**9 DRAFT Greenhouse Gas Inventory Review and Supplemental Accounting**

The [Vermont Greenhouse Gas Emissions Inventory](https://dec.vermont.gov/air-quality/climate-change), conducted by the Vermont Department of Environmental Conservation (DEC) within the Agency of Natural Resources (ANR), is published annually as required by Vermont statute 10 V.S.A. § 582. The Inventory establishes historic 1990 and 2005 baseline greenhouse gas (GHG) levels and tracks changes in emissions through time. The Inventory is vitally important as the primary means of determining progress toward Global Warming Solutions Act (GWSA) emissions reduction requirements.

The Science and Data Sub-committee (SDSC) of the Council has been responsible for reviewing the Inventory, including the summary report conducted by technical consultant Energy Futures Group (EFG) titled, “[Greenhouse Gas Inventory Review: Vermont’s Current Methods, Comparison with Accepted Practices, and Recommendations](https://outside.vermont.gov/agency/anr/climatecouncil/Shared%20Documents/GHG%20Inventory%20Report%208-10-2021.pdf)”. To ensure that we achieve our State requirements, it is important that our tracking methods continue to be as transparent, accurate, and comprehensive as possible, building on good work that has been done to date. In accordance with the recommendations in the EFG report, the Vermont Climate Council and State of Vermont should:

1. Maintain and continue to update and improve the current sector-based (or in-boundary) GHG Inventory methodology, for consistency and alignment with the Intergovernmental Panel on Climate Change (IPCC), Environmental Protection Agency (EPA), and peer states, as appropriate.
2. Continue to report on gross emissions (i.e., sources of emissions, for compliance with the GWSA), while also working to improve how we track and report net emissions, including emissions sinks, via a separate carbon budget.
3. Include supplemental information and sensitivity analyses as part of future published GHG in-boundary inventories. Specifically, this should include (but not be limited to):
   1. Biogenic greenhouse gases
   2. Additional analysis of global warming potential of greenhouse gases, including but not limited to a 20-year Global Warming Potential[[1]](#footnote-1) (GWP20) in addition to GWP100.
   3. Latest IPCC Assessment Report (AR) values (i.e., AR5 and eventually AR6, not just AR4).
4. Maintain Renewable Energy Credit[[2]](#footnote-2) (REC) accounting as the basis for calculating electricity sector emissions (i.e., emissions from our purchase and consumption of electricity and associated RECs, as tracked through the New England Power Pool Generation Information System (NEPOOL GIS) and not exclusively from electricity generated within our borders) for VT’s GHG emissions inventory. We concur with the EFG recommendation to use the most accurate REC values available for the region, perhaps using the REC settlement information compiled by the Massachusetts Department of Environmental Conservation.
5. Adopt key category analysis[[3]](#footnote-3) for future inventories.

While Vermont continues to update the GHG Inventory, supplemental accounting and further research and data gathering is also called for. Specifically, the Vermont Climate Council and State of Vermont should gather information to:

* 1. Allow for supplemental upstream and/or lifecycle accounting of emissions related to the use of energy in Vermont, including those emissions that occur outside the boundaries of the state, as called for in section 578(a) of the GWSA. Note: this should include emissions related to *all* energy use (including but not limited to fuels used for transportation and heating), not just electricity.
  2. Better understand and remedy any methodological gaps of emission inventory tools currently used by the State of Vermont to quantify greenhouse gas emissions for evaluating changes in the agriculture and related land use sectors and the tools’ alignment with the Intergovernmental Panel on Climate Change (IPCC), Environmental Protection Agency (EPA), and peer state methodologies and approaches.

Future upstream and/or lifecycle accounting is envisioned to stand alongside—but not replace—the current in-boundary GHG inventory. This new and supplemental accounting would function as a decision aid, helping to ensure that Vermont achieves a fuller understanding of the emissions that Vermont can fairly be understood to be responsible for and options for reducing such emissions (even if they occur out of state).

A better understanding of the role that supplemental accounting for upstream and/or lifecycle emissions related to energy usage may play in future updates to the Climate Action Plan (CAP) will be necessary going forward. Possible improvements related to Agricultural sector emissions tracking, both on a gross basis for purposes of the GHG Inventory and on a net basis, for purposes of the carbon budget, will also be a focus going forward.

1. Global Warming Potential (GWP) is “a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (CO2).”For more, see: https://www.epa.gov/ghgemissions/understanding-global-warming-potentials [↑](#footnote-ref-1)
2. A Renewable Energy Credit (sometimes also called a Renewable Energy Certificate), or REC, as defined in [Vermont statute](https://legislature.vermont.gov/statutes/fullchapter/30/089) refers to, “all of the environmental attributes associated with a single unit of energy generated by a renewable source.” [↑](#footnote-ref-2)
3. The Intergovernmental Panel on Climate Change (IPCC) defines a key category as, “a category that is prioritized within the…inventory system because its estimate has a significant influence on [the] total inventory of greenhouse gases in terms of the absolute level, the trend, or the uncertainty in emissions and removals.” For more, see: https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/1\_Volume1/V1\_4\_Ch4\_MethodChoice.pdf [↑](#footnote-ref-3)