



## Science and Technical Advisory Board

To: Members of the RI Executive Climate Change Coordinating Council (EC4)

From: Caitlin Chaffee, Chair, EC4 Science and Technical Advisory Board

A handwritten signature in black ink, appearing to read 'Caitlin Chaffee'.

Date: December 9, 2025

Re: Technical Review of 2025 Rhode Island Climate Action Strategy Development Process, Executive Summary, and Related Materials

### Summary

Rhode Island's 2025 Climate Action Strategy (Climate Strategy), developed by the Executive Climate Change Coordinating Council (EC4) with support from their consultants as well as significant stakeholder input, represents a robust effort to chart a path to compliance with the Act on Climate's greenhouse gas emission reduction mandates. Throughout the development of the Climate Strategy, the Science and Technology Advisory Board (STAB) provided technical review and evaluated the application of high-quality modeling methods and up-to-date scientific foundations.

The STAB's technical review is meant to strengthen Rhode Island's ability to meet the mandates of the Act on Climate, whose targets are based on the scientific consensus on what needs to take place for humanity to avoid the worst impacts of climate change. The STAB recognizes that the EC4's long-standing efforts align with this objective, as evidenced by the draft Executive Summary for the Climate Strategy issued for public comment at the time this memo was written. The STAB appreciates EC4's references to both the changing federal climate and energy policy landscape and the uncertainties inherent to modeling efforts such as those for the Climate Strategy.

Within this context, the STAB emphasizes its full support for robust implementation of the existing policies considered in the Climate Strategy's Business-As-Usual (BAU) scenario. This memo identifies risks and recommendations that strongly suggest action *above and beyond* the BAU scenario is warranted. Specifically, the STAB has identified four categories of Act on Climate compliance risk for consideration as Rhode Island moves forward:

- **Historical Emissions:** The recently released 2023 Greenhouse Gas Inventory indicates that historical emissions may be trending higher than was assumed in Climate Strategy modeling. Consequently, the BAU scenario's assumed 2025 emissions may be lower than true 2025 emissions. If so, this would put the path to compliance in 2030 at risk, absent decarbonization actions beyond the policies in the BAU scenario.
- **Transportation Decarbonization:** The Climate Strategy relies heavily on Advanced Clean Cars II and Advanced Clean Trucks (ACCII & ACT) policies to drive decarbonization in transportation. However, the modeling fails to reflect significant implementation challenges for these policies, including ongoing legal proceedings that will likely, at minimum, delay implementation. Coupled with the lack of comprehensive modeling of potential emissions reductions from alternative

transportation strategies, this approach leaves the path for decarbonizing the transportation sector, and achieving the Act on Climate mandates, at substantial risk.

- **Electricity Decarbonization:** The Climate Strategy shows Rhode Island’s Renewable Energy Standard and the regulatory requirement to reach 100% clean electricity by 2033 as the primary decarbonization strategy for Rhode Island’s electricity sector. The model assumes Rhode Island procures Renewable Energy Certificates (RECs) from the New England System Operator to meet this requirement. Relying heavily on RECs introduces risks related to regional market dynamics and REC costs, as well as risks related to potential evolutions in greenhouse gas accounting practices. There are also important economic development and job creation benefits to deploying renewables in state which buying RECs from elsewhere does not provide.
- **Building Decarbonization:** Modeled building sector decarbonization is heavily reliant on Rhode Island’s requirement to blend increasing percentages of biodiesel into heating oil supplies, reaching 50% by 2030. The STAB underscores that reliance on this regulation introduces compliance risks for the BAU scenario, particularly given the scientific consensus that biodiesel has non-zero lifecycle emissions, which are not counted in Rhode Island’s current methodology, and potential challenges enforcing the blending requirement. There are also potential limitations on feedstock supply as higher levels of biofuels are required.

The remainder of this memo describes the STAB’s technical review process (Section 2), provides expanded descriptions of the risks identified above, along with a selection of additional potential risks (Section 3), and concludes with several recommendations for the transition to implementation actions to achieve compliance with the Act on Climate (Section 4).

## Climate Strategy Development & STAB Technical Review

The STAB acknowledges the extensive, multi-year effort undertaken to develop the Climate Strategy. This process reflects strong technical foundations, thoughtful leadership by EC4 member agencies, and meaningful contributions from the public, private sector stakeholders, community organizations, the Advisory Board, and others throughout the development process.

The STAB also commends the Strategy’s shift to emphasize the path to the Act on Climate’s 2030 mandate, both in response to stakeholder input, and in recognition of the critical importance of near-term actions given the statutory requirements of the Act on Climate. The STAB further appreciates that the draft Executive Summary and accompanying materials explicitly acknowledge uncertainties and modeling limitations, which are essential to keep in mind for effective implementation, and which have been a theme of the STAB’s ongoing input during Climate Strategy development.

Finally, the STAB recognizes that the Climate Strategy was developed during a period marked by several notable federal policy changes. These changes have the potential to impact the tools available to states like Rhode Island, and also present challenges for making informed scoping decisions for climate modeling that do not quickly become outdated. The STAB recognizes these evolving conditions and the need for adaptive planning to accommodate this dynamic environment.

Throughout the development of Rhode Island’s 2025 Climate Strategy, the STAB provided a comprehensive review of all technical modeling, scrutinizing inputs and assumptions to evaluate the utilization of up-to-date science. This involved reviewing the modeling scope and draft inputs; engaging directly with the EC4’s consultant team; providing real-time feedback and questions through a series of memos; representation at all EC4 and Advisory Board meetings once the STAB’s consultant team, Dunskey Energy + Climate Advisors, was onboarded in July 2025; and participation in all public stakeholder engagement meetings, including webinars where draft results were shared publicly. Further, the STAB appreciated the opportunity to

participate in inter-agency workshops where the list of specific decarbonization strategies to be considered was developed and refined.

This review process included the updated 2023 Greenhouse Gas inventory and the draft Executive Summary for the Climate Strategy. At the time this memo was submitted, the full Climate Strategy report was not yet released. Consequently, the STAB plans to conduct a comprehensive review of the full Climate Strategy, along with any appendices, to ensure a complete understanding of the scientific principles, modeling methodologies, inputs, assumptions, and results. This review will serve to meet the STAB's legislative mandate to "...make recommendations and provide policy advice to the [EC4] regarding research needs and priorities, resource allocation, and funding opportunities" (RIGL §42-6.2-5). The review will include an assessment of whether the concerns in this memo, as well as the sizeable list of technical questions submitted during the review process, are adequately addressed in the final report. Results from the STAB's comprehensive review will be reviewed during one or more public STAB meetings in 2026, submitted to the EC4, and made available to the public.

## Top Takeaways from the STAB's Climate Strategy Technical Review

### Transportation

In the Transportation sector, the STAB calls attention to two key modeling limitations that directly bear out as Act on Climate compliance risks.

- **Reliance on Advanced Clean Cars II and Advanced Clean Trucks (ACCII & ACT):** The Climate Strategy places a substantial emphasis on ACCII & ACT policies to decarbonize the transportation sector and achieve the 2030 Act on Climate mandate. The strategy's underlying modeling projects full implementation of these policies. While the STAB supports ACCII & ACT, it is concerning that the model does not consider the ongoing legal proceedings regarding these policies, which will likely delay implementation, at minimum, and may render these policies practically infeasible in the near future.
- **Limited Modeling of Other Transportation Decarbonization Strategies:** While a number of other strategies were nominally included in transportation sector modeling, the STAB finds that they were not fully explored. Many of these policies were modeled with constraining budget limits in place, resulting in the unsurprising outcome that they represent limited emissions reduction opportunities. This practice was not applied to decarbonization strategies in other sectors, and contravenes the established practice used elsewhere, wherein the potential pathways to decarbonization are first explored based on feasibility, and costs are estimated subsequently. If modeled without arbitrary budget limits, these strategies could play an important role as supplements or alternatives to ACCII & ACT, especially given the uncertainties noted above.

These two transportation issues are the STAB's highest priority concerns with the Climate Strategy. The STAB believes that broadening the range of modeled transportation strategies would create a more resilient and flexible pathway to achieving the Act on Climate mandates, rather than placing undue reliance on a single set of policies that carry significant implementation risks.

### Electricity

In the electricity sector, the STAB highlights Rhode Island's Renewable Energy Standard compliance strategy, utilizing Renewable Energy Certificates procured from the ISO New England (ISO-NE) marketplace to achieve compliance. While the STAB fully supports the RES, relying heavily on this approach exposes the state to several potential risks:

- **Regional Market Exposure:** Changes in neighboring states' policies, which are not in Rhode Island's control, could affect the availability and cost of RECs in the ISO-NE marketplace.
- **Emissions Leakage:** Procuring RECs can lead to emissions leakage under certain conditions. Because Rhode Island currently has a higher alternative compliance payment (ACP) for its RES than other states, it can act as a net buyer of RECs at prices around the level of other states' ACPs. However, this may mask reliance on ACPs and/or non-renewable energy in other parts of the region. Though Rhode Island would still achieve RES compliance, real-world decarbonization could be partially undermined if regional emissions do not fall in tandem.
- **Evolving GHG Protocols for Electricity Emissions:** Greenhouse gas protocols may be shifting toward more granular temporal and geographic matching of RECs and actual electricity consumption. This shift would add another layer of complexity and potential risk to Rhode Island's compliance strategy if such protocols are adopted here.
- **Gaining Public Support With Economic Development and Job Creation:** Relying solely on buying RECs from out of state eliminates important economic development and job creation benefits which come with deployment of renewable energy within Rhode Island. , Buying RECs from elsewhere removes this important benefit, potentially risking the enduring support of these important programs by the public and policymakers.

In addition, the STAB emphasizes that **limited emphasis was placed on in-state energy efficiency and distributed generation**, though tools and policies to increase deployment of these resources remain valuable emissions reduction strategies to decarbonize RI's electricity sector. These resources have the potential to save customers money, generate local economic benefits, and reduce emissions. Importantly, they will still produce real emissions reductions even when Rhode Island meets its formal compliance through RECs. This is because the grid will still carry electricity generated from fossil fuels, at least in the near future, so reducing local demand and increasing local clean generation directly lowers emissions. Such emissions reductions would also effectively reduce RI's RES compliance cost. Further, tools such as enhanced demand side management offerings, modernized rate designs, and novel funding models were not emphasized, though they have the potential to significantly reduce overall costs for decarbonization of the electricity sector, while delivering multiple benefits to the resilience and equity of our energy system.

Finally, the STAB notes that **the reduction in Rhode Island's energy efficiency budget for 2026 poses a material risk to Act on Climate compliance**. Energy efficiency is a foundational decarbonization resource for the BAU scenario as well as the Act on Climate scenario. In fact, the Climate Strategy model shows increased energy efficiency as a critical strategy, which means the proposed budget reduction is moving Rhode Island in the wrong direction. This worrying trend highlights the importance of continued support for independent, stakeholder-representative bodies such as the Energy Efficiency and Resource Management Council, the Advisory Board, and the STAB. These entities must be fully empowered to bring stakeholder perspectives to bear, and engaged for their expertise, as Rhode Island charts a path to Act on Climate compliance.

## Buildings

The STAB highlights two key points raised in their technical review of the building sector to date:

- **Heat Pump Adoption Drivers are Unclear in the BAU Scenario:** The Climate Strategy emphasizes that accelerating heat pump adoption is a central component of meeting Rhode Island's climate mandates. However, the BAU scenario lacks clarity on the precise number of heat pumps required as well as which specific policies will drive projected heat pump adoption.
- **Biodiesel's Assumed Net-Zero Emissions:** Modeled building sector decarbonization is heavily reliant on Rhode Island's requirement to blend increasing percentages of biodiesel into heating oil

supplies, reaching 50% by 2030. The modeling assumes that biodiesel represents net-zero emissions, even though scientific consensus indicates non-zero lifecycle emissions. While this is a fairly common practice in emissions inventory accounting, because the science is evolving and Act on Climate compliance will play out over many years, this is an important risk to consider. Additionally, biofuel supplies may become constrained in the future as multiple jurisdictions compete for this resource to meet clean energy and climate mandates. Finally, robust enforcement mechanisms are needed to ensure that all regulated entities in the heating oil sector comply with the biodiesel blending requirements.

Overall, the STAB highlights that uncertainties in both heat pump adoption policies and biodiesel implementation pose risks that should be addressed to ensure Rhode Island meets its climate goals.

## Conclusion

The STAB offers the following recommendations for Rhode Island's successful transition into the implementation phase of the Climate Strategy, building on the technical review findings above:

**Formulate a Clear Roadmap for Climate Strategy Implementation:** The climate strategy materials reviewed by the STAB at the time this memo was developed *do not lay out clear actions or timelines for implementation actions*. Particularly in light of the compliance risks noted during its technical review, the STAB strongly recommends that the State develop and adopt an *ambitious yet achievable* roadmap that clearly identifies specific implementation actions that should be undertaken; provides a recommended timeline; identifies an entity who will hold accountability for each action; and defines each action with measurable outcomes that can be used to determine its successful completion. Without additional actions above and beyond the policies modeled in the business-as-usual scenario, the STAB's opinion is that there is an unacceptably high risk that Rhode Island will not meet the mandates of the Act on Climate.

**Proactively Manage Risks:** Recognize and address the compliance risks identified in this memo and the STAB's forthcoming comprehensive review, as well as input provided by other stakeholders. Account for these risks directly in the roadmap referenced above.

**Develop RI-Specific Implementation Actions:** Revisit specific quantitative estimates of emissions reductions and anticipated policy or program costs for decarbonization pathways at the time that RI-specific, detailed proposals are developed.

**Consider Climate Model Strengths and Limits:** Maintain awareness of the strengths, limitations, and assumptions used in the Climate Strategy's modeling when developing follow-on implementation actions or policies.

**Engage Experts and Stakeholders During Implementation:** Engage experts from agency staff, as well as boards like the STAB, Advisory Board, and Energy Efficiency & Resource Management Council, to support RI-specific implementation plans. This will help ensure stakeholder perspectives, through the membership and public nature of such boards, are fully represented throughout implementation.

**Lay the Groundwork for Long-Term Strategies:** Some decarbonization strategies require significant lead time to fully deliver emissions reductions, which may be particularly important for meeting the Act on Climate's 2040 and 2050 decarbonization mandates. Examples include increased investment in mass transit, changes to land use planning to shift away from personal vehicle travel, interconnection reform for renewable generation, enhanced grid flexibility and demand side management offerings, and investment in ZEV charging infrastructure.

The STAB emphasizes that the technical review findings contained in this memo, as well as the forward-looking implementation risks and recommendations identified, are meant to strengthen Rhode Island's path to Act on Climate compliance.

Once again, the STAB thanks the EC4 for their leadership and commitment to achieving the mandates of the Act on Climate, and appreciates the contributions from their consultant team, advisory boards, Rhode Island stakeholder organizations, and members of the public who participated in the development of the Climate Strategy. The STAB also thanks the EC4 for the opportunity to provide this memo for inclusion in the Climate Strategy, and for the continued commitment to engage with the STAB for scientific and technical input.

cc/ Members of the RIEC4 STAB

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