

Act 122

Climate Superfund Cost Recovery Program

Report to the General Assembly

January 15, 2025

Introduction

This report is required by [§599a](#) of the Climate Superfund Act, [Act 122 \(2024\)](#) enacted by the Vermont Legislature on May 30, 2024. The Act requires the Agency of Natural Resources (the “Agency” or “ANR”), in consultation with the State Treasurer, to submit a report to the General Assembly detailing the feasibility of and progress in carrying out the requirements of this chapter, including any recommendations for improving the administration of the Program. As explained in more detail below, this report urges removing the rulemaking requirement for the Resilience Implementation Strategy, providing modest flexibility regarding the deadlines for the cost assessment and liability formula rulemaking, and requests additional resources and positions for the Agency and Treasurer’s Office. These changes are necessary to fulfill the obligations created by Act 122.

Background

The Climate Superfund Act requires the Agency’s Climate Action Office to establish and administer a Climate Superfund Cost Recovery Program. This Program includes several components:

- **Resilience Implementation Strategy:** The Act requires ANR to adopt a Strategy through rulemaking, that outlines the practices and projects needed to make Vermont resilient to climate change, as well as the criteria and procedures for prioritizing and implementing these practices and projects. The Strategy is required to be completed, as well as filed with the Interagency Committee on Administrative Rules (ICAR) by July 1, 2025.
- **State Treasurer’s Report:** The Act requires the Treasurer’s Office, in consultation with the Agency, to develop an assessment of the cost to the State of Vermont and its residents (including both damages and abatement) resulting from the emission of covered greenhouse gases for the period that began on January 1, 1995, and ended on December 31, 2024 (“the covered period”). The report is due by January 15, 2026.
- **Liability of Responsible Parties:** The Act requires the Agency to adopt methodologies using available science and publicly available data to identify “responsible parties” engaged in the trade or business of extracting fossil fuel or refining crude oil and determine their applicable share of covered greenhouse gas emissions during the covered period, as defined by the Act. These

responsible parties will be held—through the process to be developed by ANR - strictly liable for a share of the costs calculated in the Treasurer’s Report. The draft rule must be filed with ICAR by July 1, 2026, and adopted by January 1, 2027.

- Issue Cost Recovery Demands: Once the Agency has determined the liability of responsible parties and calculated the cost recovery demand, the Agency must issue cost recovery demands. This is required to occur within six months from the conclusion of rulemaking, anticipated to take place by July 2027.
- Administer the Climate Superfund Cost Recovery Fund: The Act created a Fund to receive the cost recovery demand payments and provide funding for climate change adaptation projects in Vermont. The Agency is charged with administering the Fund.

Progress of Key Components of the Law

Resilience Implementation Strategy

On January 3, 2024, Governor Phil Scott and Treasurer Mike Pieciak announced a joint effort to develop a comprehensive Resilience Implementation Strategy (RIS) by July 1, 2025. The Strategy builds on the considerable work already being done across State Government to identify and prioritize climate change resilience needs, identify gaps in this work and how to address them, recommend criteria for allocating state support for climate change resilience projects, and identify approaches for funding implementation efforts on an on-going basis. The development of the Strategy is being led by the ANR’s Climate Action Office, with support from a Steering Committee made up of representatives from various State Agencies and Departments, and the Vermont State Climatologist.

The Resilience Implementation Strategy will identify opportunities within State Government across six core components: early warning systems and fast, effective response; nature-based solutions; community-centric solutions; infrastructure design and reinforcement; economic and environmental sustainability; and government systems. Government systems are anticipated to encompass the foundational activities that will connect and strengthen resilience strategies across the other five components.

The process to develop the Resilience Implementation Strategy has been broken down into three phases. Work completed to-date and planned under those phases is described below:

1. Opportunity Assessment

This phase includes the inventory of existing plans, programs, and activities from across State Government that help Vermont, either directly or indirectly, build

resilience to the impacts of climate change. 330 separate actions have been identified through the inventory, and those actions are being assessed against a set of climate resilience criteria created by the Steering Committee, to identify opportunities for strengthening the scale and scope of existing State programs to build resilience. This inventory, called the Opportunity Assessment, will be completed by the end of January 2025, and is complemented by a Vision for a Climate Resilience Vermont, which was shaped by feedback and input from Vermonters and is available now for public feedback and comment through January 17, 2025.

2. Solution Identification

The second phase of the Strategy will focus on engagement with stakeholders, both within and outside of State Government, and will start to build-out the approaches to increasing climate resilience identified in the Opportunity Assessment. This will be done through 1-1 engagement with State staff and a set of stakeholder workshops planned for Spring 2025. Identified solutions will be prioritized, with a set of recommendations completed by the end of April 2025.

3. Cost of Implementation

The last phase of the Strategy will be led by the Treasurer's Office and will evaluate currently available climate resilience funding and identify approaches to fund the solutions identified in the Resilience Implementation Strategy on an on-going basis. The Treasurer's Office is leading this work through the Resilience Investment Working Group, a group of stakeholders charged with identifying new and creative funding and financing solutions for resilience initiatives. This phase of work will conclude at the end of June 2025, with public engagement on the completed Resilience Implementation Strategy commencing in July 2025.

Cost Assessment and Liability Formula

On July 22, 2024, the Agency of Natural Resources issued a [Request for Information \(RFI\)](#) to gather input and obtain information for the Agency and the Treasurer's Office to use in the development and issuance of a Request for Proposals (RFP) for consulting services related to implementation of the Climate Superfund Act. The RFI was also an opportunity for organizations that might have general or specific knowledge related to the Act to share their expertise and/or ideas with the State. The RFI was not directed solely at potential bidders for the subsequent RFP. The RFI specifically sought information about (i) the development of a liability and cost recovery demand approach for "responsible parties" as defined in Act

122, and (ii) the Treasurer's report on the cost to Vermont of covered greenhouse gas emissions.

The Agency received six RFI responses and spent the fall reviewing and discussing the information provided. The RFI and six responses can be found on the [Climate Action Office's website](#). The RFI responses are summarized as follows:

1. The Center for Climate Integrity submitted an RFI response titled Calculating the cost of implementing climate change adaptation and resilience measures in Vermont and presented a methodology for estimating the cost of implementing climate change adaptation and resilience projects. This RFI response details a sample methodology for implementing green stormwater infrastructure to adapt to the increase in extreme wet weather events expected in Vermont because of climate change. CCI appears to have performed – in consultation with others – adaptation cost assessment work in at least a couple of other jurisdictions including a statewide assessment in the State of Wisconsin.
2. Professors from the University of Oxford, School of Geography and the Environment submitted an RFI response entitled Possible methods for the estimation of flood damages in the State of Vermont and presented three scientific, peer-reviewed methods which can estimate economic damages from flooding. This RFI response uses the scientific field of “event attribution” to quantify the effects of climate change on changes in the probability and intensity of a wide variety of extreme weather events, including extreme precipitation.
3. Professors from Georgia State University submitted an RFI response which proposes a comprehensive methodology to assess both past and future losses created by greenhouse gas emissions from 1995 to 2024 (i.e. the covered period defined by Act 122). The methodology consists of the following steps: (1) establishing Vermont's climate hazard profile; (2) applying probabilistic event attribution to determine, for each identified climate hazard, the fraction of risk attributable to anthropogenic GHG emission between 1995 and 2024; (3) assessing the potential impacts of these hazards based on peer-reviewed studies; (4) identifying datasets to measure these impacts; (5) employing estimates from peer-reviewed literature when available, and using econometric techniques to quantify damages from extreme weather events when such estimates are not available; (6) projecting future losses using climate, demographic, and economic projections based on multiple Shared Socioeconomic Pathways (SSPs) and Representative Concentration Pathways (RCPs); and (7) reporting total losses attributable to anthropogenic climate

change from 1995-2024 as well as projected future losses under several climate scenarios.

4. Professor Mankin from Dartmouth College, Climate Modeling & Impacts Group submitted an RFI response presenting several options for identifying responsible parties, determining their applicable shares of covered greenhouse gas emissions, and determining the cost recovery demand amount, as well as two approaches for the damage cost assessment to estimate the cost-driving effects of covered greenhouse gas emissions on Vermont.
5. Richard Heede from the Climate Accountability Institute submitted an RFI response discussing datasets available to identify companies that produced or refined fossil fuels and a methodology to estimate and attribute emissions from production and/or refining for each responsible party, and on that basis allocate proportional responsibility for damages. This RFI response recommends using the “Carbon Majors” dataset, which is based on original company-reported production data in annual reports and SEC 10-K filings.
6. Marc Marie from the Center for Environmental Accountability submitted an RFI response identifying “pitfalls” in studies that estimate the extent and costs of past and future climate change and proposing the possibility that Vermont has not, in net terms, suffered harm from climate change and may have even experienced positive impacts.

Generally, the RFI responses supported using the “Carbon Majors” dataset to identify responsible parties and establish their share of liability. Based on the information gleaned from the responses, the Agency developed the following stepwise approach to advance the work:

- 1) Develop and finalize an approach to identifying appropriate responsible parties.
- 2) Review the Carbon Majors dataset in detail.
- 3) Apply the responsible party approach to the list of entities in the Carbon Majors dataset.
- 4) Vet a “test case” entity to further scrutinize the Carbon Majors dataset.
- 5) Determine proportional share for entities identified based on jurisdictional nexus test through application and analysis of the Carbon Majors dataset.
- 6) Develop draft rule and rulemaking filing pursuant to the Administrative Procedure Act (APA).
- 7) File draft rule with ICAR.

Act 122 Section 599c requires the Treasurer, in consultation with ANR and any expert consultants, to develop an assessment of the cost to the State of Vermont and its residents of the emission of covered greenhouse gas for the covered period 1995-2024. The law requires the assessment to include:

- a summary of the various cost-driving effects of covered GHG emissions;
- a categorized calculation of the costs that have been incurred (historical damages) and are projected to be incurred in the future (future damages) for each of the effects above; and
- a categorized calculation of the historic and future costs to abate the effects (adaptation costs).

As summarized above, four of the six responses to the Request for Information spoke specifically about potential methodologies for the cost assessment. To determine the costs, the methodologies require an “attribution” of the damages associated with the covered emissions for the covered period 1995-2024.

“Event attribution” has developed as a scientific field in the past two decades and includes scientific methods that can quantify the effects of climate change on changes in the probability or intensity of a wide variety of extreme weather events, including extreme precipitation. Recent scientific developments allow these methods to be extended to assess climate change impacts on economic losses and human health. Two of the experts that responded to the RFI, Callahan and Mankin, together developed an approach that connects the emissions of individual actors to damages on a national level. For example, to relate heat damages to individual emitters, Callahan and Mankin describe a full causal chain from emissions to impacts. In a final step, Callahan and Mankin use relationships between local temperature changes and economic growth to estimate the damages from the warming associated with one emitter.

While attribution science is key to the development of the cost assessment, it will require further development to address the full scope of climate impacts contemplated by the Act. For example, it appears likely that a main driver of Vermont’s damages (past and future) is river-valley flooding. The analysis for flooding, Vermont’s largest climate hazard, has not yet been done, though respondents stated that it can be done in principle. Also, the type of flooding (“fluvial” or river flooding in mountainous terrain) that Vermont experiences was noted by respondents to be more difficult to model than other types of flooding (“pluvial” and coastal/storm-surge). Similar state-specific analysis will need to be done with respect to other impacts (e.g., heat).

One RFI response – from the Center for Climate Integrity – directly addressed methods for measuring adaptation costs, as noted above. The respondent noted that they have worked with expert consultants to arrive at assessments of adaptation costs in other jurisdictions, due to flooding, erosion, heat, and other hazards. See, e.g., *Confronting Wisconsin’s Climate Costs*, Center for Climate Integrity, June 2024 (available at <https://climateintegrity.org/uploads/media/Wisconsin-ClimateCostStudy-2024.pdf>). This part of the work entails jurisdiction-specific analysis of which adaptations are needed, the scope and cost of those adaptations, and the funding sources available to pay for them. *Id.* at 7 (detailing local, state, and federal funding streams for Wisconsin adaptation projects). It is also possible that adaptation analysis will involve, among other things, fact-bound town-by-town, school-by-school, and road-by-road adaptation-cost assessments. *Id.* at 10, 13-18.

The jurisdiction-specific and relatively nascent character of this particular area of climate science are primary drivers of the need for additional time and funds to ensure that the State is able to fully consider and select the most robust available methodologies and properly allocate costs.

Feasibility of the Core Components

The Resilience Implementation Strategy is on track to be completed by July 1, 2025. However, the Agency is requesting that the General Assembly remove the requirement to adopt the Strategy through a rulemaking process. The current requirement for rulemaking does not fit with the Strategy because, unlike traditional agency rules, the Strategy does not impose legal obligations or affect the rights of the public. Instead, the Strategy identifies climate change adaptation projects that may be paid for by the Climate Superfund Cost Recovery Program Fund. It is important for the Strategy to remain iterative as more information about climate adaptation projects and needs becomes available in the future. The current rulemaking requirement would make it unnecessarily burdensome to regularly update and amend the Strategy because a full rulemaking process under the Administrative Procedure Act would be required before any changes or additions to the list of climate change adaptation projects could be included. Last, rulemaking is not necessary to ensure public input on the Strategy because the Agency has already undertaken a public engagement process to gather public input on the Strategy.

Below are recommendations to make the implementation of the Climate Superfund Act more feasible.

First, based on the responses to the RFI, the Cost Assessment will require significant and consequential work. Additional time and appropriations are necessary to advance a

robust, accurate Cost Assessment. Given the breadth of climate impacts Act 122 directs the Treasurer and the Agency to consider, and to ensure the use of appropriate methodologies, it is anticipated that the assessment work will need to proceed in a stepwise fashion, assessing the costs from one climate change impact at a time (e.g., starting with fluvial flooding). Second, in the near term, the Treasurer and the Agency recommend focusing attention on past and future damages to Vermont while separately continuing to explore viable approaches to assessing costs for adaptation projects. As such, the Treasurer's Office will continue to make progress on the Cost Assessment.

The Treasurer's Office proposes to move forward with an initial RFP for a contract to assess the costs to the State of Vermont and its residents of the emission of covered greenhouse gases for the covered period relating to flooding and heat. The RFP will include to the extent practicable, the costs of flooding and heat on public and private infrastructure, public health, natural resources, biodiversity, agriculture, economic development, and any other effect that the State Treasurer, in consultation with the Climate Action Office, determines is relevant and feasible. Concurrently, the Climate Action Office will undertake its review of the Carbon Majors dataset and develop an approach for identifying appropriate responsible parties. The Climate Action Office and the Treasurer's Office propose to file a report regarding the results of this work, any further recommendations relating to feasibility and the cost assessment contract work, and a timeline for filing with ICAR the Liability Formula rulemaking, no later than January 15, 2026 (Feasibility and Cost Assessment Contract Report).

Specifically, if the Legislature should decide to pursue this work and move forward with the necessary changes to the Act identified above the following elements must be included:

- The Treasurer's Office will need an FY26 appropriation of \$700,000 for contracted support as well as a new limited-service position, with \$125,000 of annual funding, to perform the Cost Assessment.
- ANR will need a one-time appropriation of \$500,000 in FY26 for contracted support, as well as a base increase of \$175,000 for a new attorney position within the ANR Office of General Counsel that can be dedicated to Climate Superfund work and related legal challenges.
- The deadlines for the Cost Assessment and the Liability Formula rulemaking should both be suspended pending the proposed January 15, 2026 Feasibility and Cost Assessment Contract Report to the Legislature.
- The requirement to adopt the Resilience Implementation Strategy through a rulemaking process should be removed.

- ANR and the Treasurer will also continue to explore approaches to assessing adaptation costs, and provide a timeline and an estimate of the additional resources that will be necessary for the effort.

Conclusion

This report lays the groundwork for the Legislature to prioritize and fund this work to ensure its success. To this end, the Secretary, in close consultation with the Treasurer's Office, recommends eliminating the rulemaking requirement for the Resilience Implementation Strategy and providing flexibility regarding the deadlines for the Cost Assessment and the Liability Formula rulemaking until after the submission of the Feasibility and Cost Assessment Contract Report to the Legislature in January 2026.

In detail, the Resilience Implementation Strategy will still be finalized by July 1, 2025; it is that the current requirement for rulemaking does not fit with the Strategy because, unlike the Agency's other rules, the Strategy does not impose legal obligations or affect the rights of the public. Additionally, rulemaking is not necessary to ensure public input on the Strategy because the Agency has already undertaken a public engagement process to gather public input on the Strategy.

Also, the Secretary and the Treasurer have identified additional time and resources necessary to successfully advance this work based on our efforts to date, including the information gathered from the Request for Information. A one-time appropriation for FY26 of \$1.2 million is needed (\$500,000 for the Agency and \$700,000 for the Treasurer's Office) for contracted support, as well as the creation of two new FTEs (one limited-service position for the Treasurer's Office and one for an attorney in the Office of General Counsel) and a base funding increase of \$300,000 (\$125,000 to the Treasurer's Office and \$175,000 to ANR) to fund these roles.

The resources identified herein as necessary are based on the scope of the Act, the extent of the technical work needed to assess costs as currently understood, and the Agency's role in participating in known legal challenges. Additional learning from the issuance of the Cost Assessment RFP and/or further legal challenges may necessitate additional capacity in out years that the Legislature will need to be prepared to fund, if and as needs arise.