mixed complementarity problem (MCP). An MCP is a mathematically robust object that is more flexible than a linear program, the formulation that is dominant within the community of national-scale electricity models. Some of the characteristics of American power markets and ideas in new policy proposals that cannot be modeled in a linear program framework but are accommodated by the MCP formulation in Haiku include cost-of-service retail electricity pricing, dynamically consistent price-responsive electricity demand, output-based allowance allocation under an emissions cap, and endogenous investments in demand-side energy efficiency.

The Haiku model will be used to evaluate impacts of changes in electricity demand within Vermont and associated emissions from electricity production outside the borders of Vermont. These changes in demand could be driven by the inclusion of a carbon price in retail rates faced by electricity consumers in Vermont. Alternatively, they could be driven by policies that would have secondary, but potentially important, impacts on emissions from the power sector around Vermont such as policies intended to raise adoption of electric vehicles in Vermont. The Haiku model is sufficiently detailed on both the supply- and demand- sides of the power market to capture and measure these outcomes.

Ownership and Model Access

RFF cannot provide intellectual ownership of its models to the State of Vermont. However, RFF proposes to allow for access to all model output for two years after the completion of the project. Further, RFF will provide an Excel version of the Reduced-Form Emissions Tool unconditionally to JFO.

References

The references listed below have worked with RFF previously on analysis of carbon pricing and other climate policy proposals at both the federal and state levels. All have agreed to speak to their experiences working with RFF, should the State of Vermont choose to reach out.

1. Aaron Goldner, Office of Senator Sheldon Whitehouse (Aaron_Goldner@whitehouse.senate.gov)
2. David Bailey, Research Director, Climate Leadership Council (dbailey@clcouncil.org)
3. Laurie Burt, consultant to Energy Foundation (laurie@laurieburt.com)

Pricing

See the Proposal Budget on subsequent page for estimated hours and costs. [CONFIDENTIAL AND REDACTED]