CLIMATE INFRASTRUCTURE FINANCING REPORT

PREPARED BY :

Brian Lowe
Assembly Theory, LLC

PRESENTED TO :

Vermont
Treasurer’s Office

(802) 735-3983 assemblytheory@protonmail.com

INTRODUCTION: REPORT PURPOSE, SCOPE, AND STRUCTURE

Purpose

In the Fiscal Year 2024 Appropriations Act, the State Legislature requested a report with recommendations from the Treasurer by January 15 regarding:

- Coordination of the State's climate infrastructure financing efforts;
- Creating a framework for effective collaboration among Vermont organizations, agencies, and the financial instrumentalities of the State to maximize the amount of federal Greenhouse Gas Reduction funds the State may receive; and
- Coordination of the deployment of these and other greenhouse gas reduction funds.

The Legislature's request is timely. The terrible flooding across Vermont this past year has underscored the importance of strategic investment in community resilience and climate infrastructure. Further, the Inflation Reduction Act and the Infrastructure Investment & Jobs Act provide new funding programs that can support this type of strategic investments. It can be challenging for smaller communities in particular to access or benefit from these funds. Coordinating efforts of the many organizations working in this area will produce better results for Vermont.

This report also is the first opportunity to integrate the Resilience Implementation Strategy Initiative announced on January 3 by Governor Scott and Treasurer Pieciak with ongoing climate infrastructure financing work. The joint initiative envisions a comprehensive Resilience Implementation Strategy in place by July 1, 2025, that helps advance greenhouse gas reduction efforts on one hand with accelerated efforts to adapt to the consequences of climate change on the other.

At the end of the day, improved coordination on both the financing of climate infrastructure and efforts to improve community resilience will contribute to better environmental outcomes and more resilient communities. The recent work among the Vermont Bond Bank, SunCommon, and the Town of Charlotte provides a clear and recent example of the value of this coordination.

When the town garage burned down in December 2021, the community sought to rebuild it in a way that reduced environmental impacts and long-term operating costs. Leveraging the new Elective Pay (also known as Direct Pay) provision within the Inflation Reduction Act now that the garage is completed, the Town expects to receive payment for 30 percent of the cost of the rooftop solar array from the IRS. That will translate into a savings of about $84,600 for the community to build the roughly $282,000 solar array.

This Elective Pay program is something that all Vermont municipalities – as well as some non-profits and rural energy coops, among others – can now access. It is also a valuable tool in helping reduce some of the attendant costs of greenhouse gas reduction.

With this example and many others from extensive public input and the Treasurer's extensive outreach and engagement in mind, this report provides a series of recommendations intended to help improve coordination of climate infrastructure financing.

Scope

This report is not an assessment of climate-related priorities for investment. The prioritization discussion in Vermont is led by the State-designated Climate Council.

This report focuses on the coordination of the State's climate infrastructure financing efforts and needs – specifically, as requested by the Legislature, creating a framework for effective collaboration and the effective deployment of climate infrastructure financing and other greenhouse gas reduction funds in a way that maximizes the amount of Federal funding secured by Vermont.

Within this report, climate infrastructure is defined as *infrastructure necessary to build, renovate, or otherwise invest in that advances the goals and projects established by the Climate Council*. Different people have different views of what constitutes climate infrastructure. This definition privileges the priorities of the Climate Council and focuses on how to finance the infrastructure elements related to those priorities.

Structure of the Report

After the introduction, the report is structured as follows:

The first section (Section 1) provides an overview of the public input and the extensive engagement conducted by the Treasurer's Office following the request from the General Assembly.

The second section defines the problem that led to the General Assembly's request for this report, defines the end goals motivating an effort to better coordinate climate infrastructure financing in Vermont, and describes several alternative models intended to improve coordination put forward by different organizations as part of the public comment.

The third section outlines a series of recommendations resulting from the overall public input as well as insights from the Treasurer's Office.

The fourth section provides a summary of the public input received, broken into categories reflecting the wide range of interests and ideas shared by dozens of participants.

Finally, the report also includes three appendices that are described in the fifth and last section. The first appendix (Appendix A) provides all the public input in one consolidated document for ease of reference, noting that it does not replicate the ~100 form letters focused on finding ways to have big oil companies cover the cost of climate infrastructure financing. This input includes a substantial White Paper advocating for new authorities for an existing institution to act in a way similar to a Green Bank to help advance an effective climate financing strategy.

The second and third appendices (Appendix B and Appendix C) take the same information as the Appendix A but reformat, anonymize, and break that information into two parts so that a free artificial intelligence (AI) chatbot can query the data.

This tool to query public input should allow interested parties to learn about the different themes and concepts embedded in the public input in a different way. Because this is a new concept and a new tool, directions and sample prompts are included in the fifth section of this report for those interested in using AI to query these files.

Please note: The same material is available in Appendix A for those that would like to review it without an AI tool with a couple exceptions: First, the White Paper referenced above is too long to be included in Appendix B or Appendix C if it is going to be queried by a free AI chatbot, so that White Paper is only included in Appendix A. Second, pleasantries have been removed. And third, descriptive information about organizations submitting comment has been removed because of space constraints.

Finally, in terms of an AI disclosure, the report was not written with AI tools. While this report leverages an AI tool in Appendix B and Appendix C as described, the author did not use AI to draft any component of this report.

<u>SECTION 1 – Overview of Treasurer's Office Public Engagement</u>

Following the request from the General Assembly, the Treasurer's Office completed extensive public engagement to build the foundation of this report about financing climate infrastructure.

First, the Office advertised and ran four separate Zoom sessions framed to respond to interests from four broad sectors across Vermont, using the same questions in each session. Those questions were posted publicly in advance and after the fact on the Treasurer's website, and advertising for the sessions included press releases, print advertising, social media, earned media, personal outreach and invitation from the Treasurer's Office (which included asking other organizations to share the invitation widely through their networks), and general invitation from the Treasurer in his remarks at events around the state in the weeks leading up to these sessions.

The questions developed by the Treasurer's team focused on three topics, each of which is included immediately below in italics with the overarching question bolded.

Topic: Why Pursue Federal Funding/Financing? How can we do this in a way that is more inclusive of local and underserved community priorities?

- *How can Vermont be more effective in considering the needs of underserved or rural communities with respect to making climate infrastructure improvements, such in the areas of clean energy, weatherization, or climate resiliency in Vermont? For example, investments in natural solutions for flood mitigation, sustainable agriculture and forestry, floodplain and wetland restoration and other natural resilience solutions, energy efficiency and renewable energy. Are you aware of any specific projects and programs that need to be expanded or more focused on these communities?*
- *How can we better connect community groups and technical expertise, to mutually identify needs?*
- *What do small, underserved, rural communities need to do to pursue these funds? How do we maximize our ability to do this collectively, without competing with one another?*
- *What do you estimate as the total investment amount required by your industry to support necessary climate infrastructure needs in Vermont? How did you arrive at this estimate? Alternatively, do you have suggestions on approaches/frameworks to estimate this need?*

Topic: Who is proactively engaged and are there any barriers impeding Vermont's efforts?

- *Are you aware of any agency or entity that is pursuing or has recently pursued/applied for federal funding/financing, private capital, or philanthropic funds for climate infrastructure improvements, such as in the areas of clean energy, weatherization or climate resiliency? If so, what are the entities and how successful are they?*
- *How can we build on these efforts and unlock the door to additional capital import?*
- *How do we integrate various efforts, so we aren't competing for time, attention, etc.*

- *What are the gaps or barriers in this work?*

Topic: What does Vermont need to pursue its share of federal, private, or philanthropic funds to conduct climate infrastructure improvements?

- *How could financing address these barriers experienced by underserved and rural communities? What other barriers exist?*
- *What resources (including technical assistance) does Vermont need to pursue that is currently available through federal funding/financing, private capital or philanthropic funds and be more competitive?*
- *What is needed to improve clean energy and resilience project identification and implementation? How would strategic planning or a focus on coordination among parties and/or financing entities support project implementation? What entities do you currently look to (can include your own) for this strategic coordination?*
- *Are current state agency programs and existing nongovernmental organizations in Vermont sufficient to achieve these goals or does there need to be a new governmental, quasi-governmental, or nonprofit to assist in this? What do you envision its role to be and how would it work with current state agencies and groups?*

Second, the Treasurer and team conducted a series of individual stakeholder meetings. These meetings were driven by either individuals or organizations signaling an interest in the topic, the recommendations of other organizations about groups the Treasurer's team might want to connect with, or outreach by the Treasurer's Office to connect with a broad range of leaders and organizations across the State whose work touches climate infrastructure. The Treasurer also spoke one-on-one with relevant state government agencies.

Third, the Treasurer's team established a web presence and email that were readily identifiable on the website and widely advertised. This email was an option for those who wanted to submit comment but may not have been able to attend one of the four different online sessions. This was a well-used resource. Over about a 6-week period, the Treasurer's team received 39 separate submissions focused on climate infrastructure financing and another nearly 100 submissions highlighting the potential for large oil and gas companies to pay for some or all of that cost. Some of those submissions included recommendations for further follow up or stakeholders to seek out, which the Treasurer's team has made a priority.

These various inputs, the experience of the Treasurer's team, and consultation with Representative Kari Dolan of the General Assembly, the Vermont Housing and Conservation Board (VHCB), and some of the stakeholders described above, helped inform the recommendations in Section 3.

SECTION 2 – Defining the Goals, Challenge, and Potential Alternative Approaches

Goals

At a high level, the public comment included multiple future-oriented goals for advancing this effort across different potential pathways. The White Paper referenced in the Introduction above articulates five clear goals underlying the broader effort to coordinate climate infrastructure financing in Vermont that echoed much of the other public comment:

- Greenhouse gas emission reductions;
- Adaption to a warming world
- Resilience through investments in nature-based solutions to avoid or ameliorate natural disasters resulting from extreme weather events like flooding;
- Long-term carbon sequestration and storage;
- Land conservation; and
- Air, water, and soil quality.

A sixth additional goal not included in the White Paper but present in much of the public comment was cost containment or cost reduction – helping make Vermont a more affordable place to live by reducing, for example, heating costs. Please note, some public comment expressed pessimism that these costs would ultimately be reduced through the clean energy transition.

Many of the comments submitted emphasized the need for investments inclusive of *both* actions that reduce or draw down greenhouse gas emissions (mitigation activities) and actions that build Vermont's ability to adapt to and withstand the impacts of a warming climate (resilience and adaptation activities).

Within the context of these high-level goals, the purpose of this report is to improve coordination of climate infrastructure financing, improve the deployment of funds for that purpose, and maximize the total amount of Federal funding secured by Vermont to help accelerate the pace and scale of different projects.

Challenge

The challenge leading the General Assembly to request this report on climate infrastructure financing is that various actors involved in climate infrastructure financing could be better organized to effectively:

- Catalogue different funding sources, especially Federal funding, and eligibility in a broadly accessible way;
- Develop a clear financing strategy for securing funds reflective of Climate Council-established priorities;
- Exchange information and potentially coordinating applications for Federal funding across eligible entities or sectors;
- Take full advantage of opportunities to use existing resources to leverage available federal and private sources of funding;

- Develop and implement strategies to achieve greater resilience to climate-related impacts; and/or
- Deploy that funding in a way that secures the highest possible future value and maximizes avoided costs.

There are different approaches to this kind of coordination problem, ranging from the creation of a wholly new institution to adding new functions within institutions to improve coordination mechanisms. Public comment from different organizations helps articulate these potential approaches.

Potential Alternative Approaches to Improving Coordination

At one end of the spectrum, within the public comments a few organizations like Renewable Energy Vermont (REV) advocate for Vermont to follow a path similar to 23 other states and establish a "Green Bank" to coordinate climate infrastructure financing.

A "Green Bank" does not take deposits; rather, "they function like loan or investment funds, using a wide array of financial tools to support investment in clean energy infrastructure."[1] Green banks have different governance structures across different states – sometimes they are fully public, stand-alone entities. They can also be quasi-public entities with independent governance. They are not profit maximizing – they use different tools to increase the amount of climate infrastructure financing available, sometimes with a focus on underserved markets, and use innovative sources of funding and financing to buy down risk or the cost of projects.[2] Notably, many green banks combine public and private sources of funding to make private investments more financially appealing, and can serve to unlock significant private financing tools that are not currently available in the state of Vermont. The Connecticut Green Bank is a national leader, and they have leveraged private funds at a ratio of nearly 7:1 for investments in renewable energy and natural infrastructure projects.

This first type of approach, the "Green Bank Approach," would create a new institution in Vermont responsible for developing a strategy for climate infrastructure financing, coordinating applications for Federal funding or other funding across sectors, coordinating public and private investment, and funding the priorities outlined by the Climate Council.

There are many ways a "Green Bank" could be structured. Beyond a standalone public entity or quasi-public entity with independent governance, Green Banks can be established within a Governor's Office, a Treasurer's Office, or as a non-profit "Clean Energy Fund."

A second alternative focuses on the quasi-public concept. Several public comments advocate for this approach. The authors of a comment letter from conservation and climate finance experts in the state propose "the creation of a comprehensive financing strategy by a new climate financing entity, most likely a restructured existing organization with the

[1] National Caucus of Environmental Legislators, Issue Brief: Green Banks, January 6, 2023, http://www.ncelenviro.org/resources/green-banks-issue-brief/.

[2] Ibid; see also Weiss, Beinecke, and Bunting, "How a Green Bank Can Drive the North Carolina Clean Energy Economy," Nicholas Institute for Environmental Policy Solutions, Duke University, 2020, pp. 9 – 11.

authority and capacity to coordinate, prioritize, and guide the state's efforts to invest in a manner that will achieve meaningful progress in climate mitigation, adaption and resilience, and to ensure that the state's more rural, marginalized, or underserved communities are also benefiting from these investments."[3]

The Center for Public Enterprise provides further support for this approach and names VHCB as the entity best suited to assume the responsibilities of a Green Bank in Vermont.

A third alternative focuses on augmenting existing institutions without creating a new Green Bank or Green Bank-like institution. Among the public comment, this approach was advocated for by organizations like the Vermont Bond Bank, the Vermont Economic Development Agency, and the Vermont Housing Finance Agency. These three instrumentalities formed a partnership called the Public Finance Climate Collaborative (PFCC) in 2022 because they saw their role as filling market gaps and accelerating capital deployment in the municipal, commercial, and housing sectors – a responsibility that became more important with the passage of the Inflation Reduction Act and the availability of significant new Federal funding sources. PFCC members, as they note in a joint submission in the public comment, "have already joined the relevant coalitions, submitted project pipelines, and sought financing from the relevant national entities to support greenhouse gas reduction projects in Vermont" across the sectors these organizations serve.[4] Per PFCC members, their national partners see this partnership as already fulfilling the role of a Green Bank in Vermont and they advocate against the creation of such a new entity in Vermont as duplicative. They acknowledge the need for new funding and financing tools, and describe existing efforts at each of their organizations to develop some of this capacity themselves.

Also notably, the USDA Rural Development team has provided a $40 million dollar, zero interest loan to at least one PFCC member already (VBB) and is considering another similar arrangement with a second member (VEDA) for $10 million. Eligible uses for the VBB loan funds include both energy savings projects as well as renewable energy production and battery storage and the VEDA loan could be used to subsidize interest rates on clean energy projects.[5]

Rather than create a new Green Bank, the PFCC members advocate "that the Treasurer's Office play the role of information clearinghouse, helping make sure that new and existing Federal funding opportunities are identified and brought to the attention of entities or state agencies that are the intended recipients." The PFCC further advocates that the Treasurer's Office assume responsibility for the evaluation of supply and demand for climate-related funding on an on-going basis. The PFCC will act as a kind of shared "front door" for the state's climate financing.

[3] Report Appendix A, page 30.
[4] Report, Appendix A, p. 53.
[5] Report, Appendix A, p. 55

Outside the context of the Green Bank discussion itself, other entities like VSECU-NEFCU note that scaling successful programs, rather than creating new programs, can be a more efficient approach – and that Vermont does have some successful programs to build on.[6] Vermont also has existing organizational partnerships that could be built upon. For instance, the Vermont Climate Council is an existing entity focused on the coordination, implementation, and impact tracking of projects with climate mitigation outcomes.

Finally, while not a concrete approach itself, the balance of the public input was opposed to the creation of a new institution in Vermont. In addition to some comments that saw it as duplicative (like the PFCC), others were simply skeptical that creating a new institution was necessary or that, if created, it would be able to effectively coordinate the many existing organizations involved in climate infrastructure financing already. Two comments also emphasized the idea that creating something new is easy, but reforming institutions to work well together is what is challenging.

With these different potential approaches in mind, as well as proposals like that in H.586, "An act relating to flood protection and climate resilience infrastructure and financing," the report proposes a different sort of coordination mechanism for improving the coordination and deployment of climate infrastructure financing in the following section.

[6] Report, Appendix A, p. 51

SECTION 3 – Recommendations

This section outlines recommendations for the General Assembly.

Recommendation #1: Use the convening ability of the Treasurer's Office to organize a bi-annual half day "Cross-Sector Climate Finance Coordination Meeting" that is available to the public to watch via livestream. This meeting has a standing agenda and standing invitations (both of which can always be added to or amended). It would quickly pull together many of the various actors involved in climate infrastructure financing and resilience investment strategies in a way structured to identify overlapping interests, create new partnerships, deconflict duplicative effort, and improve information sharing across sectors.

The fundamental goals of the meeting are to maximize Federal funding applied for and secured by various public and private entities in the state and to improve coordination among those same entities and others. This is the "front-door" meeting integrating public, private, and non-profit entities with each other and Federal funding opportunities. The meeting would be convened and chaired by the Treasurer and co-facilitated by the Treasurer's Office and the Climate Action Office (CAO). The standing agenda of the meeting would include the following:

- **Review priorities and projects established by the Climate Council with an explicit focus on current and potential financing**:
    - Who is taking or has taken the lead on which aspects of these projects?
    - What are the gaps in terms of funding access, need, or clarity needed to inform future action and reports back to the group?
    - Are there opportunities for collaboration that could help reduce future costs?
    - What are we hearing on the implementation side (i.e., "these block grants are unwieldy," etc.) to inform future action and reports back to the group?
- **Standing CAO Report (and other entities as designated by the Chair):** Update on funding sources that are available to support Climate Council priorities and drawdown status of state funding previously allocated to support this work.
- **Update from the Resilience Implementation Strategy Initiative participants.** There is so much overlap between resilience funding and greenhouse gas reduction funding that a regular connection among partners working across these sectors should be productive in identifying opportunities and partnerships to accelerate projects. This could include updates on nature-based solutions, working lands-based initiatives, and more.
- **Report in from all invited parties**: What are the challenges, new ideas, or comments you are hearing that are not covered today but could help inform a future agenda? Who is not participating in the discussion yet that should?
- **Discussion of future needs**: Review of upcoming Federal or other funding opportunities, expected application deadlines, and identification of relevant parties for development and preparation of applications.

To evaluate the value of Recommendation #1, the Treasurer's Office envisions analyzing relevant outcomes over time. This may include measures like the following or others:

- Climate Finance-related Federal funding flowing into the state (overall numbers in collaboration with the CAO)
- New partnerships created as a result of these discussions
- New policy proposals surfaced and discussed
- Cost savings identified or secured through these meetings
- Regular survey of participants: Is this meeting helping clarify roles, highlight opportunities, and share information about Federal funding programs? Can you point to a new partnership, grant application, deconfliction, or piece of information you learned as a result of this meeting?
- Equity review: are funds flowing to all regions of the state? Are there ways to better interface with entities like the Environmental Justice Office at ANR or institutions like the Land Access and Opportunity Board to ensure that applications for funding and new funding programs are inclusive of BIPOC, rural, and underrepresented Vermonters?
- Internal Treasurer team survey: Do the meeting discussions allow new ideas to be shared, particularly across public, private, and non-profit sectors? Are the meetings clarifying who is doing what (and establishing regular communication channels)? Are the meetings helping highlight and deconflict overlapping priorities among participant groups and accelerate new funding for the State?

Recommendation #2: Coordinate climate infrastructure financing technical assistance discussions to reduce costs and identify barriers to effective implementation in a way that complements Recommendation #1. This meeting(s) would occur twice a year several weeks in advance of the Cross-Sector Climate Finance Coordination Meeting outlined in Recommendation #1. The meeting is envisioned as a two-hour discussion led by the Treasurer's team among TA providers on the ground in communities, working lands, and nature-based solution sites across Vermont. These meetings will likely need to be sector-specific to be able to discuss specific TA needs, barriers, and future investment needs. The goal is to surface implementation hurdles that could impact climate infrastructure financing decisions. The discussion should help inform the agenda for the Cross-Sector Climate Finance Coordination Meeting. There are several reasons for this approach:

- Many Vermont communities do not have the capacity to implement climate infrastructure projects independently, so organizations like the Regional Planning Commissions, Preservation Trust, the Vermont Council on Rural Development, the Vermont Housing & Conservation Board, the Vermont Natural Resources Council and others help act as connectors with primarily public and non-profit resources and at times private sector actors. This meeting should reveal if that is happening, patterns of problems encountered, and potential solutions for future discussion.

- Beyond some insight into the barriers to accessing finance for climate infrastructure projects, these organizations know some of the available funding options – a regular meeting among this group would help clarify challenges, identify successes, and grow the knowledge base of all parties on potential funding options.
- It would be valuable to include private sector voices in this meeting – for example, why did SunCommon or Bullrock Renewables or other entities run into roadblocks in town X around solar siting, even though the community signaled it was interested in new community solar or EV charging or another related topic?

The agenda for these TA meetings would focus on what people are hearing, what is working, what is not working at a community or more granular level, ideas for change, and presentations about different potential funding sources all parties should know about. It should end with an explicit discussion of potential high-level issues that could be raised at the Cross-Sector Climate Finance Coordination Meeting.

Recommendation #3: Establish a Resilience Implementation Strategy Initiative Task Force. This group, which could include representatives from the Treasurer's Office, the Agency of Natural Resources (ANR), and possibly other organizations like the Vermont League of Cities and Towns, would meet quarterly and be prepared to present findings and priorities for discussion at the bi-annual Cross-Sector Climate Finance Coordination meeting described in Recommendation #1. The Task Force would invite other attendees on an as-needed basis to cover the five priorities identified by the Governor and Treasurer: A community-centric approach, nature-based solutions, infrastructure design & reinforcement, an early warning system and fast, effective response, and economic and environmental sustainability.

Recommendation #4: Establish a credit facility for up to 2.5 percent of the average daily cash balance of the State to augment existing climate infrastructure and resilience lending facilities. The Treasurer has the authority to leverage up to 10 percent of the average daily cash balance of the State, subject to written guidelines adopted by the Treasurer. This 2.5 percent allocation would come in the form of a low interest loan to an entity or entities well established in providing green-infrastructure lending programs and could enhance loan-loss capacity for this purpose. This approach complements efforts to secure Federal funding, with the low-interest loan readily available to increase the recipient's financial flexibility in the near-term.

Recommendation #5: Complete further study of potential Green Bank models across the United States and the potential applicability of elements of these models in Vermont. Valuable public comment advocates for establishing a Green Bank or providing Green Bank-like authorities to existing institutions in the state. Evaluating the pros, cons, alternative models, and necessary partnerships for the establishment of an effective Green Bank would take some time to sort out.

While moving immediately to improve coordination of the various actors involved in climate infrastructure financing using the convening ability of the Treasurer's Office as described in Recommendations #1 and #2, the Treasurer's Office also recommends further study of Green Bank models across the United States. This study should identify what elements could be most useful and how those elements could best be structured for greatest effectiveness in Vermont. Such an approach could also allow for different impacted organizations and members of the public to weigh in on these elements in the context of a clear and precise definition of what is meant by Green Bank. This report should also highlight the value created, the possible trade-offs, and the potential risks of the creation of a Green Bank in Vermont. In the near-term, an understanding of the timing of when GGRF will be deployed, which Vermont entities have already developed and submitted applications, and whether additional entities in Vermont should develop an application for funding is critical.

Recommendation #6: Identifying the CAO as the climate infrastructure financing and resilience investment information clearinghouse. Multiple stakeholders emphasized that a single entity holding knowledge and information about climate infrastructure funding and separate resilience funding opportunities would be helpful to end users and technical assistance providers supporting communities across Vermont, particularly in the short-term while the state develops a resilience strategy.

Given the central role of the Climate Council and the Climate Action Office (CAO) within the Agency of Natural Resources (ANR) in leading the prioritization of climate mitigation in activity, the partnership between the Treasurer's Office and ANR on this issue, and the fact that the CAO is already preparing to provide regular reporting on the drawdown of State-supported climate financing programs, this report recommends explicitly identifying the CAO as the climate infrastructure financing clearinghouse.

Further, the central role of the CAO in Recommendation #1 helps ensure that the CAO's efforts to track the spending of programs the Governor's team and Legislature have put in place (i.e., the Municipal Energy Resilience Program (MERP), the Municipal Technical Assistance Program (MTAP), and various Housing-related energy efficiency or weatherization programs) will be regularly shared and help highlight financing opportunities or deployment barriers.

Finally, in the public comment, participants have noted that the scope of climate infrastructure financing is quite broad, particularly when defined to include energy efficiency funding programs related to housing renovation or construction. The range of knowledge required – from Federal programs like the Inflation Reduction Act or the Infrastructure Investment and Jobs Act, to various State programs on weatherization, MERP, MTAP or others, to the roles and capacity of Vermont's implementation architecture like Regional Planning Commissions or Regional Development Corporations – makes the CAO an entity well suited for the role. The CAO currently coordinates within State government through the IABB, though it has fewer formal mechanisms for regular interaction with non-state entities and the private sector.

Recommendation #7: Ongoing assessment of equity. Through working with entities like the Environmental Justice Office at ANR, this work should be reviewed at least annually (perhaps in coordination with a bi-annual Cross-Sector Climate Finance Coordination Meeting) to ensure that funds are serving low-income, rural, and underrepresented Vermonters.

Recommendation #8: Establish an Elective Pay Working Group to improve coordination, understanding, and access to these funds for Vermont municipalities and non-profits. Through changes put into law by the Inflation Reduction Act, the Elective Pay program can provide up to 30 percent of eligible clean energy projects costs for municipalities, non-profits, rural energy coops, and other entities. These funds can help reduce the costs for building, for example, EV charging stations and rooftop solar arrays if certain requirements are met, and could be a useful tool for municipalities looking to reduce not just long-term operating costs but also the initial capital construction costs. This provision is not widely understood, however, and a working group of representatives from the Treasurer's Office and potentially the Vermont Bond Bank, the Vermont League of Cities and Towns, and various private actors could coordinate on a strategy to improve understanding, awareness, and access to these funds across Vermont.

SECTION 4 – Summary of Public Input

This section provides a summary and categorization of the public input received by the Treasurer's Office regarding climate infrastructure financing coordination. The comprehensive compilation of public input is included as Appendix A.

The Treasurer's Office received 39 distinct public input submissions – 25 email submissions and 14 formal letters – as well as about 100 form letters encouraging the office focus on making Big Oil contribute to the cost of climate infrastructure (rather than, or in addition to, maximizing Federal funding opportunities).

Categorization

The public input can be broken into the following 9 categories of recurring themes.

Increasing Capacity	• For the State, instrumentalities, or other entities to apply for, secure, and manage Federal funding in a coherent and coordinated way • For towns or non-profit organizations to apply for funding and advance projects • For towns or other entities to implement new decarbonization regulations (particularly into building codes) • For new cross-municipal supports on a regional level • To take inventory and monitor GHG levels and related Federal grant funding received • For stewardship and maintenance of existing projects
Regarding Various Incentives	• Continue or expand solar, EV charging, geothermal heat pump, weatherization labor and materials, eBike purchases at the point of sale, battery backups, sustainable transportation, mixed use transit-oriented development, windows and doors, and sustainable transportation incentives • Restructure incentives away from rebates or credits and toward pre-bates or direct funding up front (if uptake is the goal) • Concern about misaligned incentives, in particular for residential transition to solar – how should utilities be incentivized to respond to such transitions? • Create new Keyline Design incentives or other land use planning incentives
Use Existing Programs	• Many programs work well – i.e., VSECU's green incentive programs or the Public Financing Climate Collaborative of VHFA, VBB, and VEDA. No need to recreate the wheel.

	• Some programs could benefit from expanded funding or scope. Named programs include the Municipal Energy Resilience Program (MERP), the Municipal Technical Assistance Program (MTAP), VHCB's energy efficiency, conservation, and rural economic development programs, Payment for Ecosystem Services efforts, weatherization programs. ○ MERP could be expanded to include schools and non-profits; BGS's revolving loan fund could be expanded to serve municipalities.
Green Bank Considerations	• Many comments focus on using existing institutions – i.e., PFCC or VHCB or in some comments unnamed instrumentalities of the state. • One comment from REV encourages the creation of a new entity as the Green Bank. Some comments reference how one unified entity focused on climate finance tools might more comprehensively fill current financing and funding gaps, and be best able to develop innovative new financing tools to leverage private funds. • Comments generally focus on the potential to expand public funding sources, rather than looking at integration across sectors or incentives for private investment. • Naming Green Bank responsibilities, even within existing organizations, could open the door for additional designations (i.e., State Energy Finance Institution) that could help drawdown additional funds. • Some comments note the interrelated questions related to a Green Bank, including discerning purpose, benefits, risks, trade-offs, and long-term efficacy and accountability.
Maximize Federal Funding	• Public comment focused on the Inflation Reduction Act (IRA), Infrastructure Investment and Jobs Act (IIJA), and the CHIPS and Science Act • As noted above, multiple comments identified that Vermont (state, instrumentality, non-profit, or otherwise) is not staffed to drawdown new Federal funding effectively or to coordinate that effort across sectors. • One comment noted that resilience funding, particularly from the Disaster Recovery and Resilience Act (DRRA) is also a resource the

	Treasurer's Office should consider in planning its coordination effort. • One comment noted that some kind of public facing one-pager that explains the various funding sources would be a helpful education tool (in addition to some institutional knowledge of these programs within State government or other entity).
Look Beyond Federal Funding	• In addition to the form letters showing significant interest in seeking funding from Big Oil companies, several of these comments note the ongoing lawsuit run by the Attorney General's Office. • Some methods to make Big Oil pay are outlined in one comment and include fossil fuel subsidy reform, liability lawsuits, a carbon tax, divestment, and public pressure. • Some comments noted new, innovative private financing tools that the state is not currently able to access. For example, towns could pay for upstream conservation activities to minimize flood risks, or conservation organizations could help private landowners access ecosystem service markets to incentivize conservation activities.
Concerns	• Several comments raised significant concerns about investing in climate infrastructure or its particulars, including: o The cost of new incentives, and the general transition costs to green energy, are inflationary and borne often by those not well able to pay for them. o Perhaps some of those championing the green energy transition would be willing to bear more than their share of the costs? o Some incentives – like wood burning – carry environmental costs themselves o Hybrid vehicles are the only realistic option in rural areas where there is no charging infrastructure…can we consider hybrid incentives at the state level? o Electrifying transportation infrastructure causes massive environmental damages. How are we accounting for that? [*speculation – commenter may mean things like lithium mines*] o Electrification is also creating lots of hazardous new waste in battery form. What are we doing about that?

<table>
<tr><td>Resilience</td><td>In thinking about Federal funding, please also consider long-term investments in community resilience. See specifically Vermont H.105 focused on a “Community Resilience and Disaster Mitigation Fund”
Consider the DRRA, as noted above, as another climate infrastructure funding source
One comment noted some resilience investments have ROI 2-10x in terms of avoided costs</td></tr>
<tr><td>Coordination Questions</td><td>Comments focused on multiple potential coordination challenges:
Within the State (where the CAO and IABB have been established for this reason)
Among instrumentalities like VHFA, VHCB, VBB, and VEDA.
Among non-profits applying for or managing grants (both Federal and State grants)
To support businesses, places of worship, rural electric coops, towns, or other entities that may be newly eligible to receive funds in the IRA’s Direct Pay/Elective Pay program
The potential to coordinate across sectors (all of the above groups + other utilities and private actors)
As noted above, the potential role for a Green Bank (like Connecticut) or Clean Energy Fund (like North Carolina) to secure Federal funding and coordinate across entities like those described above.
The potential role of the Treasurer’s Office or Climate Action Office) as a (i) coordinator; (ii) information clearinghouse; and/or (iii) funder for the entities described above</td></tr>
</table>

SECTION 5 – Appendices

Appendix A contains all the public input in one consolidated document for reference. That Appendix is included as a separate attachment with this report.

Appendix B and Appendix C are also separate attachments. They contain the same information as Appendix A, though the information has been anonymized and reformatted in a way that an AI-enabled chatbot can query. It has also been broken into two parts – all emails received are included in Appendix B and all formal letters received are included in Appendix C. This breakdown is necessary given file size constraints for the free AI service. As noted in the introduction, these appendices does not include the White Paper submitted as part of the public comment for the same reason, and pleasantries and organizational descriptions have been eliminated as well.

The goal of Appendix B and Appendix C is to give interested parties an additional tool to learn about the different themes and concepts embedded in the public's input. Because this is a new concept and a new tool, this section of the report includes directions for how to use the files in Appendix B and C with a chatbot, some potential prompts to use, and an important technical note are described here. These prompts are meant as possible examples only. Those that want to query the public input should of course decide what they are most interested in learning.

First, the technical note: Because of the large volume of public input the Treasurer's Office received, different chatbots are better able to absorb that volume of information. For example, the popular ChatGPT (or specifically ChatGPT-3.5), which is free, cannot absorb all the information at one time. A user would therefore need to query many files or have questions specific to different types of input to effectively use that chatbot.

Instead, this report recommends using Claude2, a chatbot produced by the company Anthropic. This chatbot is also free and is designed to absorb larger volumes of information. It can absorb all the public input the Treasurer's team received from different submitters divided into the two files of Appendix B and Appendix C. While free, use of the Claude2 service does require an email and phone number to register.

Second, to query the chatbot, you will need to upload the file (Appendix B) so the chatbot can review that information, and then "prompt" Claude2 with questions that reflect your interests.

- To do this, go to the Claude2 website and register (you will need to provide an email and phone number)
- Then, ask Claude2 to read the attached file and tell you when it has reviewed (click on the file icon and upload Appendix B before hitting the return key).

Once Claude2 confirms it has read the file, consider one of the prompts below or something of your own. For example, a prompt could be something like any of the following:

- “I am interested in the type of information included in this file. Could you tell me the top ten themes that are reflected in the information that makes up this file?”
- “What concept appears most often in this file?”

Again, it is important to note the information in Appendix B and C is actually less than the information in Appendix A. The use of an AI chatbot here is intended to give those interested in that public input a new tool to learn and understand the different concepts put forward by the public.