COMMENTS RECEIVED REGARDING RHODE ISLAND'S DRAFT 2016 GREENHOUSE GAS EMISSIONS INVENTORY

This document contains all the comments received from the public regarding the draft 2016 GHG Emissions Inventory. The public had the opportunity to provide feedback during a 29-day comment period (October 28, 2019, through November 26, 2019). In total, DEM received one comment.

During the open comment period, RIDEM held a Greenhouse Gas Emissions Inventory Listening Session on November 19, 2019. In attendance were representatives from Acadia Center; Conservation Law Foundation; Green Energy Consumers Alliance; Handy Law; Prosperity for RI; Rhode Island Department of Environmental Management; Rhode Island Office of Energy Resources; Rhode Island Public Transit Authority; the Climate and Development Lab at Brown University; The Nature Conservancy.

Appendix of Comments:

Conservation Law Foundation (CLF), James Crowley

All comments will be made available to the public on: http://www.dem.ri.gov/programs/air/ghg-emissions-inventory.php

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Re: Comments of Conservation Law Foundation Regarding Rhode Island's Draft 2016 Greenhouse Gas Emissions Inventory

Dear Ms. Archambault:

The Conservation Law Foundation ("CLF") is pleased to offer comments regarding the Rhode Island Department of Environmental Management's ("DEM") Draft 2016 Greenhouse Gas Emissions Inventory (the "Emissions Inventory").[1] Rigorous accounting of Rhode Island's greenhouse gas ("GHG") emissions is critical to understanding the state's contribution to the climate crisis and its progress towards meeting its emissions reduction targets under the Resilient Rhode Island Act ("RRIA").

Founded in 1966, CLF is a member-supported, nonprofit organization focused on protecting New England's environment and safeguarding the health of our communities. We recognize climate change as the most pressing issue of our time and have been working to decarbonize the region for decades. We advocate for policies and projects that advance clean energy and reduce energy demand while saving families and businesses money and creating jobs. We work to reduce the region's reliance on fossil fuels and to modernize the region's electricity grid to better serve the needs of our changing society.

CLF offers the following suggestions to ensure that the state's emissions accounting is as robust as possible, helping Rhode Island accurately track and ultimately achieve its GHG emissions reduction targets.

[1] R.I. Dep't of Envtl. Mgmt., *2016 Rhode Island Greenhouse Gas Emissions Inventory – Draft Version 1* (2019), *available at* http://www.dem.ri.gov/programs/air/documents/righginvent16-d.pdf.

1. **The Emissions Inventory should incorporate updated science on natural gas leakage and revise its 1990 and 2016 emissions estimates accordingly.**

Natural gas is approximately 90% methane, and natural gas leaks—which occur at nearly every part of the production and distribution process—are the main source of methane emissions in Rhode Island. Methane is an extremely potent GHG, with a Global Warming Potential ("GWP") 86 times that of carbon dioxide per unit mass in the short term.[2] Small changes in modeled natural gas leakage rates can therefore have enormous impacts on the overall Emissions Inventory.

A recent report by the Stockholm Environmental Institute and Brown University's Climate and Development Lab (the "2019 GHG Reduction Study") argues convincingly that the leakage rate used in Rhode Island's earlier GHG accounting is likely far too low.[3] It bases its modeling on a 2015 study of gas leaks in Boston—a city with a makeup of pipelines (by material, type, and age) comparable to Providence—that found a leakage rate of 2.7%.[4] This is substantially higher than the 0.66% rate used in Rhode Island's prior modeling. It also uses a 20-year, rather than 100-year GWP time horizon, reflecting the limited time we have to preserve a livable planet.[5]

Incorporating this more accurate accounting of gas leakage increases 2017 baseline emissions from 10.8 million metric tons of carbon dioxide equivalents ("MtCO2e") to 15.7 MtCO2e—a 45% increase in <u>overall</u> statewide emissions.[6] This estimate is massively higher than that of the Emissions Inventory, which counts a miniscule 0.15 MtCO2e in emissions from natural gas

[2] *See* Intergovernmental Panel on Climate Change, *Climate Change 2013: The Physical Science Basics* 714 (2013), *available at* https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf.

[3] *See* Stockholm Envtl. Inst. & Brown Univ. Climate and Dev. Lab, *Deeper Decarbonization in the Ocean State: The 2019 Rhode Island Greenhouse Gas Reduction Study* 20–23 (2019), *available at* https://www.sei.org/wp-content/uploads/2019/09/deeper-decarbonization-in-the-ocean-state.pdf; *see also* R.I. Exec. Coordinating Council on Climate Change, *Rhode Island Greenhouse Gas Emissions Reduction Plan* (2016), *available at* http://climatechange.ri.gov/documents/ec4-ghg-emissions-reduction-plan-final-draft-2016-12-29-clean.pdf (using data that assumes a lower gas leakage rate).

[4] *See* Kathryn McKain et al., *Methane Emissions from Natural Gas Infrastructure and Use in the Urban Region of Boston, Massachusetts* (2015), *available at* https://www.pnas.org/content/pnas/112/7/1941.full.pdf.

[5] *See* 2019 GHG Reduction Study at 14 ("Many climate impacts, such as the melting of the permafrost and polar ice caps, are likely to worsen sharply in the next 20 years, and are expected to create cascades of worsening problems…[T]o prioritize prevention of near-term warming and impacts, the 20-year time horizon is a more rigorous reflection of what we need to do to assure a livable planet in general terms, and to stop runaway sea level rise and other impacts for Rhode Island more specifically.").

[6] *Id.* at 15.

distribution in 2016.[7] The implications for Rhode Island's emissions reduction progress and for state policy are commensurately massive.

The modeling in the Emissions Inventory must be updated with the higher leakage rate used in the 2019 GHG Reduction Study. Failing to do so obscures the true costs of our reliance on gas, and the urgent need to address leaks in the short term and get off of gas in the medium term.

2. The Emissions Inventory's use of a hybrid accounting methodology for the electricity sector is appropriate.

CLF endorses DEM's use of a hybrid accounting methodology for the electricity sector. While the Emissions Inventory characterizes its methodology as a form of consumption-based accounting, i.e. accounting based on electricity used in the state rather than produced in the state, its approach includes all of the emissions that would be captured by production-based accounting. Under this methodology all GHG emissions from Rhode Island's power plants are attributed to Rhode Island, and then—because Rhode Island uses more electricity than it generates—emissions from imported energy are included as well.[8]

This approach brings Rhode Island into conformity with other states in the region.[9] It also forces the state to account for the real impacts of energy production decisions, something that traditional consumption-based accounting does not do.[10]

3. DEM should recalculate at least the 1990 baseline GHG emissions inventory to enable an 'apples-to-apples' comparison with the most recent inventory.

As DEM completes GHG inventories for each year for which data becomes available, it sometimes amends its methodologies to take advantage of better data or accounting practices. However, it does not amend inventories from earlier years by recalculating emissions using its

[7] Emissions Inventory at 5.

[8] *See id.* at 11.

[9] *See* Conn. Governor's Council on Climate Change, *CG3 Exploratory Report* 34 (2016), *available at* http://www.ct.gov/deep/lib/deep/climatechange/gc3/gc3_exploratory_report_2016.pdf; Mass. Dep't of Envtl. Prot., *Statewide Greenhouse Gas Emissions Level: 1990 Baseline and 2020 Business as Usual Projection Update* 13–14 (2016), *available at* https://www.mass.gov/doc/statewide-greenhouse-gas-ghg-emissions-baseline-projection-update-including-appendices-a-b/download.

[10] For example, under traditional consumption-based accounting the state could permit the construction of large, dirty fossil fuel plant and see little effect on its emissions inventory. Because Rhode Island is part of a regional grid in which we only use 6% of the total power, Rhode Island could essentially shift responsibility for 94% of the resulting GHG emissions onto other states. For a deeper discussion of consumption- and production-based accounting and fossil fuel power plants, *see* R.I. EFSB Docket No. SB 2015-06, Pre-Filed Rebuttal Testimony of Dr. J. Timmons Roberts 1–9, *available at* http://www.ripuc.org/efsb/EFSB2/SB2015_06_CLF_Roberts2.pdf.

updated methodologies. At a listening session event held on Tuesday, November 19, 2019, DEM staff explained that the agency is unable to recalculate earlier emissions inventories due to staffing and budgetary constraints.

While CLF recognizes that there may be significant costs to recalculating earlier inventories, it is important to recalculate at least the 1990 baseline inventory. Under the RRIA, emissions reductions are calculated in relation to 1990 levels.[11] Progress towards and achievement of the RRIA goals cannot be evaluated reliably when different accounting methods are used. Recalculating at least the 1990 baseline inventory with the current methodology would enable an 'apples-to-apples' comparison and allow for a more reliable evaluation of the state's progress.

4. The Emissions Inventory should provide greater detail in its discussion of the transportation sector.

The discussion of the transportation sector—the single largest and fastest growing source of GHG emissions in the state—in the Emissions Inventory is focused almost entirely on road-based motor vehicles like cars and trucks.[12] While these vehicles account for the vast majority of emissions in the sector, this section could be improved by discussing and contextualizing emissions data for all parts of the transportation sector, including air and water transport, rail, and off-road equipment.

5. Rhode Island must redouble its efforts to decarbonize and do its part to address the climate crisis.

a. The state must accelerate its transition away from fossil fuel-based electricity generation and towards clean, renewable sources of power.

CLF commends Governor Raimondo's commitment to facilitating the development of 1,000 megawatts ("MW") of clean energy resources by 2020,[13] and the state's progress in achieving that goal.[14] While meeting or exceeding the 1,000 MW goal would represent an important

[11] R.I. Gen. Laws § 42-6.2-2(a)(2)(i).

[12] *See* Emissions Inventory at 8–9.

[13] *See* R.I. Office of the Governor, Press Release: Raimondo Announces "1,000 by '20" Clean Energy Goal – 1,000 Megawatts of Clean Energy by 2020 (Mar. 1, 2017), https://www.ri.gov/press/view/29766.

[14] *See* Governor's 1,000 by '20 Clean Energy Goal, R.I. Office of Energy Res., http://www.energy.ri.gov/renewable-energy/governor-clean-energy-goal.php (last visited Nov. 20, 2019) (tracking the state's progress towards the 1,000 MW goal); *see also* Alex Kuffner, *R.I. Says Clean Energy Plan Falls Short*, Providence J., Jul. 28, 2019, https://www.providencejournal.com/news/20190728/ri-says-clean-energy-plan-falls-short ("[The Office of Energy Resources] is confident that the state's robust clean energy economy will deliver to meet this goal," even following a disappointing procurement process earlier this year.).

milestone in Rhode Island's clean energy transition, 1,000 MW comprises only a small fraction of the renewable energy resources the state will need to procure to meet its targets under the RRIA.

Rhode Island will not only need to replace existing fossil fuel generation, but also respond to a significant rise in electricity demand precipitated by the electrification of the transportation and heating sectors. Because typical renewable resources—solar panels and wind turbines—generate electricity during fewer hours of the year than a coal or gas plant, the needed capacity will grow even more.

Taking these factors into account, a recent Brattle Group report estimates that to achieve 80% decarbonization by 2050, New England could require 191,000 MW of capacity.[15] Assuming that Rhode Island were to continue to account for roughly 6% of the region's electricity use, this means that Rhode Island would require over 11,000 MW of capacity by 2050. The state will need to accelerate its procurement of clean, renewable energy in order to meet tomorrow's energy needs and its GHG emissions reduction goals.

At the same time, it is critical that the state not take any steps backward by allowing the construction of any new fossil fuel-fired power plants. When the Rhode Island Energy Facility Siting Board denied a permit for a proposed 1,000 MW fracked gas and diesel oil power plant in Burrillville earlier this year, the state narrowly avoided a disastrous long-term commitment to dirty fossil fuel-based energy production and a significant new source of GHG emissions at a time when the state needs to aggressively pursue decarbonization.

Had that plant been permitted and built, it would have become impossible for the state to achieve its short-, medium-, and long-term carbon emissions reduction goals under the RRIA.[16] While the Burrillville plant is dead, new power plant proposals may come along at any time. The state must take steps to ensure that no future proposal receives a permit unless it is compatible with the goals of the RRIA and its responsibility to address the climate crisis.

[15] Brattle Grp., *Achieving 80% GHG Reduction in New England by 2050* 15 (2019), *available at* https://brattlefiles.blob.core.windows.net/files/17233_achieving_80_percent_ghg_reduction_in_new_england_by_20150_september_2019.pdf (estimating that New England will need 191,000 MW of total supply capacity by 2050 under a balanced scenario that includes a mix of wind and solar).

[16] *See* Pre-Filed Rebuttal Testimony of Dr. J. Timmons Roberts, *supra* note 10, at 9–16.

b. Rhode Island needs to electrify its heating sector and end its reliance on gas and other fossil fuels.

The Emissions Inventory attributes 17% of the state's GHG emissions to residential heating, 8% to commercial heating, and another 10% to industrial heating and processes.[17] Gas leaks, an unavoidable consequence of reliance on gas for heating and electricity production, are counted—and as discussed above, significantly undercounted—separately as part the energy sector.[18] Rhode Island cannot meet its goals under the RRIA without addressing its reliance on gas and other dirty fossil fuels for heating.

In addition to reducing GHG emissions, moving away from gas will provide reliability and safety benefits, protecting customers from events like the week-long outage in frigid temperatures experienced by nearly 7,000 customers on Aquidneck Island earlier this year,[19] and the 2018 explosions that caused death, injury, and widespread evacuation in Massachusetts' Merrimack Valley.[20] CLF hopes that the state's upcoming Power Sector Transformation process will help to quickly put the state on a path away from reliance on dirty gas and towards clean, safe alternatives like electric heat pumps and energy efficient appliances.

c. The emissions reduction goals in the RRIA must be made enforceable.

Passed in 2014, the RRIA sets out state GHG emissions reduction goals of 10% below 1990 levels by 2020, 45% below 1990 levels by 2035, and 80% below 1990 levels by 2050.[21] Importantly however, these goals are only aspirational. There's no way to ensure that we achieve them and no legal consequence if they are not met.

Governor Raimondo said that she would support mandatory, enforceable, economy-wide reductions in carbon emissions during her 2018 re-election campaign.[22] Thus far the Governor has provided no explanation as to why she has not made good on her promise. Several of Rhode

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[17] Emissions Inventory at 7.

[18] *Id.* at 5.

[19] *See* Alex Kuffner, *Regulators: Utilities, Not Customers, Should Pay for Gas Outage on Aquidneck Island*, Providence J., Oct. 30, 2019, https://www.providencejournal.com/news/20191030/regulators-utilities-not-customers-should-pay-for-gas-outage-on-aquidneck-island.

[20] *See* Laura Ly, *Merrimack Valley Gas Explosions Were Caused by Weak Management, Poor Oversight, NTSB Says*, CNN, Sept. 24, 2019, https://www.cnn.com/2019/09/24/us/ma-gas-explosions-cause/index.html.

[21] R.I. Gen. Laws § 42-6.2-2(a)(2)(i).

[22] *See* Dave Fallon et al., *Gov. Raimondo Maps Out RI's Clean Energy Future*, The Public's Radio, Aug. 8, 2018, https://thepublicsradio.org/post/gov-raimondo-maps-out-ris-clean-energy-future; Tim Faulkner, *Gov. Raimondo's Second-Term Energy Plan Lacks Specifics About Mitigating Climate Change*, ecoRI News, Aug. 13, 2018, https://www.ecori.org/renewable-energy/2018/8/13/egnh9v4tbkutevr4qiauoxhw1vr57g.

Island's neighbors already have mandatory, enforceable GHG emissions reductions in place.[23] It's past time for the state to join them and make our GHG emissions reduction goals mandatory and enforceable.

d. Rhode Island should aim beyond the RRIA targets.

While the RRIA targets an 80% reduction in state GHG emissions by 2050, Rhode Island should view 80% as a floor rather than a ceiling. Emerging science tells us that we'll need to reach even more ambitious goals to avoid warming beyond 1.5°C and the irreversible climate change and widespread harm that would cause to people and the environment.

The 2020, 2035, and 2050 emissions reduction targets in the RRIA were based on those agreed to by the New England Governors and Eastern Canadian Premiers in a resolution adopted in 2001. The most recent analysis from the Intergovernmental Panel on Climate Change indicates that substantially more ambitious targets are necessary to avoid warming beyond 1.5°C, calling for net zero emissions by 2050.[24]

A more aggressive emissions reduction timetable is both necessary and possible. The 2019 GHG Reduction Study finds that emissions can feasibly be reduced 70–80% as early as 2030.[25] The question Rhode Island has to answer now is whether we will pay the costs associated with decarbonization, or pass the far greater costs of inaction on to future generations.

Thank you very much for your consideration of these comments.

Sincerely,

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[23] *See* Mass. Gen. Laws ch. 21N (Massachusetts Climate Protection and Green Economy Act); Conn. Pub. Act No. 08-98 (An Act Concerning Connecticut Global Warming Solutions); 2019 Me. Legis. Serv. Ch. 476 (S.P. 550) (L.D. 1679) (West) (An Act To Promote Clean Energy Jobs and To Establish the Maine Climate Council).

[24] *See* Intergovernmental Panel on Climate Change, *Global Warming of 1.5°C: Summary for Policymakers* (2018), *available at* https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_version_stand_alone_LR.pdf.

[25] 2019 GHG Reduction Study at 4.