

Climate Action Commission Listening Tour
St. Albans City Auditorium
September 28, 2017

Commission members present: Peter Walke, Tom Donahue, Linda McGinnis, Michele Boomhower, Adam Knudsen, Liz Gamache, Harrison Bushnell, Robert Turner, Marie Audet, Mary Sprayregen

Attendance per signup sheet: 85 / 42 speakers

Peter Walke kicked off the meeting at 6:10pm with a brief introduction and explanation of ground rules – people who signed in and marked that they'd like to speak will be called up in the order they arrived and will have the floor for 2 minutes.

Penny Dubie, Fairfield - See comments entitled "*Penny Dubie CAC Comments*"

Dustin Lang, Swanton – We need to evaluate energy sources available to us, hydro, wind, solar, bio, nuclear then evaluate needs and apply needs to sources; designate the best application to appropriate venue; everyone is looking to VT as a supplier; none of renewable energy credits stay in VT; we need to fulfill our needs first; On the issue of the carbon tax – VT state and local tax burden was the 6th highest in the nation – 16% above national average – I don't think VT can afford any more taxes; specifics are yet to be proposed, but we are being told \$ will return to taxpayer – haven't seen an efficient program in operation;

Jim Styles, St. Albans – 1. carbon tax is easy low hanging fruit – efficient; and should be revenue neutral; 2. regenerative farming soil/carbon sequestration – large amounts of carbon can be removed from atmosphere into the soil – specific recommendation- for state to look for sources for soil inoculants to be applied to soil to build soil biology to help in the sequestration – 3. Time to start thinking about moving people out of flood prone areas; 4. Like to suggest we prepare to receive climate migrants;

Mary Harbaugh, St. Albans – Encourage the commission to think big – huge complicated challenge – easy to come up with nice little projects that fit the puzzle – but no one else is doing this so we need to think big. Encourage the governor to partner with new England or Canada to allow individuals and families to sell excess solar power to the grid; like to see some zoning code locally or statewide as a default with waivers that every new building has a south facing roof. Not require to put solar on – but someone may down the line. Future is coming at us really fast and tiny projects aren't going to do it. Carbon tax – no one wants extra taxes, we need tax reform, it doesn't have to be extra – taxes are supposed to encourage good stuff discourage bad stuff – encourage people to not pollute; create a tax that provides an incentive for people to do the right thing.

Stephen Crowley, South Burlington – See comments entitled "*TESTIMONY before Governor's Climate Action Commission*"

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Henry Boyl, Millton - wants to see VT more resilient and prepared for destruction of energy markets in the face of climate change; (emailing me his comments).

Doug Grandt, Putney – See Comments entitled “*Vermont Climate Action Commission*”

David Skapin, Essex, – brought a book up to the podium to share, unfortunately I missed much of his testimony due to someone coming up asking me for my email address. Mr. Skapin did not supply notes.

Judith Raven, Shelburne – Urge to recommend we put a price on carbon pollution – think dividend should be used for weatherization and energy efficiency

Keri Ellis, Westford – Look to viable solutions, put a price on carbon, make the 90% renewable goal mandatory and increase it to 100% renewable – See Comments entitled, “*Keri Ellis Westford VT*”

Brian Forrest, Williston – This is huge problem that we’ve known about for 20 years and can no longer avoid it. Stop building fossil fuel infrastructure; carbon tax – use money to turn our make homes more efficient; transportation – incentivize electric cars; mandate the state energy plan; See Comments entitled “*Brian Forrest – Williston VT*”

Rick Wackernagel, Burlington – See Comments entitled “*Rick Wackernagel CAC Comments*”

Eric Jessiman, Bakersfield – How many people know how much heat your car generates while you’re driving it. Each gallon of gasoline puts 55k BTUs into the air – heat rejection. Al Gore – Truth to Power - people need to understand USA uses 370 million gasoline a day each day. See Comments entitled “*Eric Jessiman CAC Comments*”

Ross Conrad, Middlebury – We live in a capitalist system – we need to make this economically viable; rather than a tax, use a dividend on carbon; distributed to citizens; stop all fossil fuel new infrastructure; then figure out how to transition; efficiency VT type utility that helps Vermonters reduce their fossil fuel use; divest from banks, and pension funds; make economics work for renewables; small scale renewables versus large industrial scale; new construction should be solar ready; have to take carbon out of the atmosphere – use agriculture to sequester – cover crops, no till, no chemicals, ween off synthetic chemicals on soils; consider the costs that will effect VT when we don’t successfully deal with this, we can’t afford to not do something. VT is not too small to make a difference, cumulative impact – it can add up.

Sarah Watson, S. Royalton – urge to impose a carbon tax – help to incentivize switch to clean energy show we’re committed to taking action, See Comments entitled “*Sarah Watson CAC Comments*”

Paula Kane, St. Albans City – To get where we want to go, we should encourage more efficiency; transportation takes a lot of our carbon generation – rural state with a lot of poor

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people commuting to jobs – imposing a carbon tax on them is wrong, they can't afford it; the state could encourage more carpooling, build more park n rides; run more public transportation that is more convenient; if we increase taxes more people will leave; federal carbon tax maybe, but not VT; need more incentives and plant more trees;

Henry Swayze, Tunbridge – See Comments entitled “*Testimony to the Governor’s Commission on Climate Action*”

Debra Sachs, Charlotte – See Comments entitled “*Debra Sachs CAC Comments*”

Bonnie Filker, Burlington – lots of job opportunities because of the catastrophes; to mitigate climate change we'll need all the solutions that we can; implement carbon tax, offset by reducing sales tax and use carbon tax revenue to fund solutions;

Linda Cooper, Burlington – Your task is daunting; I support alternative energy, carbon tax, energy efficiency; weatherization;

Ilana Corey, Burlington – I'm scared of climate change; scientists are making genetic modifications – plants that suck carbon out of the atmosphere – we need to tax carbon; VT can be the role model and set the example;

Chloe Greenia, St. Albans – climate change is the most pressing issue of our time; if we don't take risks and make sacrifices – forcing big oil to pay; energy independence fund; we're one of the only developed countries that won't break up with big oil. See Comments entitled “

Daniel Shearer, Burlington – We are seeing unprecedented weather; self proclaimed comprehensive energy plan guru – can't see it happening without a carbon tax; Canada is going to do it; feds are not going to help; Just purchased a Nissan Leaf – we need to make it hard to not buy an electric vehicle; currently it's hard to find fast charging stations; make it more convenient; stop pipelines; divest in fossil fuels; please put out an unprecedented solution.

Drew Baker, Burlington – part of the generation that will bear the burden – student – in favor of carbon pricing; carbon tax will bring economic growth to Vermont; pair economic and environmental justice; See Comments entitled “*Drew Baker CAC Comments*”

Emily Roland, Burlington – climate change is taking a toll on Vermont; VT has an opportunity to be a leader and put a tax on carbon.

Gina Clithero, Worcester – Importance of putting a price on carbon; I believe in VT's leadership in these areas – already made progress in food systems and land use and would like VT to lead the way in climate. The economic system is unjust – putting a price on carbon is a way to redistribute the burden to the people who are responsible for causing the most damage; focus on human capital and natural resource based economy; our natural resources are dependent

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on what we do to solve climate change today. Economic loss with the degradation of our environment. Need a solid economic policy solution.

Zachary Tomanelli, South Burlington – we need bold meaningful climate solutions; reduce pollution and strengthen our economy. Recognizing that most everyone is begging for a price on carbon pollution – prioritize low and middle-income Vermonters to benefit from a tax; take your charge seriously; recommend a price on carbon pollution;

Jack Hanson, Burlington – Vermont has made significant progress in the electric sector – in doing so we've created thousands of jobs and kept electric rates low; localizing energy will improve economy; build on electric in transportation and heating; focus on efficiency and electrification of those sectors and build out renewable energy; in order to make this happen we need to leverage economic solutions by carbon tax; incorporate the harm of fossil fuels – price of fossil fuels are artificially low – use revenues to fund solutions; governor may say no carbon tax – but commission still has a duty to bring what we're saying to the governor

Jeff Forward, Richmond – Don't forget biomass – plentiful renewable resource; we know how to do it- 60 schools heat with wood; more than any other state; we're national leaders; codify in statute a goal of doubling the amount of wood heat to 35% - by 2030; suggest consider making sales tax exemption for equipment; encourage state to heat state colleges with wood; keeps energy dollars local; creates jobs; benefits the forests; See handout provided entitled "*Wood Heat in Vermont Baseline Assessment for 2016*"

Kevin Batson, Williston – See Comments entitled "*Kevin Batson CAC Comments*"

Steven Bower, Richmond – See Comments entitled "*VT Climate Action Commission Hearing*"

Brenna Reagan, Burlington – Would like to reiterate that we need to put a price on carbon pollution – revenue to energy efficient technology; weatherization – 90% renewable become law; encourage climate refugees welcome here.

Richard Watts, Hinesburg – Transportation – advocate for non-motorized solution – megawatt – negamile – cleanest greenest cheapest mile is non-motorized; how do we get more people out of their cars to walk, bike or use public transit; disincentives the car – make parking more expensive and provide real alternatives; safe biking lanes, lit sidewalks, transit; nibble away at it.....

Marcie Gallagher, Burlington – I support tax on carbon pollution; We also need to look at regenerative agriculture and carbon sequestration; Agency of Ag asked for less money.....? Word of advice to governor – VT is not the state to be defying democracy – if constituency are in support of a carbon tax you should do it.

Sandra O'Flaherty, South Hero – Wanted to talk specific carbon fee and dividend consider representative Gonzalez' short form bill - low income Vermonters will benefit. VT bill needs to

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tie into a national bill; plan for a larger national agenda; ask that the governor to consider exploring the conservative climate change leadership council; resolution to CA AJR43 – resolution calling for federal carbon fee and dividend; hope the governor reconsiders carbon tax; See Comments entitled “*Sandra O’Flaherty CAC Comments*”

Jenn Wood, Grand Isle – Appreciate challenge, opportunity and solution at hand; weatherization – clean energy work force; hard time finding crew to do the hard work of weatherization; because of incentives I purchased a Nissan Leaf - so incentives work; use the power of the vote; push to maintain and strengthen policies; See Comments entitled “*Jenn Wood CAC Comments*”

Bob Atchinson, Plainfield - Plainfield energy coordinator, volunteer home energy visits; definitely need to help people weatherize homes – help seek alternative ways; VT spends 2 billion /year on heating and transportation – of that 1.6 billion leaves the state 8/10 dollars – need to figure out a way to tax the people taking our money – incentivize good behavior to create and use alternative forms of energy – and on a personal basis wake up and realize that we’re a part of the solution. Choose how we heat, choose how we drive; ban on fossil fuel infrastructure – no more time to fool around.

Bill Scott, Hinesburg – See Comments entitled “*Comments by William Scott to the Climate Action Commission....*”

Greg Pierce – See Comments entitled “*Greg Pierce CAC Comments*”

Bob Buermann, South Here – With the NW regional planning commission – developing local knowledge is key – mapping places for biomass, solar, wind, working with town to get energy plans developed; encourage commission to promote the need for local involvement, need the local plans, local involvement and local knowledge

Eli Okon, Burlington – support carbon tax; it’s an investment, if we don’t pay monetarily now we’ll pay with our lives in the future; economic standpoint – carbon tax will develop industries the planet will require if we want to continue living on earth; incentives for VT farmers to practice carbon sequestration;

Natalie Sinkew, St. Albans – See Comments entitled “*Natalie Sinkew CAC Comments*”

Chris Granda, Richmond – Urge commission to act boldly and build on the excellent base of information and analysis that’s already been done in VT. Worked on total energy study – built a computer model of VT energy economy – looked at 3 different public policies – all were capable of reaching VT energy reduction goals. In 3 years since – prices in renewable energy have dropped significantly; please act to embrace the work that has already been done.

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Closing remarks by Peter Walke – we're early in process, this is the third of four public meetings – then we'll be getting together for our 2nd commission meeting; We will have 3 recommendations to the governor by January 1, 2018 then full report due in July 2018.

85 total
42 speakers

Vermont Climate Action Commission – Public Meeting – St. Albany - 9/28/17

NAME	TOWN	Do you wish to speak?	
		Yes	No
Dea Ellis	St. Albans	<input type="checkbox"/>	<input checked="" type="checkbox"/>
George Duabur	Essex dot	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Penny Dubie	Fairfield	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Dustin Lang	Swanton	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CHARLIE & SARA MOORE	ST. ALBANS	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Christine Lang	Swanton	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tom + Terry Cleveland	Georgia	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Jim Stiles	St. Albans	<input checked="" type="checkbox"/>	<input type="checkbox"/>
MARY HARRAUGH	ST. ALBANS	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Jennifer Bamford	Essex	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Richard Bamford	Essex	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Dave Knights	St Albans	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sue Knights	St Albans VT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Steve Crowley	South Burlington	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hony Bayl	Milton	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Doug Grandt	Putney	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cory Parent	St. Albans Town	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Casey Toof	St. Albans Town	<input type="checkbox"/>	<input checked="" type="checkbox"/>
David Skapin	Essex	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Judith Raven	Shelburne	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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NAME	TOWN	Do you wish to speak?	
		Yes	No
Donna Fialkoff	Shelburne	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Keri Ellis	Westford	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sarah Sillis	Richford	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Daniel Cornejo	Lyndon	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Keisey Emery	Lyncon	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Carl Rosqvist	Georgia VT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Catherine Dimitruk	Fairfax/WRPC	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- BRUN FORTST	WILSTON	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Rick Wackonagel	Burlington	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Eric W Jessiman	Bakersfield	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Ross Conrad	Middlebury	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Natalie Sinkew	At End	<input type="checkbox"/>	<input type="checkbox"/>
- SARAH WATSON	S. ROYALTON	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Amanda Amquist	Burlington	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Paula Kane	St. Albans City	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Henry Swagg	Unbridge VT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Barbara Murphy	Fairfax rep.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Kathy Keenan	St A rep.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- DEBRA SACKS	Charlotte VT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Rosemarie Johnson	Charlotte VT	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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NAME	TOWN	Do you wish to speak?	
		Yes	No
- Bonnie Filker	Burlington	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Linda Cooper	Burlington	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Ilana Corey	Burlington	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Chloe Greenia	St. Albans	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hannah Cackley	Swanton	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Daniel Sheaver	Burlington	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Donald McAdams	"	<input type="checkbox"/>	<input type="checkbox"/>
- DREW BAKER	BURLINGTON	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Emily Roland	Burlington	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Gina Clithero	Worcester	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Zachary Tomanelli	South Burlington	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Michel Jeebe	Leiden	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Paula Breenman	Leiden HOLLAND	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mark Bushnell	Middlesex	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Susan Clark	Middlesex	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ed Ballantyne	Georgia	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Jack Hanson	Burlington	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Chris Grauda	Richmond At End	<input type="checkbox"/>	<input type="checkbox"/>
- Jeff Forward	Richmond	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Kevin Batson	Williston	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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NAME	TOWN	Do you wish to speak?	
		Yes	No
- STEVEN BOWER	RICHMOND VT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
JESSE NEWMAN	BRIDGEWATER CORNERS VT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BRENNAN PEAGAN	BURLINGTON VT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CURTIS BEHRE	BURLINGTON VT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will Doherty	Essex VT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Ronald Watts	Hinesburg VT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Marise Gallagher	Burlington VT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Nick Walters	Burlington, VT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Sandra O'Flaherty	South Hero VT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Jean Wood	Orand Isle VT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FRED PARKS	Essex Jct VT	<input type="checkbox"/>	<input checked="" type="checkbox"/> no
KATHY PARKS	Essex Jct VT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SUE PRENT	ST. ALBANS VT	<input type="checkbox"/>	<input type="checkbox"/>
Kate Bailey	ST. Albans VT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Kerstin Taylor	St. Albans VT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
▲ Bob Atchinson	Plainfield, VT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Bill Scott	Hinesburg VT	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Becky Atchinson	Plainfield VT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- GREG PIERCE		<input checked="" type="checkbox"/>	<input type="checkbox"/>
.		<input type="checkbox"/>	<input type="checkbox"/>

email

The Governor charged the commission to come up with at least **three tangible proposals** that reduces the state's greenhouse gas emissions "while driving economic growth, setting Vermonters on a path to affordability, and ensuring effective energy transition options exist for all Vermonters."

3 suggestions -

1. Grants from renewable energy fund to farmers and land owners for "carbon farming" - best practices.

I recently read an article about carbon sequestration, written by former Commissioner of Fish and Wildlife, Steve Wright. I looked at the various websites he mentioned and thought this might be a perfect solution for Vermont's climate action.

Carbon farming would maintain our beautiful Vermont working landscapes by paying farmers and land owners, from our renewable energy fund, to sequester carbon through best management practices. As Steve Wright suggests (article below)- **"Amending these lands with a half-inch of compost could potentially sequester more (carbon) than Vermont's current annual emissions."**

This would also do double duty by helping with lake clean up. I've attached the informational websites below.

2. Distributive energy - If we do build more renewable energy projects -build close to load. No more large projects that transmit power over long distances. This would reduce transmission/ curtailment issues. At one time Vermont's focus was energy independence. And yet all our industrial projects are selling renewable energy credits out of state. Some proposed projects are bidding to sell their power out of state. If Vermont wants to reach its goals, that needs to stop. All energy generated in Vermont needs to stay in Vt.

3. We can not depend on expensive intermittent sources like wind and solar. Our economy depends on low cost electricity as our

Vermont companies compete globally. We need to buy more low cost base load renewable energy from Hydro Quebec.

Thank you very much for your consideration!

Sincerely,
Penny Dubie
pennydubie@gmail.com
802 734 1877

Carbon Farming <http://www.carboncycle.org/carbon-farming/>

The Climate Cycle Institute states that effective and lasting solutions to global climate change must incorporate the "three Es" – *equity, environment, and the economy*;
<http://www.carboncycle.org/about-cci/>

Steve Wright - "Our emissions may be puny, but our effect can be large.

For example, a recent report about California's Healthy Soil Initiative includes this eye opener: **"Calculations provided by scientists working with the Climate Cycle Institute estimate that spreading compost on San Diego's 200,000-plus acres of grassland would sequester 3 million metric tons of greenhouse gas."**

By comparison, in Vermont, according to the 2012 Census of Agriculture (State Data USDA, National Agricultural Statistics Service) there are nearly **140,000 acres of permanent pasture, rangeland and 300,000-plus acres of hay/haylage land. We also have thousands of acres of turf. Amending these lands with a half-inch of compost could potentially sequester more than Vermont's current annual emissions.**

The same action can increase resilience to withstand weather extremes, improve farm viability and reduce the cost of storm water management."

Above quote taken from recent Steve Wright Op-Ed on a Vermont approach to climate change.

<http://www.montpelierbridge.com/2017/08/vermonts-opportunity/>

**California's Healthy Soil Initiative -
https://www.cdfa.ca.gov/oefi/healthysoils/docs/2017-HSPIncentive_RequestforGrantApp.pdf**

Stephen Crowley 1-3
steve.crowley1@gmail.com

TESTIMONY before Governor's Climate Action Commission

CLIMATE CRISIS IS NOW.

Warm Oceans have led directly to the Shocking Severity of Hurricanes.

The precisely predicted flooding in Houston and Miami
Horrendous damage to Puerto Rico and the Virgin Islands
which we are just beginning to understand

From Montana to Arizona severe drought supports dozens of active fires.

Health effects are increasing

WHO estimates the climate crisis will cause 250,000 DEATHS
and health costs of 2-4 billion \$\$ per year by 2030

The climate crisis is now, and it is not slowing down.

• what we've already put in the atmosphere is only just warming the oceans - it will further warm the climate for decades. That creates urgency for what we do now.

RE-THINK what we mean by AFFORDABILITY

We mostly think about the costs of doing something about climate change, and find them inconvenient or maybe untimely.

What about the costs of not doing anything?

Just look Lake Champlain, to see the costs of inaction

People have been talking about cleaning up this lake for decades.

The current lake-wide cyanobacteria bloom has been predicted. Tens of millions every year is today's price tag, if we're to have any hope of reclaiming this prized jewel for our state.

Sure you are aware

WAS IT REALLY AFFORDABLE TO AVOID ACTION OVER ALL THESE YEARS?

The story with the climate crisis is much the same.

Our children and grandchildren will pay.

PUT A PRICE ON CARBON POLLUTION.

Properly implemented, a price on carbon pollution can motivate, incentivize, and leverage a new climate economy, generating thousands of sustainable jobs and economic growth that keep reinvesting locally.

FULLY FUND EFFICIENCY

Nothing is as effective and cheap as finding ways to reduce energy use.

In electricity but also heating and transportation.

Everything that can be close to cost effective over the long term has to be on the list.

TRANSPORTATION.

We need to go beyond electrification of the car.

Walking, Biking, and public transportation (electric) are the essential core of a good long range strategy.

Each is closely tied to the effectiveness of community design.

AS Vermont grows and as we evolve over the decades, we need a long view towards creating walkable, bikeable communities that can be effectively connected by highly efficient public transportation.

ONE LAST THING.

Vermont, may be one of the less affected regions of the world.
We'll see our Irenes, we'll see our lakes struggling, some of our
natural communities.
We will have water, an increasingly scarce and precious commodity.

But we must think forward about food.

transporting food from distant places will be very costly
Many of those places are drying up.

Then what?

Climate Change does favor Vermont agriculture. We may be relying
on this more than we have in many years.

My last recommendation: look carefully at the future of Vermont's
agricultural soils. We may need this gold far more than we imagine
today.

1-7

Vermont Climate Action Commission
City Auditorium, 100 N. Main Street, St. Albans
Doug Grandt, Putney, VT

SUMMARY

A declining limit on fossil fuel imports and sales will reduce CO2 emissions absolutely.

MY HEALTH PLAN vs VERMONT CLIMATE ACTION

I would like to use my own personal health improvement plan as a metaphor.

A year ago, my doctor told me I was pre-diabetic, suggesting I lose weight and exercise.

*No surprise! Another doctor said the same 15 years ago. **I did not take serious action.***

So, now that my numbers are well into the red zone, I decided to work at losing weight.

I walk 4-5 miles or more every day, and I have reduced my caloric intake 30%. It works!

I am half-way to my goal ... I've lost 27 lb. and believe that I can lose another 20 lb.

That's 20% of my starting weight by reducing my intake 30%. Compare to COP21.

To get atmospheric CO2 concentration stabilized, we need to reduce emissions 6%/year.

Globally, that means we need to ween humanity off of carbon fuels 100% in 15-20 years.

Globally, that means we need to replace 100% of carbon fuels with carbon-free energy.

For the sake of my survival, I can do it. For the sake of humanity, the prognosis is bleak.

We also have to take **600-900 gigaton CO2** directly out of the atmosphere and bury it forever.

People are working on that, mostly in Europe, It is not cheap: Something like \$600/ton now.

WHAT IS MEASURABLE PROGRESS IN VERMONT?

There are many good actions that Vermonters can take to reduce CO2 emissions.

Public transportation, autonomous cars, paths to accommodate bikes and walking, etc.

I believe we **MUST** establish a metric in order to **MEASURE EMISSIONS REDUCTIONS.**

One metric that I firmly believe will give concrete reductions is **REFINERIES RETIRED.**

I have a couple of hashtags that make it clear: **#RetireRefineries #OnePerWeek.**

Conversely, measuring the number of operating refineries, and **#CountToZero.**

Of course, we cannot simply shut down refineries without some alternatives,

Thus there is a third component ... **#ReplaceRefineriesWithRenewables.**

Globally, we must **#CountToZero** refineries as well as gas and coal power plants.

BUT, VERMONT HAS NO REFINERIES. SOLAR IS ALREADY SURGING AHEAD.

Globally, wind and solar are already displacing coal and gas power plants.

Progress is exponential, even without a CARBON FEE (with or without a dividend).


VERMONT CAN EFFECT ONLY WHAT WE CAN CONTROL

Limit imports of methane, gasoline, diesel, kerosene, propane and heating oil entering VT.

Reduce the allowed imports by truck and pipeline steadily to zero over 15 years.

Reduced imports will result in reduced sales and combustion, hence CO2 emissions.

Vermont Climate Action Commission
 City Auditorium, 100 N. Main Street, St. Albans
Supplement to 9/28/2017 Testimony

From: Douglas Grandt answerthecall@me.com 
Subject: Re: VCAC - Doug Grandt testimony supplement #1
Date: September 29, 2017 at 9:29 AM
To: Natural Resources Agency VT Climate Action Commission anr.vcac@vermont.gov

Dear Hannah et al. on VCAC and VNRC,

This is one of two emails intended to supplement my testimony last night in St. Albans.

The following email arrived in my inbox this morning, coincidentally just a few hours after the St. Albans VCAC hearing.

I am a member of the google group, and have been aware of various research and trial efforts to perfect so-called CO2 removal (CD-R) and direct air capture (DAC) for several months.

As you can see in this short thread (below)—typical of many other recent email exchanges—CD-R or DAC development is well underway, and will be a necessary component of the global effort to bring atmospheric CO2 concentration down to the near pre-industrial level of 350ppm.

350ppm and 1°C global average temperature rise over pre-industrial is the current widely accepted target for CO2 reductions, which supersedes the 2°C target that has been used by UNFCCC COP and IPCC.

I learned in 2007 from IPCC Chairman Rajendra Pachauri that even with achieving 2°C rise over pre-industrial, 2 billion people will be affected by drought, heat waves, extreme weather, flooding, hunger, thirst, starvation, diseases and displacement by sea level rise while 30% of all species will become extinct as a result of this relatively moderate rise in temperature.

Dr. James Hansen has prepared testimony for Our Children's Trust lawsuit against the U.S. government which explains the current thinking about achieving 1°C maximum sustainable average temperature. It will require sequestration of CO2 in addition to reducing CO2 emissions.

A few organizations including Citizens' Climate Lobby, several Senators and Representatives, and thousands of citizens are calling for "a carbon tax" with various starting levels (\$/ton) and a variety of annual increasing scenarios. There has not been a single definitive study as to the appropriate level of carbon fee that would result in reductions of CO2 emissions, which is why everyone of these proposals includes a steadily increasing rate on the expectation that at some point in the future the rate (\$/ton) will become effective and level off atmospheric concentration.

The first carbon fee legislation proposal in 1990 was based on \$30 per ton of carbon with a annual increase until such point that emissions begin to fall because there was no idea when that would occur. The Office of Budget and Management assessed that level as being too low to be effective and that \$100 per ton of carbon was needed. That was in 1990-1992, and it was my Representative Fortney "Pete" Stark of California.

(Note that one ton of carbon makes 3.67 tons of CO2. It is not clear to me from my research whether Rep. Stark meant "carbon" as stated in his bills or if he intended "CO2".)

All of the current proposals are really nothing more than variations on that original proposal by Pete Stark, who was a banking executive by trade.

The effective level of a carbon fee has not been tested, but one group of researchers published in IOP Science their conclusion that different fuel types in the various sectors have different sensitivities to a range of carbon fee levels. Fuel types include natural gas, gasoline, diesel, kerosene, propane, fuel oil, coal, bitumen, etc. Sectors include passenger vehicles (cars, buses,

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light trucks); freight vehicles (trucks and rail); aircraft; boats and ships; construction and agricultural equipment; residential, commercial and industrial boilers, ovens and heaters; and industrial processes.

Without consideration for the likely impact of "a carbon tax" on each of the various fuels and sectors, the resulting reduction and timeframe is uncertain. The science demands a certainty in timeframe to abandon carbon fuels if we hope to avert devastating catastrophes.

Vermont can help begin concrete verifiable reductions in emissions by **imposing a cap** on the importation, distribution and combustion of hydrocarbon fuels within our state—in other words, **a cap that declines to zero** over a finite time period, and by **steadily measuring compliance** with verifiable metrics and easily captured data.

If we are serious about aggressively addressing and taking control of the root cause of global warming, we must determine what is most effective and what are verifiable metrics of success.

My personal metric for the project I have been working on for five years is this set of hashtags: #RetireRefineries #OnePerWeek #CountToZero and #ReplaceRefineriesWithRenewables.

I will be happy with **one refinery retired** as a beginning and then **one refinery retired every week** for about 15 years.

According to Dr. James Hansen's paper published December 3, 2013, this trajectory should have begun in 2014. (The German Advisory Council on Global Change 2009 publication has a similar set of trajectories.) Hence we are already about 180 refineries in arrears.

There are about 750 refineries worldwide that need to be retired. There are also about 2,300 gas- and coal-fired power plants that need to be retired.

There are innumerable boilers, ovens, heaters and industrial processes. They all must be shut down, electrified, or converted to liquid carbon-free fuels.

The only surefire way to make the shift is to incrementally year-by-year cut off (reduce to zero) the supply of carbon-based fuels and crude oil feedstocks.

Just as a point of reference, if the 15 refineries shuttered as a result of hurricane Harvey were left off-line, that would represent a minor reduction of about 2% of worldwide capacity. That would be a good start, and the impact would be relatively minor. Importantly, it would force oil companies to start establishing a new mindset required for the endgame of the petroleum era.

Reference Documents

[Bit.ly/IOP25Aug25](http://bit.ly/IOP25Aug25) - Multi-tiered C-fee

[Bit.ly/WBGU-2009](http://bit.ly/WBGU-2009) - German Advisory

[Bit.ly/HansenPLOS](http://bit.ly/HansenPLOS) - Dr. James Hansen

[Bit.ly/OCT_science](http://bit.ly/OCT_science) - Our Children's Trust

Best regards,

Doug Grandt
Putney, VT
510-432-1452

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Begin forwarded message:

From: Jim Lerner
Date: September 29, 2017 at 2:30:16 AM EDT
To: Evan Hughes, Healthy Climate Project <healthy-climate-project@googlegroups.com>
Subject: Stuart Licht's Method of Carbon Capture

I'm forwarding an email from a fellow CCL colleague. I haven't read the links but wonder what could possibly remove 1,000 gigatons (or is it more than this?) in just 10 years. That's 100 gigs per year.

----- Forwarded message -----

From: Bruce Burdick
Date: Thu, Sep 28, 2017 at 2:27

Are University of California scientists working on Stuart Licht's method of carbon capture? He claims " with a physical area less than 10 percent the size of the Sahara Desert, our process could remove enough CO2 to decrease atmospheric levels to those of the pre-industrial revolution within 10 years"

I would like to know if carbon nanofiber technology has promise, or if we drastically need to reduce the CO2 emissions of Californians.

Here is an article on carbon capture to make carbon nano fibers

<https://www.acs.org/content/acs/en/pressroom/newsreleases/2015/august/co2.html>

And here is Stuart Licht's contact information:

<https://chemistry.columbian.gwu.edu/stuart-licht>

Thank you for helping us reach a sustainable future,

Bruce

Bruce Burdick, M.D.
(916) 215-3299
brucenburdick@icloud.com

Headline of the story to which I am responding:

"State considers ban on gas and diesel car engines to bolster electric vehicles.", page A1
September 28

Yes, California needs to ban the sale of gas and diesel powered cars. It sounds difficult, but CO2 emissions from gas powered cars will warm the earth more than 1.5 degrees C, which is a worse option.

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As we attempt to limit warming to 1.5 degrees C, let us remember the ultimate goal. The world needs to stop global warming and sea level rise. That requires global temperatures to decrease 0.85 degrees C. That requires each of us to emit less CO2 than the forests of the

world absorb on our behalf. That requires each of us to emit less CO2 than it currently takes to grow our food (unless we develop a carbon capture technique that takes more CO2 out of the air than the forests of the world).

Stuart Licht, Ph.D., of George Washington University claims he can take CO2 from the air and turn it into carbon nanofibers.

"We calculate that with a physical area less than 10 percent the size of the Sahara Desert, our process could remove enough CO2 to decrease atmospheric levels to those of the pre-industrial revolution within 10 years"

California should ban gas and diesel powered cars, and use Cap and Trade money to investigate Stuart Licht's carbon capture technology.

Reference:

<https://www.acs.org/content/acs/en/pressroom/newsreleases/2015/august/co2.html>

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[Join ACSLog In](#)

FOR IMMEDIATE RELEASE | August 19, 2015

'Diamonds from the sky' approach turns CO2 into valuable products

Note to journalists: Please report that this research will be presented at a meeting of the American Chemical Society.

A press conference on this topic will be held Wednesday, Aug. 19, at 9:30 a.m. Eastern time in the Boston Convention & Exhibition Center. Reporters may check-in at Room 153B in person, or watch live on YouTube <http://bit.ly/ACSLiveBoston>. To ask questions online, sign in with a Google account.

BOSTON, Aug. 19, 2015 — Finding a technology to shift carbon dioxide (CO₂), the most abundant anthropogenic greenhouse gas, from a climate change problem to a valuable commodity has long been a dream of many scientists and government officials. Now, a team of chemists says they have developed a technology to economically convert atmospheric CO₂ directly into highly valued carbon nanofibers for industrial and consumer products.

The team will present brand-new research on this new CO₂ capture and utilization technology at the 250th National Meeting & Exposition of the American Chemical Society (ACS). ACS is the world's largest scientific society. The national meeting, which takes place here through Thursday, features more than 9,000 presentations on a wide range of science topics.

"We have found a way to use atmospheric CO₂ to produce high-yield carbon nanofibers," says Stuart Licht, Ph.D., who leads a research team at George Washington University. "Such nanofibers are used to make strong carbon composites, such as those used in the Boeing Dreamliner, as well as in high-end sports equipment, wind turbine blades and a host of other products."

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Previously, the researchers had made fertilizer and cement without emitting CO₂, which they reported. Now, the team, which includes postdoctoral fellow Jiawen Ren, Ph.D., and graduate student Jessica Stuart, says their research could shift CO₂ from a global-warming problem to a feed stock for the manufacture of in-demand carbon nanofibers.

Licht calls his approach "diamonds from the sky." That refers to carbon being the material that diamonds are made of, and also hints at the high value of the products, such as the carbon nanofibers that can be made from atmospheric carbon and oxygen.

Because of its efficiency, this low-energy process can be run using only a few volts of electricity, sunlight and a whole lot of carbon dioxide. At its root, the system uses electrolytic syntheses to make the nanofibers. CO₂ is broken down in a high-temperature electrolytic bath of molten carbonates at 1,380 degrees F (750 degrees C). Atmospheric air is added to an electrolytic cell. Once there, the CO₂ dissolves when subjected to the heat and direct current through electrodes of nickel and steel. The carbon nanofibers build up on the steel electrode, where they can be removed, Licht says.

To power the syntheses, heat and electricity are produced through a hybrid and extremely efficient concentrating solar-energy system. The system focuses the sun's rays on a photovoltaic solar cell to generate electricity and on a second system to generate heat and thermal energy, which raises the temperature of the electrolytic cell.

Licht estimates electrical energy costs of this "solar thermal electrochemical process" to be around \$1,000 per ton of carbon nanofiber product, which means the cost of running the system is hundreds of times less than the value of product output.

"We calculate that with a physical area less than 10 percent the size of the Sahara Desert, our process could remove enough CO₂ to decrease atmospheric levels to those of the pre-industrial revolution within 10 years," he says.

At this time, the system is experimental, and Licht's biggest challenge will be to ramp up the process and gain experience to make consistently sized nanofibers. "We are scaling up quickly," he adds, "and soon should be in range of making tens of grams of nanofibers an hour."

Licht explains that one advance the group has recently achieved is the ability to synthesize carbon fibers using even less energy than when the process was initially developed. "Carbon nanofiber growth can occur at less than 1 volt at 750 degrees C, which for example is much less than the 3-5 volts used in the 1,000 degree C industrial formation of aluminum," he says.

The team's research has been funded primarily by the National Science Foundation.

The American Chemical Society is a nonprofit organization chartered by the U.S. Congress. With more than 158,000 members, ACS is the world's largest scientific society and a global leader in providing access to chemistry-related research through its multiple databases, peer-reviewed journals and scientific conferences. Its main offices are in Washington, D.C., and Columbus, Ohio.

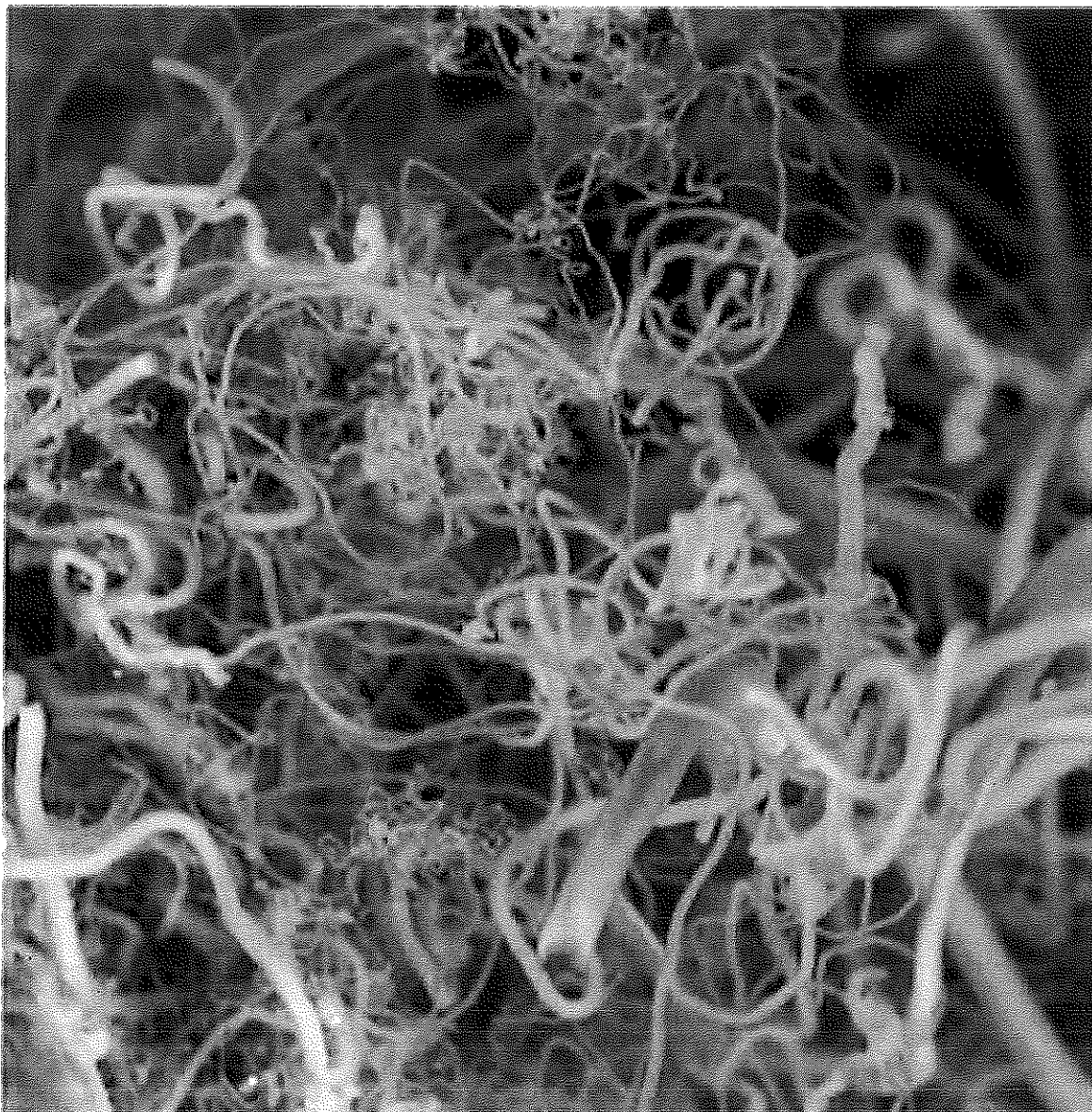
To automatically receive press releases from the American Chemical Society, contact newsroom@acs.org.

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Note: ACS does not conduct research, but publishes and publicizes peer-reviewed scientific studies.

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Media Contact
ACS Newsroom
newsroom@acs.org
Katie Cottingham, Ph.D.
301-775-8455
k_cottingham@acs.org



Researchers are generating carbon nanofibers (above) from CO₂, removing a greenhouse gas from the air to make products.
Credit: Stuart Licht, Ph.D.
[High-resolution image](#)

KERI ELLIS
WESTFORD, VT

Please tailor solutions to match the areas where Vermont is having the greatest impact in adding carbon dioxide and other greenhouse gases.

Please look to viable solutions from places like Project Drawdown to use solutions that are available and proven.

Lastly, please look to and consider work that has already been done on ① putting a price on carbon. I firmly believe in the polluter pays principle so that those who are creating the problem are not getting a pass on the consequences they are creating.

And ② making the 90% renewable goal mandatory so that people beyond this commission are charged with working on this problem and coming up with solutions to get us to not just 90% but 100% renewables.

Thank you.

BRIAN PERRETT - MILUXTON, VT

WE'VE FINALLY COME TO A TIME, AFTER OVER

20 YEARS OF DENIAL, WHERE WE CAN NO LONGER

AVOID THE REALITY OF CLIMATE CHANGE. IT IS
HERE, SLOWER & REVERSED - WE ARE PACING THE ^{PLANET} ~~WORLD~~
TOWARD IT, IT IS HERE AND WE MUST IMMEDIATELY ALL

RESOURCES TO PREVENT THE CLIMATE FROM

CONTINUING TO HEAT UP OUR PLANET.

THIS INCLUDES: (1) STOP BUILDING F.F.
INFRASTRUCTURE

(2) USE ^{THE} TIME-HONORED METHOD OF TAXING
THE THINGS WE WANT TO DISINCENTIVIZE -
IN THIS CASE FOSSIL FUEL: A CARBON TAX

(3) USE THE CARBON TAX TO SUBSIDIZE
HOUSEHOLD HEATING FROM F.F. TO HEAT PUMPS

(4) USE THE CARBON TAX TO SUBSIDIZE THE
MOVEMENT FROM F.F. VEHICLES TO ELECTRIC.

(5) IF WE WANT TO ACHIEVE THE GOALS OF OUR
STATE ENERGY PLAN, WE MUST TURN THAT
PLAN INTO LAW AND CREATE A PLAN TO ACHIEVE
THAT GOAL.

RICK WACKERNAGEL CAC COMMENTS

Ty for org'g this session. Bringing Addressing

Draft 2 ===== climate and econ'c concerns together is critical

I'm a retired UVM Extension farm-management specialist from Burlington.

Rick W

Vermont's Energy Action Network estimates that to reach Vermont's 90% renewable X 2050 goal, we will need to spend \$9 billion on improving thermal efficiency in Vermont's buildings. Whether you pay upfront or over time, that is a lot of money. If we could reduce it somehow, that would help a lot. Squeezing our weatherization contractors won't do it. They're not getting rich. There is another way - research and development focused on developing lower-cost practices, materials and technologies. This has been done before.

During the energy crisis of my young adulthood, Natural Resources Canada assembled a collection of architects, engineers, scientists and builders, and tasked them with developing low-cost, energy-efficient building practices. They developed Canada's R2000 program, and Canada became a world leader in energy-efficient building.

Technology-development councils drawn from the public, private and nonprofit sectors have been very effective at producing rapid technological change in East Asia. These councils identify opportunities to develop or improve technologies, prioritize the opportunities, and coordinate development of the high-priority ones.

Vermont has substantial human capital in energy efficiency, coming from the three sectors just noted. A technology council could be tasked with identifying high-priority opportunities to reduce the cost of upgrading thermal efficiency, then coordinating their development and dissemination.

Reducing the cost of weatherizing would allow Vermont's Weatherization Assistance Program to cover more homes, make energy efficiency more affordable and give our energy-efficiency contractors more jobs to do.

Rick Wackernagel
rick.wackernagel@gmail.com
802 578 4907

After reading *Truth to Power*, I have a comment/question. There is very little said about the heat, put into the atmosphere, as we produce heat trapping gasses.

On pages 44/45, there is a shocking statement, that should be brought up more often:


I find that very few people have any idea of the heat rejected into the atmosphere by automobiles and trucks. Then add in rejected heat generated by burning all fossil fuels while producing heat trapping gasses.

In the United States (US) alone _____ gallons of gasoline are used producing _____ BTUs.

Total petroleum used daily in the US is ____ gallons which will produce a minimum ____ BTUs. I am told and understand that the biggest percentages of this rejected heat escapes into space, but some must transfer to clouds and humidity. This means warmer precipitation, rain or snow. Consequently, warmer streams, rivers, lakes, and oceans.

Power plants reject heat thru their smoke stack along with polluting gasses. But they put more heat into the atmosphere and water bodies by cooling their process water to steam to water cycle. That cycle includes atomic power generation plants.

There are many more sources of rejected heat. Talking about it may help slow its generation. I very strongly believe that talking about it, may help slow it.

	<p>Environmentally Concerned Grandparent</p>	
	<p>Eric Jessiman</p> <p>16 Trobridge Rd. Bakersfield, VT 05441 Home 802-827-3799 Cell 802-760-8483 jessiman@comcast.net</p>	<p>"We, as concerned citizens, should think about the conse- quences of our actions upon the environment in which our children and grandchildren will have to live."</p>

Sarah Watson CAC Comments

1-1

Vermont Climate Action Commission
St. Albans Listing Session, City Hall Auditorium
September 28th, 2017

I would like to thank the Governor for establishing this Commission and holding sessions for the public. My name is Sarah Watson and I am a resident of South Royalton, Vermont, and I am here to urge the Commission to take action in response to climate change.

Vermont should implement a carbon tax in response to climate change. By taxing carbon, users will be supporting the cost associated with damage caused by greenhouse gas (GHG) emissions. A carbon tax will fund Vermont's solution to address climate change by taxing high-emitting technologies, like cars or water heaters. This will encourage a transition to lower-cost, lower-carbon models, eventually saving Vermonters' money and allowing them to pollute less. By implementing a carbon tax, this Commission will help to incentivize a switch to clean energy here in Vermont to benefit all Vermonters.

Vermont is not on track to hit the GHG emission reduction goals set in place in 2005 (10 V.S.A. § 578). In fact, Vermont now emits more 4% more GHG than it did in 1990, from 8.39 million metric tons in 1990 up to 8.75 million metric tons in 2013. Without any available data from the last four years, it's likely that this number has only continued to grow. A carbon tax will reduce continued emissions and help Vermont get back on track to achieving its GHG emission reduction goals.

Vermont needs to take action against climate change by turning goals into reality. Massachusetts and Connecticut are two states in New England that have made commitments to reducing GHG emissions, and it is time for Vermont to join them. Critics may say that a small state like Vermont can't make a difference, but by working together, Vermont can contribute to a big impact.

I urge the Commission to implement a carbon tax here in Vermont to incentivize the switch to clean energy, meet Vermont GHG emission reduction goals, and to join other states who have committed to taking action on climate change.

Thank you,

Sarah Watson

Testimony to the Governor's Commission on Climate Action
St Albans

By Henry Swayze, Tunbridge

henryswayze@gmail.com

603-667-8932

Member of the Vermont Healthy Soils Coalition and the soil-carbon-sponge network

Co-host of Vermont GreenZine on WFVR-LP

I am asking the commission to think BIG

Yes we need to become more efficient

Yes we must work our way off fossil fuel

Yes we must sequester carbon back out of the atmosphere

But If we ceased all fossil fuel burning today we have already put enough greenhouse gasses into the environment to cause 100+ years of warming and sea level rise.

We must actually cool the planet NOW and we can through natural systems.

One example:

If we were to cover a goodly portion the world's bare agricultural soils with green growing plants we will more than offset all the increased temperature being created by current greenhouse gas emission and long term we would be sequestering the carbon trapping gasses that overheat us as well. A plowed field transfers heat into the low atmosphere 13 time faster than a green growing field or woods.

The market system is powerful. We must send a price message to those that pollute and those that provide ecological services.

Regenerative Agriculture should be recognised and incentivised . It is most simply defined as improving the soil each year instead of degrading it as chemically treated plowed agriculture now does. See the Rodale institute's definition of Regenerative agriculture.

<https://rodaleinstitute.org/assets/WhitePaper.pdf> Good for the environment, good for the bottom line.

Short version of regenerative agg under review 7/2017

<https://rodaleinstitute.org/assets/ROC-One-Page-9.12.17.pdf>

For a fuller treatment of Cooling the planet see my Presentation here:

<https://docs.google.com/presentation/d/1yhdj6Up37gFKJy4udsDw3ZdeUo1vsrPUwqEAx1vnc4E/edit?usp=sharing>

And for a two hour presentation by Australian soil and climate scientist Walter Jehne

<https://www.youtube.com/watch?v=K4ygsdHJjdl&t=5970s>

September 28, 2017

Debra L. Sachs
802-238-9807
1042 Dorset Street
Charlotte, VT 05445

Dear Vermont Climate Action Commission:

I am Debra Sachs and I live in Charlotte. I am a native Vermonter and am concerned about our future, and my children's future, as I know the Commission is concerned. Thank you for your service to Vermont.

The ~~three~~ main suggestions that will achieve shared goals and objectives are:

- I. Support and implement a price on carbon AND ESTABLISH A REVENUE NEUTRAL MODEL, MECHANISMS THAT LEAD TO LOW CARBON ENERGY AND TRANSPORTATION SOLUTIONS.
- II. CONTINUE TO INVEST AND SIG. EXPAND INVESTMENTS IN TRANSPORTATION DEMAND MGMT → GO! VT PROGRAM - PROMOTE GREEN TRAVEL BEHAVIOR
REDIRECT RESOURCES AND SIGNIFICANT INVESTMENT IN PUBLIC TRANSIT, PASSENGER & FREIGHT RAIL SERVICE AND WALKING AND BIKING AMENITIES
ENCOURAGE PARKING CASH OUT POLICIES, CHARGE FOR PARKING, MARKET RATE HOUSING ON TRANSIT LINES
- III.) BAN ROAD SALT - SAVE ^{estimated} \$1 billion/year in road, bridge, vehicle, water and environmental damage
- IV.) REDUCE SPEED LIMITS BY 10 MPH (REDUCING GAS USE ESTIMATED BY 10-15%)
- V. INVEST IN COMMUNITY RAIL RAIL AND BUSES - \$100 M/year.
- VI. CONTINUE TO SUPPORT WIND TAX CREDITS THE SAME AS SOLAR, ALSO ENERGY EFFICIENCY INC. COLD CLIMATE HEAT PUMP CAMPAIGN.
- VII. IMPROVE OUR ELECTRIC DISTRIBUTION SYSTEM TO SUPPORT LOCAL POWER GENERATION.

Chloe Greenleaf CAC Comments 1-1

I'm sure everyone in this room agrees that climate change is the most pressing issue of our time, otherwise I'm not so sure we'd all be here tonight.

It's been made apparent that if we don't take some risks and make some sacrifices, it will be OVR future on the line, OVR children, our children's children. The thing is, the risks we're taking don't have to entail treading on new waters, and the sacrifices we make don't have to be that of a crumbling economy, or a suffering middle class.

Forcing big oil corporations to pay a FEE when they're polluting in our state will grant us revenue that can resolve low, middle, and fixed income Vermonters a seat in the clean energy movement.

Establishing an "energy independence fund" that can allow these folks to invest in solar on their rooftops, install cold weather heat pumps, drive a more fuel efficient vehicle, etc. Right now there is a huge chunk of Vermonters who can't reap the benefits of not only saving money by switching to clean energy but also doing their part in reaching Vermont's goal of 90% renewable ^{energy} production by 2050. We are one of the only developed countries who continue to fear our breakup with big oil. But now is the time and here is the place.

Lets put a price on carbon.

Drew Baker CAC Comments

I am part of the generation ~~we~~ who will ultimately bear the environmental burden of the perpetual use of fossil fuels, and tasked w/ finding real solutions.

~~In all ways~~ I believe that my voice as a student and a young adult ^{and the commission} should be heavily considered by Gov. Scott. ~~Parents~~ Many of my peers have spoken out in favor of carbon ~~pricing~~ pricing, and we have been ignored.

In all aspects of the policy, a carbon tax will bring economic growth to VT, implement a viable solution to climate change, and a livable future for ~~two~~ generations to come. ^{create}

When you pair economic & environmental justice, you get sustainability. We have to take real steps as quickly as possible to fund climate solutions w/ a price on carbon pollution.

Thank you.

Wood Heat in Vermont: Baseline Assessment for 2016

The Vermont 2016 Wood Heat Baseline Study shows that using local wood fuels to heat buildings helps Vermonters lower their heating bills, keeps energy dollars in the local economy, stimulates local job creation, sustains Vermont's forested working landscape, and reduces our dependence on fossil fuels.

Vermont Advanced Wood Heating Sector



\$12 Million in Annual Benefits



84 Full-time Jobs



6 Million Gallons Displaced Annually

Total Wood Heat in Vermont



\$205 Million in Annual Benefits



1,088 Full-time Jobs



68 Million Gallons Displaced Annually

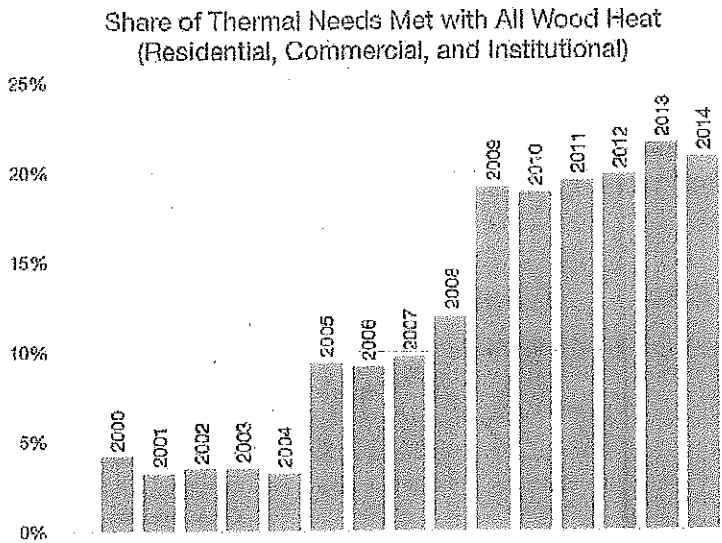
Advanced Wood Heating Sector in Vermont	
Operational pellet mills in 2016	2
Expected operational pellet mills in 2018	4
Combined capacity of pellet mills in 2016 (tons/year)	37,500
Combined capacity of pellet mills expected in 2018 (tons/year)	84,500
Residential systems installed to date	377
Commercial/institutional systems installed to date	162
Bulk pellet fuel consumed by Vermont systems (tons/year)	8,000
Woodchip fuel consumed by Vermont systems (tons/year)	79,000
Percent of total heating	2%

All Wood Heat in Vermont	
Homes heated in part with wood	96,951
Homes heated in part with wood	38%
Firewood burned (cords/year)	347,000
Average firewood consumption per household (cords/year)	3.6
Households with pellet heating appliances	31,051
Households heated in part with pellets	12%
Bagged pellets burned (tons/year)	138,530
Bagged pellets produced in Vermont burned in Vermont (tons/year)	6,000
Percent of total heating	21%

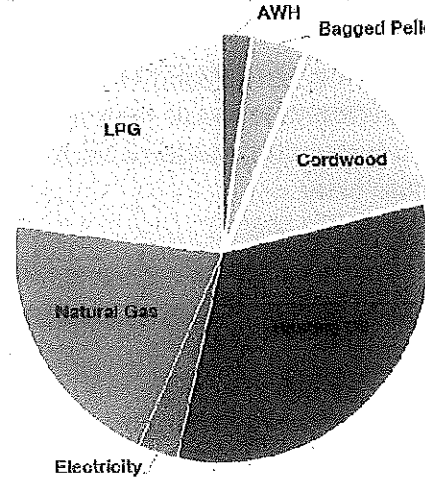
Vermont is the national leader in the use of local wood fuels for heating homes, businesses, community buildings, and district heating. Vermont is home to the greatest concentration of advanced wood heating systems in North America.

Heating buildings accounts for approximately 28% of Vermont's total energy consumption. Traditional cordwood stoves remain a mainstay of home heating in Vermont. Additionally, there is a growing portion of the heating market using chips and pellets to fuel automated advanced boilers and furnaces.

The use of wood heat in Vermont has increased significantly in the last 15 years across the residential, commercial, and institutional sectors. In 2014, wood heat accounted for approximately 21% of Vermont's total heating needs for buildings.



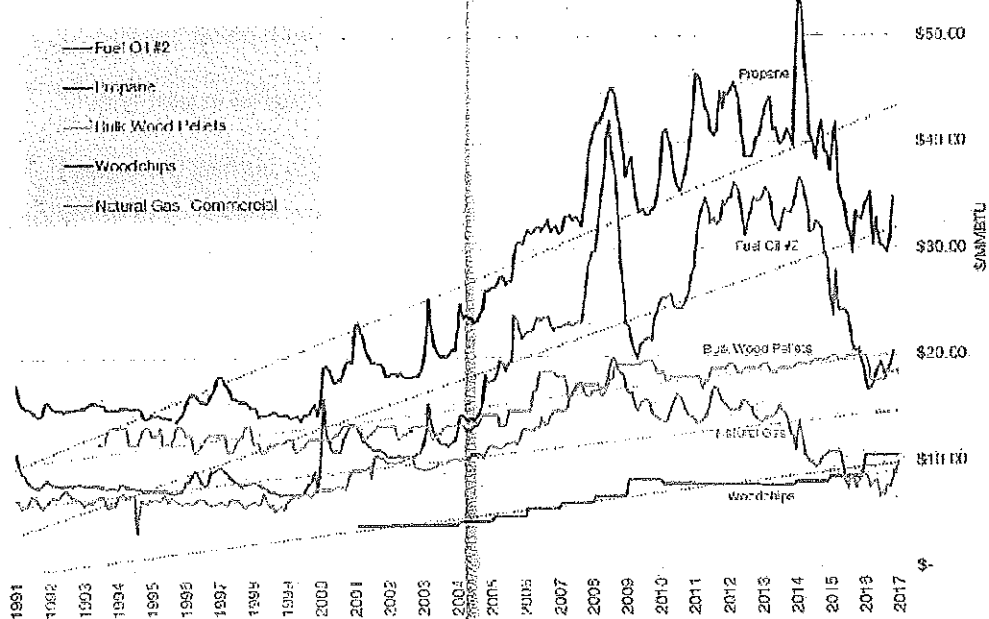
2014 Space Heating of All Buildings in Vermont by Source



The Advanced Wood Heat market faces many market challenges, but can be expected to continue to grow in the years ahead. The 2016 Vermont Comprehensive Energy Plan (CEP) calls for doubling the use of wood fuel for heating buildings by 2035. Supportive state programs and policies will help, but fossil fuel prices are the primary factor that will determine whether the CEP goal is met and are the greatest market-drivers that will stimulate further demand for alternatives like advanced wood heating into the future.

Average Heating Fuel Price Trends (1991-2017)

(\$/MMBTU of heat after combustion)



The information presented here is part of the 2016 Advanced Wood Heating Baseline report. To access a copy of the full report, please visit -- http://publicservice.vermont.gov/renewable_energy/cedf

My name is Kevin Batson I live in Williston, VT.
 Thank you for this public listening and chance to speak.
 Mother Nature is in ^{urgent} need of a health care plan. I am very
 glad that the Governor has pledged to support The Paris
~~Agreement~~ Accord and Vermont's 2050 Energy Plan. I
 am concerned though that the three main ways
 to achieve ~~these~~ goals of the Energy Plan the Governor
 appears to oppose, 1. He is against a price on Carbon
 2. He is against wind power 3. On the day he agreed
 to the Paris Accord he appointed to head the PSB
 a man who litigated against a solar installation in Maryland.
 He can not have it both ways.

I am a member of Citizen Climate Lobby and
 Lobby our Congress for a Revenue Neutral Carbon
 * Fee and Dividend, George Schultz from the Reagan adminis-
 tration is on our board. The Lobbying Senator Wicker
 from Mississippi his staff person that. (The #1 skeptic)
 if any plan would work ours would - he was an
 economics major. The REMI study says it
 can work for Vermont on it's own.
 I work for Global Foundries which partnered
 with GMP to build a 4.7 megWatt solar array.
 Businesses want renewable energy sources.

CCL's REM1 study has found that a Revenue Neutral Fee and dividend (TAX) will return enough to low income households to cover their extra energy costs. 66% of household will receive more in the dividend than they spend on extra energy costs, Overhead cost is projected to be ~ 1% of revenues

- Solutions:
1. Carbon Fee and dividend - Revenue Neutral
 2. Renewable Energy incentives - wind/solar
Biomass
 3. Non-Fossil Fuel transportation
 4. Energy efficient building codes

VT Climate Action Commission Hearing

28-Sep-2017

STEVEN BOWER, RICHMOND, VT

Opening

I fear for our future. Climate change has the potential to wreak havoc on humanity, by mass human displacement, as a catalyst for war, by oceans collapse through acidification, by desertification, species extinction, ... Climate change may overwhelm and exacerbate all other human challenges. We can't let that happen.

IPCC Report

I don't base my fear on social media posts, or newspaper headlines. I base it on the work of the International Panel on Climate Change over 30 years, a pinnacle of scientific cooperation and achievement. Their 5th Assessment Report came out 3 years ago, and plainly concluded that human activity is mainly to blame. Their findings are drastic - hopefully you are all aware of these, as I don't have time here to provide detail.

They found ~~finding~~ that: *- Indented text not included in spoken comments*

- Ocean surface water has seen a 26% increase in acidity since the start of the industrial era
- Current atmospheric concentrations of CO₂ and other GHGs are unprecedented in at least the last 800,000 years
- About half of the human-caused CO₂ emissions between in the last 260 years have occurred in the last 40 years. Rates have continued to increase through 2010.

These are all with "high confidence."

There are very serious positive feedback loops kicking in : the release of methane as the permafrost melts, accelerating melting in the arctic as now-open dark water absorbs yet more heat, forests releasing their stored carbon as trees fall to insects moving north - these emerging feedback loops make the situation all that more urgent. It's truly frightening - it keeps me up at night.

But the good news is that although 6 future scenarios in the assessment report predict a rise of >2°C by the end of the century - which is very bad - there is still a realistic scenario where we are *unlikely* to exceed 2°C. That's the scenario we need.

Price of Oil

mainly on the electric power side

So what can we do in Vermont? We're done a lot, we're on the right track with good goals, but we can and must do more. - particularly with transportation and heating.

The price of oil is historically very low. Inflation adjusted, oil is cheaper now than it's been since 2003, and it's well under the average going back to the 1970s.

It's way cheaper than it was from the mid-1970s to mid-1980s. With the exception of several years, it's about as cheap as it's been since that time, over the past 40 years.

With fracking, the US produces almost as much oil as it did at peak production in the early 1970s. As fracking technologies are adopted world-wide, supply will easily keep up with demand. Oil will stay cheap for many years to come.

With fracking technology the forecast is for low, stable oil prices for many years - from the IMF, the OECD (Org for Econ Coop & Dev), the Economist Intelligence Unit - that's the forecast.

Carbon Tax

So now's our chance. While oil is relatively cheap, we can implement a revenue-neutral carbon tax. The vast majority of economists recommend a carbon tax as the best way to reduce GHG emissions. This is the right solution to lower demand - we need to raise the price of fossil fuels, and return the money to Vermonters. I'm sure you've seen the REMI study, which has shown the economic benefits of a revenue-neutral carbon tax to Vermonters, by keeping our energy spending in-state.

I've worked with REMI, it's a solid economic model.

The proposed tax, conceptually, that would return the revenue to the taxpayers, is well conceived. There are other approaches, there are other things we can and need to do.

If we want people to drive less, or move to electric vehicles, or take weatherization seriously - put a price on carbon. or use public transit.

Closing

This is a very real very, very serious problem for humanity and the planet.

We are on track to a future that is already likely to have great hardship, and is potentially horrific. Vermont needs to take action, and we need to lead. We can't sit back and wait for others. We need to join California, Hawaii, New York, Oregon, and other states. We need to be the movement that turn this train around, before it's too late. I implore you to do the right thing, and strongly recommend a carbon tax and other actions that will.

Political will doesn't come out of thin air. It comes from a fight and it begins.

Sandra O'Flaherty CAC Comments

- ① Thank you ~~for~~ ^{↑ renewables + efficiency}
- ② ~~consider~~ Carbon ~~fee~~ / fee + dividend
consider D. Gonzalez's Short Term bill
Revenue to households = money
in pockets of lowest income quintiles
many gain or break even
bridge it to a national plan b/c ppl are asking for it all over country
Gov. studies
- ③ use R. Support Conservatives
Climate Leadership Council to
support Fed level CFD
- ④ Resolution like CA-ABR 43 ^(June 2016) to tax
carbon + return \$ to households

* Market approach:
simple,
elegant,
direct

Jenn Wood CAC/Comments

JW - GI

Thanks

Associate challenge

- opportunity. ^{selection} @ hand
- honor w/ 5yrs → chance to enhance clean energy workforce

- hardest hit ^{from + mff} & left behind

As w/ Carbon tax & regressive ^{hikes & seem done things}

- Diesel, 1st Car.

- 18.7M M.F. Trust \$ helped me deal
elec Buses + other
programs/incentives

Eff + Ren.

- Power of vote = maintain & strengthen ^{meet} Policies ^{energy} Plan Goals

**Comments by William Scott to the Climate Action Commission, St. Albans VT,
9/28/17**

My name is Bill Scott and I am from Hinesburg. I am a member of the town energy committee my am speaking tonight as a individual citizen.

This Commission is charged by the Governor with the task of developing an action plan to effectively transform our State's energy system, while also spurring economic activity, growing businesses and putting us on a path to affordability.

What is required is daunting in its scale, scope, and complexity yet filled with the promise of hope and opportunity.

For me the key to your charge is Action. The time for generalized planning is past and what we need now is a roadmap for specific action.

Accordingly I hope your final action plan accomplished some of the following:

1. Includes a detailed roadmap that is updated frequently and that calls for specific actions.
2. Looks to develop one or more scenarios for what an energy system that meets our goals in for 2030 and 2050 might look like and make sure that we understand all of what it will realistically take to make these numbers add up. Scenarios might include differing assumptions about future technologies such as power storage and PV.
3. Identifies the major barriers to achieving these goals by answering questions **such as**

- a. What is the effective **capacity** of our land to produce renewable energy as well as out-of state sources and how is this effected by the state of the electrical grid.
 - b. What **transformation is required in the electrical power sector** to provide reliable, affordable power in a system with increasing levels of distributed energy production.
 - c. Consideres how **rapidly** this transformation must occur if it is **to avoid restricting** the deployment of renewables.
4. I hope that you action plan will also consider
- a. Actions to develop information necessary for towns, regions and the state to establish more detailed energy consumption benchmarks and data to monitor progress – with the exception of electrical consumption we cannot now measure energy consumption at the town level or regional level.
 - b. A formal process to integrate the town and regional plans with utility Integrated Resource Plans, actions of major employers and State-wide plans and policies and regulations.
 - c. The likely effect of changes driven by technologies and market mechanisms outside of the state – the shift to electric vehicles is a good example. Our problem here may not be encouraging electric vehicles but providing enough charging stations to accommodate them.

- d. We know that expansion of renewable energy creates jobs and has become an essential part of the VT economy. In addition, the same infrastructure improvement needed to meet our energy and emissions goals may also be important to general economic development and job creation. I believe we need to look at opportunities to leverage infrastructure improvements – to the electrical grid and transportation network - needed for general economic and job development with improvements needed to support the expansion of renewable energy. For example, in my town of Hinesburg the town plan identifies an industrial development area on route 116 that is also a potential solar energy site. The key impediment to moving forward on both is the lack of 3-phase power to this area of Rte. 116 corridor. Extension of 3-phase power to this location would serve both purposes making it a more attractive grid improvement project.
- e. Recommending actions as soon as possible – we know for example continued funding of efficiency improvement is a necessary part of any energy and climate plan. We also know continued training and development of a skilled clean energy workforce is essential to the health and growth of this important sector of Vermont's economy. I hope that your recommendations to the Governor in December include increased funding for both of these purposes.

Thank you very much for the opportunity to speak to you tonight.

Greg Pierce CAC comments

greg.pierce9@myfairpoint.net

Four (4) Ideas to Help Reduce Known Bad Effects of Climate Change

Introduction:

The first two of my ideas are aimed at the future but should definitely be started now. The second two ideas can be initiated immediately.

IDEA ONE (1):

Work on starting fabrication and development of small test models of future Vermont production plants which will produce hydrogen fuel by the electrolysis of water. Direct the electric energy required for the electrolysis process from Vermont renewable energy production sources. This idea could be implemented relatively easily and inexpensively with the assistance of the technical departments of our excellent Vermont colleges/universities

IDEA TWO (2):

Work on planning for a few early stage Vermont hydrogen fueling stations to fuel first generation automobiles powered by fuel cells which use hydrogen fuel. The Toyota Motor company already has the 2018 model fuel cell powered Mirai in production but will mostly be limited to sales in California because of a scarcity of hydrogen fueling stations, nationwide. Check out the Mirai on the Toyota website.

IDEA THREE (3):

Work to expand the focus and objectives of Efficiency Vermont to encourage purchase of fuel cell powered autos by Vermonters through award of generous cash incentives to purchase the first early, but very expensive, fuel cell powered autos.

IDEA FOUR (4):

Plant more forests (even single trees) everywhere in Vermont where there is presently unused open space including (and especially) in urban areas. Nothing will match the efficiency of trees and forest land in reducing the presence of gaseous carbon dioxide in our atmosphere.

**MY NAME IS NATALIE
SINKEW AND I LIVE IN
HERE IN ST ALBANS
VERMONT. AS I AM LOW
INCOME AND
HANDICAPED I AM
DEPENDENT ON SOCIAL
SERVICES AND HEALTH
CARE. BECAUSE OF
GLOBAL WARMING
THERE ARE MORE
HURICANES THAT COST
THIS COUNTRY A LOT**

**OF MONEY. AS A VERY
POOR PERSON MY
FINANCES ARE
USUALLY THE FIRST TO
BE CUT BY THE
FEDERAL AND STATE
GOVERNMENT. THE
POOR ALWAYS SUFER.
AS IT IS NOW I CAN NOT
AFFORD TO BUY
HEALTHY FOOD.
GLOBAL WARMING WILL**

**MAKE IT WORSE FOR
POOR PEOPLE.**