

Vermont Climate Council
Report to the General Assembly
January 15, 2025

Introduction

This report is required by §591 of the [Vermont Global Warming Solutions Act \(GWSA\) of 2020 \(Act 153\)](#) enacted by the Vermont Legislature on September 24, 2020. The Act requires the Vermont Climate Council (VCC) to report on its activities and progress towards meeting the greenhouse gas reduction requirements in the Act. Understanding that this is an annual report and intended to inform, in part, future legislative action, we invite the Legislature to provide feedback on the report and recommendations for the Council to consider around what you'd like to see included or removed from future reports.

The Climate Council and Climate Action Office welcome questions and requests for testimony. A request for testimony should come through the Agency of Natural Resources (ANR). When the legislature makes a request to ANR for testimony from the Council on specific topics, a process has been approved to determine how a decision is made for who will respond. ANR will reach out to the relevant Subcommittee co-chairs. For general requests, ANR will reach out to the Steering Committee members appointed by the body making the request to ensure the correct representative is available.

Background

As adopted in 2020, core elements of the GWSA include:

- Codifying Vermont's greenhouse gas (GHG) emission reductions goals as statutory requirements and providing an explicit cause of action should the State fail to adopt sufficient measures to achieve the statutory requirements. The requirements are:
 - Not less than 26% from 2005 greenhouse gas emissions by January 1, 2025;
 - Not less than 40% from 1990 greenhouse gas emissions by January 1, 2030; and,
 - Not less than 80% from 1990 greenhouse gas emissions by January 1, 2050.
- Establishing the Vermont Climate Council (VCC), responsible for the development of a comprehensive Climate Action Plan

The VCC is comprised of 23 members, including eight ex-officio members of the Executive Branch, eight members appointed by the Speaker of the House, and seven members appointed by the Senate Committee on Committees. Given the breadth and complexity of the Council's work, the VCC established a Steering Committee to guide the overall process and ensure progress of the work across Subcommittees. The Steering Committee is comprised of two individuals from among the Council's Executive Branch members and four individuals from among the VCC's members who were appointed by the legislature (two who were appointed by the House of Representatives and two who were appointed by the Senate). The members of the Council and its Steering Committee, along with Councilor's biographies, are all available on the Climate Action Office's [website](#). The website is maintained by the Agency of Natural Resources (ANR).

The GWSA charged the VCC with adopting the "Vermont Climate Action Plan by December 1,

2021, and submitting an updated plan at least every four years thereafter, and identified the following elements that must be included in the Plan:

- Strategies and programs to achieve the GHG emissions requirements established in §578 of the GWSA and adopting them in the Vermont Climate Action Plan by December 1, 2021;
- Strategies and programs that build resilience and prepare the State to adapt to the current and anticipated effects of climate change;
- Means to measure the State's progress towards meeting the greenhouse gas emissions requirements; and,
- Guidance to the Vermont General Assembly and the Secretary of the Agency of Natural Resources on legislative and regulatory changes necessary to implement the Plan.

In §591(b), the GWSA also established specific steps to be taken by VCC in developing the Plan, to include:

- Completing inventories of existing programs to reduce GHG emissions and build resilience;
- Identifying new strategies and programs that will be needed to meet GHG emission requirements and improve resilience;
- Developing financing strategies to support implementation of the work;
- Developing a monitoring strategy for tracking implementation efforts and assessing program effectiveness; and,
- Providing guidance to the Secretary of Natural Resources on rules needed to support implementation.

In addition, as identified in §592(d), the specific initiatives, strategies and programs identified in the Plan must further the following objectives:

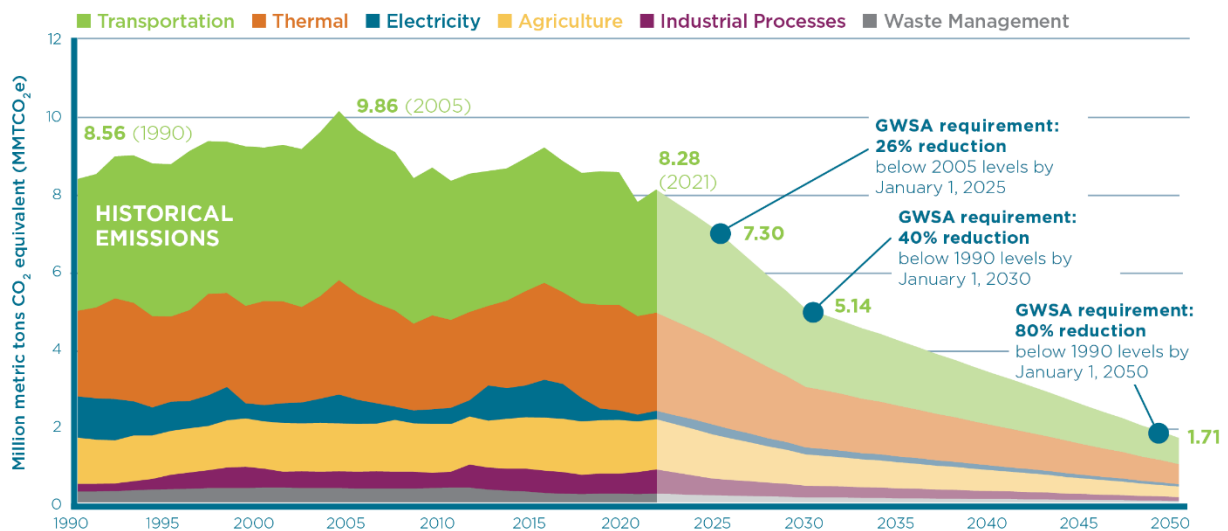
- Prioritize the most cost-effective, technologically feasible, and equitable GHG emissions reduction pathways, adaptation and preparedness strategies;
- Provide for GHG emissions reductions that reflect the relative contribution of emissions from different sectors;
- Minimize negative impacts on marginalized and rural communities and individuals with low and moderate incomes;
- Ensure that all regions of the state benefit from GHG emissions reductions;
- Support economic sectors and regions of the state that face the greatest barriers to emissions reductions, especially rural and economically distressed regions and industries;
- Support industries, technology, and training that will allow workers and businesses in the state to benefit from GHG reduction solutions;
- Support the use of natural and working lands to reduce GHG, sequester carbon and increase resilience; and
- Maximize the state's involvement in interstate and regional initiatives and programs designed to reduce GHG emissions, and build upon state, national, and international

partnerships and programs.

Status of Greenhouse Gas Emissions

As of this report, 2021 is the most recent year for which statewide greenhouse gas (GHG) emissions have been published by the Agency of Natural Resources, via the Vermont Greenhouse Gas Inventory and Forecast: 1990-2021. The historical statewide emissions reported in the Inventory, through 2021 are graphed below, as are the emissions reduction requirements established in the GWSA for January 1st of 2025, 2030, and 2050.

Vermont's historical GHG emissions and future requirements



Source: Vermont Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2021," 2024. Note: A small amount of emissions from the "fossil fuel industry" category (i.e., fugitive emissions from fossil gas pipelines in VT), accounting for 0.4% of Vermont's overall emissions in 2021, does not show up on this graph.



The first statutory GHG emissions reduction target in the GWSA was January 1, 2025 which represents the GHG for 2024. While the greenhouse gas inventory for 2024 will not be published until 2026, we will have a better sense of whether Vermont may or may not have met the first emissions reduction requirement of the GWSA this February, after the Tax Department releases data related to 2024 annual sales of fossil fuels used for transportation and residential, commercial, and industrial purposes. This fossil fuel use comprises the vast majority of Vermont's GHG emissions and will give an initial indication of whether it is possible that the first GWSA emissions reduction requirement was attained or not. Additionally, a new Vermont Greenhouse Gas Inventory & Forecast, with data through 2022, will be published in the Spring of 2025. In addition, an updated Business-as-Usual Model is currently being produced. This model projects anticipated GHG emissions reductions going forward based on current policies in place. A version of model was used to support development of Vermont's Initial Climate Action Plan in 2021, and is currently being updated, in collaboration with the Climate Council, to align assumptions and ensure agreement on the model. This is important because the Business-as-Usual Model serves as the basis for determining what additional GHG emissions reductions will be needed to comply

with the requirements of the GWSA. All modeling and analysis done to date by or for ANR/the Climate Council has found that Vermont is not on track to meet our Jan. 1, 2030 GHG emissions reduction obligation without additional policy and regulatory action.

Climate Action Plan

The VCC adopted [Vermont's Initial Climate Action Plan](#) (CAP) on December 1, 2021. An update is required on or before July 1, 2025. The VCC kicked off the update to the Plan in January of 2024, with the primary work during 2024 occurring largely within each of the VCC's five Subcommittees. Over the course of roughly six months, the Subcommittees worked through the following:

- 1) Determined priority areas for the update to the CAP to then create task groups to focus on each of the priority areas (themes).
- 2) Reviewed existing strategies from Initial CAP in task groups.
- 3) Assessed gaps to revised existing Strategies/Actions to address those gaps, developed new pathways, strategies, and/or actions, if needed.
- 4) Conducted stakeholder events in collaboration with ANR's Climate Action Office. Each Subcommittee was supported to hold two stakeholder meetings to share revised pathways, strategies and actions.
- 5) Revised recommendations based on feedback from stakeholders and implementors.
- 6) Created prioritize a list of "top actions" for consideration by the VCC.

In updating the CAP, the VCC is working to identify and prioritize a subset of the Subcommittee recommendations; given the significant time constraints on developing the Initial CAP, this sort of prioritization was not part of Vermont's first CAP.

It is anticipated these "top recommendations" will be shown as key priorities, and that numerous other actions and recommendations will also be included in the overall plan. The focus is on selecting actions needed to meaningfully advance climate action over the next 4 years until the CAP is again reviewed and revised. Subcommittees presented their draft recommendations to the VCC in December which will be finalized by the Climate Council in the Winter of 2025. To learn more about the timeline and update to the plan, please visit the [website](#).

The VCC is working to have a complete draft of the updated CAP by March 2025. This timing will leave time for further public engagement around the draft plan and making any revisions prior to adoption by the July 1 statutory deadline. The end of the year engagement report is not completed yet but engagement efforts summarized through the third quarter can be found [here](#).

Implementation Efforts

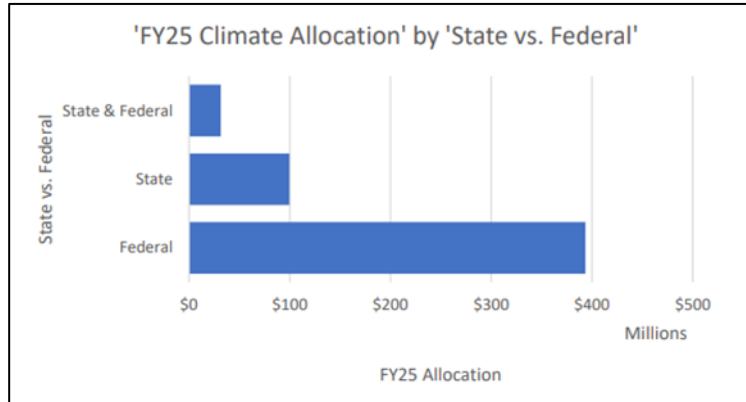
In addition to supporting the Plan development, the VCC continues to support implementation of the Initial Climate Action Plan and additional requirements of the GWSA. Many of the recommendations outlined in the CAP require legislative (i.e., statutory changes) and/or administrative action (i.e., rulemaking). Below is a full suite of legislative initiatives with ties to the CAP that were enacted during the 2024 legislative session.

Bill	Summary
S.213 – Flood Safety Act	The act establishes a minimum state floodplain standard, expands regulation of development in river corridors, improves dam safety, and enhances wetland restoration to improve our collective flood preparedness, climate resilience, and water quality.
S.310 - Flood Response	Creates the Community Resilience and Disaster Mitigation Fund to assist municipalities with infrastructure projects, creates stronger coordination of first responders, includes public works employees in planning and benefits, requires more comprehensive local & regional emergency planning, updates and clarifies stormwater utility statutes, improves emergency communications translation & interpretation services, supports the state swift water rescue operations, and provides additional support to all communities that were flooded last year.
S.259 – Make Big Oil Pay	Authorizes the state to recover financial damages from fossil fuel companies for the impacts of climate change to Vermont. Funds recovered would support climate adaptation projects.
H.289 – Renewable Energy Standard	Require Vermont’s electric distribution utilities to source 100% of their power from renewable sources by 2030 for large utilities and by 2035 for smaller, municipal utilities.
H.687 – Act 250 Reform and Housing	Comprehensive reform of Act 250 jurisdiction, criteria and administration that supports expanded housing opportunities, smart growth and new protections for forest blocks, connecting habitat, and other critical resource areas.
H.868 – Transportation Bill	Contains numerous statutory amendments and funding authorizations related to transportation. It also required Vtrans and ANR to study the impacts and benefits of Vermont joining a cap and invest program.

S.305 – PUC
Miscellaneous Bill
(Includes Tweaks to the
Clean Heat Standard)

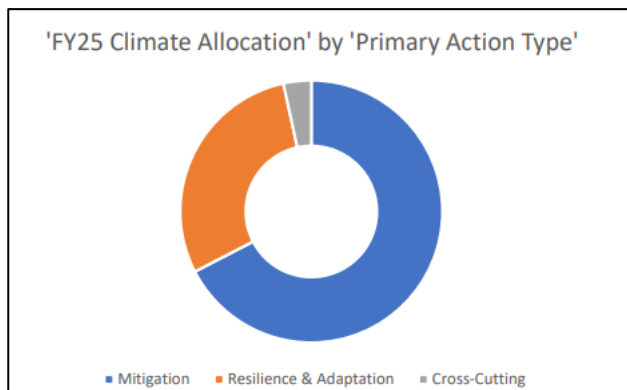
Makes technical clarifications to certain fees related to energy storage facilities, expand the jurisdiction of the PUC, require a report focused on low- and moderate-income households, and establish new Energy Savings Account requirements

In addition to the passage of new climate-related legislation listed above, the State’s FY25 budget includes significant increases in funding directed at climate action, with \$524,403,768 appropriated and/or spending authorized. The funds included here were prioritized with the purpose of delivering climate outcomes on the ground but they also have co-



benefits such as clean water or flood recovery. Specifically, the FY25 budget provides for a range of climate initiatives such as low-income weatherization, electric vehicle incentives, and heat pump installation. This number is larger than will be fully deployed into projects in FY25 as it includes large new investments of federal funds directed to the Public Service Department, including \$100 million for the Solar for All and \$59 million for Home Energy Rebate programs which are shown in total but will be used to fund projects over several years.

Much of the more than half a billion dollars in climate investments reflects the significant federal funding to state agencies, especially funding from the Inflation Reduction Act, American Rescue Plan Act, and disaster funding provided to the state to recover from the 2023 and 2024 floods currently available for this work. As these federal sources wind down, funding for certain programs will begin to decrease as soon as FY26. A full report on the programs and initiatives supported by these funds [found here](#).



Roughly two-thirds of these total investments are being used to support GHG mitigation programs, with the balance largely being used for resilience and adaptation work.

Primary Action Type	Sum of FY25 Allocation
Mitigation	\$353,547,850
Resilience & Adaptation	\$152,915,870
Cross-Cutting	\$17,940,048
Grand Total	\$524,403,768

Rulemaking

Vermont statute 10 V.S.A. § 582(g) requires the Vermont ANR to “research and adopt by rule greenhouse gas accounting protocols that achieve transparent and accurate life cycle accounting of greenhouse gas emissions, including emissions of such gases from the use of fossil fuels and from renewable fuels such as biomass.” Lifecycle accounting methodologies are an ever-evolving area of research and study; staff research on developing a protocol pursuant to 582(g) was started in 2016 but no protocol was adopted at that time. Since 2016, there have been advancements in the development and understanding surrounding lifecycle analyses. As a result, the Agency is now advancing a rulemaking process to adopt a protocol that will promote a transparent and consistent method for calculating lifecycle greenhouse gas emissions. The rule provides a protocol for conducting a life cycle analysis for greenhouse gas emissions for products and energy pathways and ensures that the application of the protocol is consistently applied by state Agencies.

The Agency initiated a stakeholder process for the life-cycle analysis rulemaking in the summer of 2023 and filed a draft proposed rule with the Interagency Committee on Administrative Rules at the end of 2023. The process has been stalled as the Agency works to procure public access to the protocol for the public comment period which requires a contract to be developed. We anticipate reinitiating the rulemaking process in 2025.

Climate Toolkit Development

The GWSA requires the Vermont Climate Council to recommend tools for municipalities to use to assess their climate preparedness, assess financial capacity to address infrastructure resilience, and prioritize investments in that infrastructure. In 2022, staff in the CAO convened a task group to design a Municipal Climate Toolkit that would help Vermont municipalities act on climate change. The task group includes representation from municipal governments, regional planning commissions, State technical assistance providers, and non-profit partners.

The intent of the Municipal Climate Toolkit is to provide a hub for existing tools, resources, and information relevant for designing and implementing climate action measures or strategies at a municipal level. Moving into 2024, work began with IT partners to design the Toolkit, which will ultimately be housed on the climatechange.vermont.gov website. The publication of the toolkit was delayed but the goal is to have the Toolkit finalized by spring of 2025.

While not a requirement of the GWSA, the CAO has been staffing the Governor and Treasurer in an effort to develop a comprehensive [Resilience Implementation Strategy](#) by July 1, 2025. The Strategy builds off the considerable work done to date across State Government to identify and prioritize climate resilience needs and evaluate the sufficiency of currently available funding. The Strategy will incorporate extensive stakeholder engagement and will also recommend criteria for allocating state support for climate change resilience projects and approaches for funding

implementation efforts on an on-going basis. This work is complementary to the Toolkit and will further develop the availability of resilience resources for Vermonters to access.

Technical Analyses

ANR managed multiple requests for proposals and contracts this year to meet the requirements of the GWSA and support the work of the VCC. These contracts included professional facilitation services to support the VCC and Subcommittee meetings, outreach and engagement support, and specific technical analyses to inform revisions to the Climate Action Plan and meet the remaining requirements of the GWSA. The specific technical analyses that have been completed or are underway are as follows:

1. Municipal Vulnerability Index

The development of the Municipal Vulnerability Index (MVI) is a requirement of the GWSA, and was intended to be a user guided, geospatial mapping tool intended to help municipalities understand their vulnerabilities to climate change across a range of social, economic, and biophysical factors. Now referred to as the Municipal Vulnerability Indicators Tool (MVI), rather than an index, is a mapping tool to help municipalities understand their vulnerabilities to climate change across several social, economic, and environmental factors. The MVI can help Vermont communities identify where climate change is placing pressure on transportation, electrical grid, housing, emergency services, communications infrastructure, and more. It can inform towns' hazard mitigation plans, local energy plans, or other climate-related efforts. It includes both climate hazard data (for hazards where mapping is feasible), and community characteristics that could indicate vulnerability to climate hazards.

This tool is key to support the implementation of the Climate Action Plan and was completed in the Spring of 2024. The completed project and supporting materials are now on the Climate Action Office's [website](#). Further technical assistance was supported in 2024 with a grant to the Regional Planning Commissions (RPC) to train them to use the tool so that they can further support Vermont municipalities using the tool to inform local plans and actions like hazard mitigation plans. To date, RPC's have developed templates, as well as examples of the application of the MVI for communities in their region.

2. Life-Cycle Analysis of Vermont's Energy Use

As required by the GWSA, ANR engaged a Contractor to develop a methodology for, and to undertake a life cycle analysis of greenhouse gas emissions from the use of energy in Vermont, including but not limited to electricity from fossil fuels, renewable sources (solar, wind, hydroelectric) and nuclear generation, liquid fuels including fossil and biofuels, gaseous fuels including fossil and renewable fuels, and solid fuels including wood and other biomass. The life cycle analysis is in the process of being completed and will provide modeled emission factors associated with all the upstream stages of the life cycle of each energy source, from raw material extraction and processing, through manufacture, distribution, and use, to the recycling or final disposal. Those life cycle emission factors were applied to activity data from the Vermont

Greenhouse Gas Emissions Inventory and Forecast (1990 – 2020) report (Inventory) to come up with an inventory of upstream life cycle emissions that corresponds to the categories in the Inventory to provide a more holistic view greenhouse gas emissions for the energy related components of the Inventory. The report can be found [here](#). The life-cycle analysis itself will be updated annually and provided as a supplemental report going forward with the Greenhouse Gas Inventory and Forecast.

3. Agricultural Sector Emissions and Sequestration Review

ANR engaged a Contractor to develop a methodology and provide a recommendation for the best tool (or tools) and datasets for quantifying greenhouse gases emitted and sequestered from agricultural operations in Vermont. Identifying the most appropriate tool(s) and datasets that are as specific to Vermont as possible is crucial to accurately quantifying emissions in this sector, inform decision-making related to policies and investments that promote agricultural activities, and to evaluate conservation practices that maximize the mitigation of GHGs from agricultural operations and management strategies in Vermont.

The final report reviewed the current tool ANR uses to analyze emissions in the agricultural sector, Environmental Protection Agency’s State Inventory Tool (SIT), with other available tools to gauge their pros and cons. A matrix was compiled to compare the tools being analyzed and weighted to reflect the priorities of Agency of Agriculture Food and Markets (AAFM) and ANR staff that informed the recommendation of the contractor. Some key recommendations from the [final report](#) were incorporated in the 2021 Greenhouse Gas Inventory and Forecast, with more complex revisions being contemplated for future inventories.

4. Facilitation and Public Engagement Services

In order to provide the robust public engagement envisioned by the GWSA, ANR contracted with the Consensus Building Institute for ongoing facilitation and public engagement services work over a four-year period. In addition to facilitation services for the VCC, this contract will support both public and community engagement. Specifically, the Contractor will support public meetings to engage Vermonters in the on-going implementation of the CAP. The focus of this work is to inform the Plan, anticipated legislative priorities, implementation of Plan priorities, and other topics identified through public and focused partner engagement.

The Contractor also supports targeted outreach with partner organizations and directly with community members. The focus is on building relationships that will allow more Vermonters to get involved on climate related issues. The approaches, which vary depending on the community and potential partner organization, aim to meet people where they are, improve awareness around relevant climate actions, and identify and understand priority issues for those communities related to climate action. The goal is not to immediately “get feedback” on the climate action and relevant work like the update to the CAP, but rather create conversations that can be sustainable over time around climate action issues – how we heat and cool our homes,

how we get to work and move around the state, how we use the land around us, how our families prepare for, and react to, threats such as flooding and heat waves. This work is being coordinated closely between staff in the CAO and ANR's Civil Rights and Environmental Justice Unit.

While the final engagement report for 2024 is not complete, the quarterly report through the end of September can be found [here](#).

5. Development of the Measuring and Assessing Progress Tool

The GWSA sets forth a science-based timeline and accompanying scope of work to reduce emissions of greenhouse gases and address climate action in Vermont. The CAO is now advancing the development of a tool to measure and assess indicators of progress related to reducing GHG emissions and increasing resilience and adaptation to a changing climate in Vermont, as well as the implementation of actions in the CAP. The first phase of this project is expected to be completed by May 2025 and includes: determining which metrics and indicators to track; the formation of a data governance team; determining data sources and availability; and how to fill any data gaps for the chosen metrics. Phase 2 of this project will encompass the creation of the Tool itself to incorporate all the data and information on metrics and indicators identified in Phase 1.

The development of the Measuring and Assessing Progress (MAP) tool is a cornerstone of the work of the CAO and will be a core function of the Office. The MAP will support communications with Vermonters and the development of reports, such as the legislative report, over time.

6. Cap and Invest Program Analysis

Act 148 directed the Agency of Natural Resources (ANR) and Agency of Transportation (AOT), in coordination with the State Treasurer and the Vermont Climate Council, to undertake a study to evaluate Vermont participating in a cap-and-invest program to reduce climate pollution, as well as other complementary emission reduction programs. An [interim report](#) on the study was provided to the General Assembly on November 15, 2024. The study itself will be completed in January 2025 and submitted to the State Treasurer who will make a recommendation of any viable approaches to the General Assembly by February 15, 2025. A complete evaluation of program options and recommendations will be prepared as part of the final study report.

Next Steps

The work of the VCC is ongoing, and in service to future iterations of the Climate Action Plan. While the Legislature, the Agency of Natural Resources and other agencies of state government will work to implement climate action, the VCC will continue its efforts in several key areas,

including but not limited to:

- Updating the Climate Action Plan which is statutorily required to be updated on or before July 1, 2025.
- Coordination of planning processes with required deliverables from federal funding obligations.
- Guiding on-going public engagement, including around recommended addenda to the CAP.
- Furthering the implementation of the Guiding Principles and the Scoring Rubric in the program design of priority actions.
- Onboarding new Councilors appointed by the Legislature.
- Finalizing ongoing technical analyses which will include the development of an update to the Business-as-Usual model and Pathways analysis which analyzes scenarios to close the project gap between the BAU and the statutory emission reduction requirements.
- Identifying the means to accurately measure the impact of implementation of the Plan.
- Target Council engagement with communities most directly impacted by recent climate disasters to understand the impacts (including persistent displacement) and the costs of the flood, snow, and wind disasters in an effort to understand if the MVI adequately achieves its intent, and similarly if the Resilience Implementation Strategy will meet address needs of these communities.

Climate action is both a broad and significant body of work that places significant demands on both Councilors and state staff that support the work of the Council. We would welcome to discuss these challenges with the legislature in the coming year in hopes of addressing them. Challenges have included:

- Consistent vacancies on the Climate Council have resulted in less capacity at the decision-making level to advance work.
- Subcommittees have been challenged by the lack of prioritization and clear direction at the Council level creating workload challenges. This stems from the broad nature of the objectives in the GWSA and the sincere interest by Councilors in trying to tackle it all at once.
- Finally, like many of the bodies created by the Legislature, the Council does not have a dedicated staff and budget, but rather relies on existing staff within state agencies to support its work. By and large these staff have positions that are not dedicated exclusively to climate action and have significant other roles and responsibilities within their agencies. This causes a tension around how state staff support both the Council and the Plan development.

