

Louise Diamond Committee to Protect Next Generations

A Project of the Institute for Multi-Track Diplomacy

TO: Climate Action Commission

DT: 5 September, 2017

RE: Statement of Concern and Recommendations

FR: John L. McCormick, Director and Technical Advisory Group Member

INTRODUCTION

In the first five months of 2017, global temperature averaged Earth's second warmest on record for that period of time. In fact, it was the third warmest May since records began in 1880 averaging .92 degrees Celsius (1.656 degrees Fahrenheit) above the 20th century average for all land and ocean areas. Earth's mean temperature over land and water in May was 0.88 degrees Celsius (1.584 degrees F.) above the 1951-1980 average. What is most important is not whether a given month is a fraction of a degree warmer or colder; it is the overall trend, as global temperatures climb since the late 1970s.

Over the last 35 years the sun entered a cooling **trend**. However, global temperatures continue to increase. If the sun's energy, on earth's surface, is decreasing while the Earth is warming, it cannot be the main control of the temperature.

In 1895, Swedish scientist Svante Arrhenius presented a paper to the Stockholm Physical Society titled, "On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground" describing the radiative effects of carbon dioxide on the surface temperature of the Earth. Scientists have unequivocally proven the absorptive capability of a carbon dioxide molecule to trap earth's radiant heat bouncing into space, some of which is redirected back to our planet.

Scripps-Howard's Mauna Loa, Hawaii Observatory measures daily atmospheric CO2 concentrations. May, 2017 recorded 406.7 parts per million (ppm). The May 2016 concentration was 404.4 ppm and more troubling was the 1958 measurement of 315 ppm – an increase of 92 ppm in 58 years. Pre-industrial CO2 concentration was about 280 ppm. Antarctic ice cores dating more than 800,000 years contain air bubbles of trapped CO2 levels fluctuating over that time but no level exceeded 300 ppm.

Historic records of global CO2 emissions indicate an 1850 total of 950 million tons. By 2014, global population and industrial development have increased the annual CO2 emission total to 36 billion tons (a 39-fold increase). These are measured, observed and proven facts. The CO2 concentration and global warming trends must guide the discussion of this Commission.

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While Governor Scott's timely issuance of the Executive Order calls upon us to focus on climate impacts and recommendations to reduce greenhouse gas emissions, from all sectors, we cannot escape the reality that CO2 emissions, in a **business as usual future**, will do far more than threaten Vermont's environment and economic prosperity. Consider the Mauna Loa measured increase of 2.3 ppm CO2 from May 2016 to May 2017 and extrapolate 25 years, in the life of child born today. That is an additional 57 ppm and increases the global atmospheric CO2 concentration to 461 ppm; a level scientists warn will push us beyond a point of no return. Paleontologists estimate the first global extinction 252 million years ago was triggered by massive volcanic eruptions in Siberia that raised atmospheric CO2 concentrations above 1,000 ppm. That child will likely live through the halfway point of that extinction trigger.

WHERE DOES THIS COMMISSION FIT INTO THAT EQUATION?

Clearly Vermont's fossil fuel consumption is not a driving force in the global warming trend. According to the U.S. Department of Energy, Vermont has the lowest CO2 emissions of any State while it is average in its efforts to reduce per-capita emissions. This Commission has an opportunity to put our State back on the path to the 'greenest State'. We must also satisfy the Executive Order's directive to "recommend an action plan aimed at reaching the State's renewable energy and greenhouse gas reduction goals while driving economic growth, setting Vermonters on a path to affordability, and ensuring effective energy transition options exist for all."

Taking those directives to heart and to a conclusion should lead us in a direction that assures we do no harm.

Vermont families and businesses really have only one response to responsibly protect our children's future -- reduce consumption of carbon-based fuels. Many have taken steps to do just that but others lack the financial or physical capability to do so. Energy efficiency and deployment of renewable energy are keys to reducing energy use in dwellings and businesses. An estimated 125,000 Vermonters living in "fuel poverty" spend more than 10% of income on energy costs despite the aggressive and centralized delivery structure for energy efficiency through Efficiency Vermont and other State and private programs. Vermont ranks 51st in the U.S., in energy affordability. It was estimated, in a recent Regulatory Assistance Project report "Thermal Efficiency for Low-Income Households in Vermont" that an average of "172 deaths each year, in Vermont, are directly attributed to winter weather, and most of those are likely due to inadequate home heating."

The aging housing stock and mobile homes need to be weatherized. 20-30% of Vermont families could qualify for the State Weatherization Program based on income. All Low Income Heat Energy Assistance Program (LIHEAP) recipients are required, by law, to apply – but funding for all of them is woefully inadequate and delivery of weatherization can take years to begin.

Last year Vermont weatherized 1,700 homes while providing LIHEAP to 27,000 households.

The current federal budget proposal zeroed-out funding for LIHEAP and anxious families and State agents are eager to see the Congress reinstate adequate funding. As life-saving and comforting as that program is, it subsidizes the cost of heating a likely un-weatherized home. This should also be a focus of the Commission because our charge is not all about global warming...it is also about finding a path to affordability in Vermont.

[NOTE: The Congressional House Labor-HHS Appropriations Subcommittee passed a FY2018 spending bill including \$3.39 billion for LIHEAP similar to FY2017 funding. It remains for the Senate to agree.]

IS LIHEAP (SFA) IN THE CROSS-HAIRS OF A CARBON TAX?

The recent and ongoing campaign to establish a Vermont carbon tax actually works against the interests and needs of LIHEAP recipients. There is a potential pool of 24,700 households expected to apply for LIHEAP this year.

Vermont's Department for Children and Families issued "Outcomes for Vermonters" in January 2017 that provided data on the State's Seasonal Fuel Assistance (SFA) Program that provides a single, annual benefit to income eligible households. During the 2015-16 heating season, 22,618 households received a full fuel benefit. The average benefit paid to certified fuel dealers for all households was \$699 (approximately 30% of the average household's winter heat) and totaled \$15,809,982. Assuming a \$2.15 gallon fuel oil price, about 7.4 million gallons were purchased by the Program.

The Vermont General Assembly held hearings in 2016 on a bill to establish a tax on the purchase of carbon-based fuels; gasoline, diesel, heating oil and natural gas. It proposed a \$100/ton tax on carbon dioxide emitted after combustion, starting at \$10/ton in 2018 and ramping up \$10 each year for 10 years. Using the U. S. E.P.A. data, a gallon of heating oil emits 22.4 pounds of CO₂ (89 gallons of heating oil per ton of CO₂). At a carbon tax level of \$100 per ton of CO₂, the increase will be \$1.12 per gallon (\$100/89 gallons). Using the estimated 2015-2016 LIHEAP subsidy of 7.4 million gallons the full impact of the tax will increase the cost of this vital program by \$8.3 million. The State budget will be severely burdened to fill that shortfall.

The proposed carbon tax bill provides a yearly 'dividend' but that will not remedy the immediate economic impact of a low income family paying the tax when the fuel is delivered.

The ten year tax phase-in presents huge challenges for Vermont's LIHEAP program. Congressional appropriations following the aftermath of Hurricane Harvey, massive federal tax cuts, rising oil prices and deficit-prone State budgets will determine its fate. Rising health insurance premiums and the cost of health care must also be considered when discussing the importance of maintaining an adequately funded LIHEAP program for the long-term. Elderly and children will suffer effects of under-heated homes. Emergency hospital visits will increase as will lost school and work days. A parent should never have to tuck a child into a bed in a cold room.

Clearly, we need a more humane plan. A Vermont Green Bank can address each of the directives of the Executive Order.

VERMONT'S WEATHERIZATION PROGRAM

Vermont has one of the most aggressive weatherization programs in the nation but the General Assembly is balancing accounts by shifting funds from LIHEAP, changing the gross receipts tax (GRT) to a 2 cent per gallon of heating oil tax. This is counter-productive. Vermont residential heating fuel consumption has diminished from 103 million gallons, in 2000, to 50.6 million gallons in 2011. As Vermont's heating oil demand continues to decrease, the fuel oil tax will have to increase to keep pace with Weatherization Program funding. Looking at a ten year horizon, that will become very unpopular politically while the Program continues to struggle. Shifting from the GRT to the cents-per-gallon tax also eliminates the benefit of increased revenue when fuel costs rise and places an additional cost on the subsidized gallons provided by the SFA Program. A 2 cent increase will cost SFA \$148,000 in this heating season.

TIMING FOR A VERMONT GREEN BANK HAS ARRIVED

The Commission has the support of Governor Scott. He expects it to develop effective actions while re-affirming Vermont's commitment to reduce greenhouse gas emissions from all sectors of the economy. And, the Commission's product should reflect his politics. A Green Bank proposal should not just become an idea among many. It should be an objective of the Commission.

It is beyond the scope of this Statement to give advice on the structure and formation of a Green Bank. Clearly, there is, in Vermont, a wealth of technical and financial expertise that can be marshaled to write a concept and draft legislation Governor Scott can approve. Leaving the policy matter aside, I offer a political strategy to motivate the Commission to pursue this.

The global warming future will fall heaviest on our youth and young adults. Students of Vermont Law School and its Institute for Energy and the Environment directed by Dr. Jones are fully capable of contributing to this analytical process. In fact, the Institute published, in 2011, "Financing Residential Energy Efficiency in Vermont". They could collaborate with UVM students and other schools.

Yale's Dr. Daniel Esty, Professor of Environmental Law and Policy conceived the Connecticut Green Bank idea while Commissioner of the Department of Energy and Environmental Protection (DEEP). Connecticut's Green Bank was established in 2011 by Governor. Daniel Malloy — while Dr. Esty was leading DEEP. To date Connecticut's Green Bank has driven over \$1 billion of total clean energy investment in the state and, in the Annex, a record of its accomplishments is provided.

Dr. Esty could be invited to assist the students as might the Washington, DC-based Coalition for a Green Bank, staff of the national Union of Concerned Scientists that recently published a thorough analysis of the steps Vermont can take to create a Bank and Hinesburg's Energy Futures Group. We have an intellectual critical mass the Commission can deploy quickly. And, Executive Branch Commission members have a great deal of knowledge from which Governor Scott can benefit. Deputy Secretary Walke identified one of the steps in the Commission's process would include providing the Governor three recommendations by January 1, 2018. There is time to include recommending a Vermont Green Bank to the Governor. It could lead to bi-partisan support for legislation

It will require some funding to assist the Commission's Access to Capital Cross-cutting Subcommittee, Mr. Jones' Institute, stipends for students contributing to the research and professional participation. Perhaps the Vermont Community on Foundations, Public Service Department, Green Mountain Power and the private sector can be appealed to contribute to the Commission's operating budget.

Commission members, Governor Scott has given you a rare opportunity to seek his support for a policy and program that achieves his objectives that include making Vermont more affordable. Bring his Executive Branch into the discussion of his Executive Order:

“WHEREAS, the State must work with a range of perspectives to develop a strategy to reduce greenhouse gas emissions and combat climate change that addresses these fundamental principles:

- ✦ solutions that reduce greenhouse gas emissions must spur economic activity, inspire and grow Vermont businesses, and put Vermonters on a path to affordability;
- ✦ the development of solutions must engage all Vermonters, so no individual or group of Vermonters is unduly burdened; and
- ✦ programs developed to reduce greenhouse gas emissions must collectively provide solutions for all Vermonters to reduce their carbon impact and save money.”

ANNEX

Connecticut Green Bank Energy, Economic and Environmental Outcomes

	FY2012	FY2013	FY 2014	FY 2015	FY 2016
Energy Outcomes					
Number of Clean Energy Projects	417	1,118	2,422	6,543	8,271
Annual Energy Savings (MMBtu)	9,334	59,481	378,877	1,086,544	419,219
Renewable Capacity (MW)	2.9	23.5	26.1	65.5	74.4
Lifetime Production (MWh)	68,388	1,419,346	1,007,648	1,824,810	1,995,564
Job Outcomes					
Jobs Direct	88	559	550	1,455	1,703
Jobs Indirect	142	1,132	885	2,340	2,740
Total Jobs	230	1,691	1,435	3,795	4,443
Lifetime CO2 Emissions Reductions					
Emission Reduction (Tons)	35,459	178,437	271,179	815,600	885,103
Home Equivalent	326	15,293	6,499	10,116	10,491
Cars off the Road Equivalents	236	1,967	1,630	5,432	5,816