

PROGRESS *for* VERMONT

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Advancing
our economic future
in an age of climate change

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Advancing our economic future
in an age of climate change

The Action Plan of the
Vermont Climate Change Economy Council

January 2016



Produced by

Vermont Council on Rural Development

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The Vermont Council on Rural Development
helps Vermonters and Vermont communities develop their
capacity to create a prosperous and sustainable future through
coordination, collaboration, and the effective use
of public and private resources.

To help tell the Vermont Climate Change Economy story, VCRD and the Climate Change Economy Council are collecting Vermont Climate Innovator stories that highlight creative business owners and entrepreneurs around the state finding practical ways to reduce carbon emissions, mitigate climate risk, and stimulate green economic development.

To view the complete list of Climate Innovators and read their stories, visit our website at <http://vtrural.org/programs/climate-economy>

"As more renewable energy generation hits the grid, the need for distributed energy storage will increase. Ultimately this helps everyone involved, from the utility down to the end user. In the end, our storage solves many problems, from disaster recovery all the way to potentially cutting electricity costs for everyone."

—Jay Bellows, CEO of Northern Reliability Inc.,
a Vermont-based company developing and building
energy storage solutions

executive summary

Vermont has a tremendous opportunity to systematically advance economic activity that addresses the challenge of climate change by reducing and mitigating carbon impacts while spurring innovation and creativity, encouraging entrepreneurship, attracting youth and building jobs for the future.

The Vermont Climate Change Economy Council (VCCEC) was founded in February 2015 by the Vermont Council on Rural Development to frame a platform of ideas to move this economy forward. This document serves as the final report and action plan for the council.

The council defines the climate economy to include key sectors of distributed energy development, green building, efficiencies, and resource recycling. The term also includes the resilient foundation of our working lands economy, the innovative problem solving of the digital economy, and is a feature in all manufacturing, tourism, and community development in the climate change era. Because of its scale, flexibility and values, Vermont has an opportunity to take an innovative lead in spurring this economy, which can provide a rural model to respond to the climate challenge, and can grow and attract entrepreneurship needed for Vermont's economy.

Members of the VCCEC share a vision for the future of Vermont's economy that is detailed in the introduction of this report. We also recognize and celebrate the tremendous assets in the leadership already in play in businesses, investors, utilities, government, and non-profits who are advancing or supporting innovative projects in the climate economy today.

To take responsible leadership in mitigating Vermont's climate impact and to fully realize the potential for economic renewal, the VCCEC final report and action plan proposes the following **seven-point platform** to advance Vermont's climate economy:

- 1 Build a public/private **Comprehensive Energy Efficiency** partnership to build efficiencies in home heating, weatherization, and household energy retrofits along with transportation systems changes that can reduce the use of fossil fuels.
- 2 Establish a **Climate Economy Network Development Initiative** to provide seed funding and technical assistance for entrepreneurship to attract, support, cultivate and nurture a new generation of business creators and help them successfully grow their enterprises in Vermont.

- 3 Build or strengthen **Codes, Regulations, and Incentives** that reward innovation, encourage climate-smart economic growth, stimulate economic activity in downtowns, set market signals around residential and building efficiencies, and strengthen distributed energy and efficiency markets.
- 4 Stimulate investment through a **Clean Energy Finance Collaborative** that develops new financial tools, leverages private sector investment, provides a one-stop-shop for consumer financing information, and sets up a vehicle for members of the public to invest in the progress of Vermont's climate economy.
- 5 Evaluate effective ways to send market signals to reduce carbon use and to simulate economic development through a **Carbon Pricing or Trading** structure for Vermont.
- 6 Allow local communities to model effective change at a rapid rate and gain regional or national attention by concentrating a set of efficiency, energy development, transportation change, and other services through a **Climate Economy Model Communities Program**.
- 7 Set up a partnership, funding, and a strategy to **Market Vermont as a National Climate Economy Leader** as a way to attract mission-oriented young people, entrepreneurs and investors to participate in Vermont's model for economic renewal in the climate change era.

While some of the elements in this **seven point plan** require state regulation, legislation or investment, other features of this report can move forward through existing organizations or collective action. With this report, the VCCEC completes the work charged to it and disbands with confidence in the people of Vermont and all partners in the greater work ahead.

"It's exciting to provide systems to farms and compost producers that capture renewable thermal energy from materials that have historically been treated as waste or pollution liabilities. Our team provides economical solutions for biomass energy while generating a soil-building product."

—Brian Jerosé, Founder and President of Enosburg Falls-based Agrilab Technologies, Inc. a company that has developed a patented system to help farms, commercial compost sites, universities, and municipalities capture thermal energy to use as a renewable heating source

"To my knowledge this is the first project of its kind in the US to incorporate bike consultation, low interest loans, and a demonstration fleet. We're so excited about the potential reach of these programs. Our message is simple – change the bike and the infrastructure will follow!"

—Dave Cohen, Founder of Brattleboro based VBike on their partnership with VSECU to offer low interest loans for the purchase of cargo bikes, e-assist options and other transportation-related bike purchases

introduction

Vermont ingenuity, its history of innovation, and its assets in business and organizational leadership situate it to be a national epicenter for business development and success in modeling economic answers to the challenge of climate change.

The platform in this report is designed to promote Vermont's future economic success. That success will depend on our competitiveness in a regional and global environment challenged by climate change and by the local, regional, and international imperative to lower carbon impacts to prevent its most catastrophic potentials. We are living in a time of dramatic change.

We believe that Vermont can nurture, support, attract, and build business enterprises that can profit in what we define as the climate economy, and in so doing, protect, preserve, and enhance the best of Vermont's quality of life and environment. But to do so we must act now, together.

The Vermont Climate Change Economy Council is dedicated to the proposition that Vermont can be the

most business friendly state in the nation to entrepreneurs and growing enterprises that reduce carbon while building jobs and contributing to the prosperity of all Vermonters.

We see Vermont as an incubator of

innovation and a laboratory to test new business ideas. By encouraging a dynamic and diverse economy that advances efficiency, clean energy generation, transportation improvements, downtown redevelopment, the wise use and reuse of resources, and a strong working lands foundation, Vermont can do its part to respond to the climate challenge, and at the same time strengthen its long-term economic competitiveness.

The Vermont Climate Change Economy Council and Its Goals

The Vermont Climate Change Economy Council was founded and charged by the Vermont Council on Rural Development in February 2015 to bring together key business, public policy, and energy leaders to evaluate how climate change will affect economic opportunities in Vermont, and to frame ways that Vermont and its businesses can get out in front of these opportunities to create jobs and advance the future resilience and prosperity of the state.

VCCEC's members (listed on the inside cover of this report) worked together in a one-year mission to develop a structured plan for practical action to reduce carbon emissions and climate vulnerability and to stimulate green economic development in Vermont.

This report is designed to address the key goals in the charge to this council to:

- Identify opportunities created by climate change to strengthen Vermont's economy and job creation through strategies advancing key business clusters and economic sectors.
- Build an increased sense of unity in Vermont around policies to confront and mitigate the impact of climate change and to advance economic

The Vermont Comprehensive Economic Development Strategy aims toward the goal that, **"Vermont is a haven for businesses leading the world in adapting to, mitigating, and reversing the effects of climate change."**

opportunities and solutions that respond to climate change.

- Celebrate innovation and Vermont's green business leadership, internally and externally marketing to build the Vermont brand as an economic and environmental problem solver.
- Expand Vermont's economic brand around climate change solutions to retain and attract youth and creative entrepreneurs to locate throughout the state.

The Role of the Vermont Council on Rural Development

The Vermont Council on Rural Development (VCRD) is charged by the federal Farm Bill to serve as a neutral convener and facilitator of public processes at both the community and state level to advance rural community development. VCRD has founded, managed, staffed, and facilitated the deliberations of the Vermont Climate Change Economy Council. VCRD selected members of the VCCEC to listen, learn, and capture the ideas of key business, economic development, and policy leadership in Vermont. All final content and policy decisions have been made by the members of the council.

VCRD founded the VCCEC based on two sets of observations. As a community development agency that helps towns set and implement priority action plans, VCRD has seen a powerful groundswell over the last ten years of local energy committee formation, the development of working landscape networks, the organization of downtown business incubators, the systematic expansion of bike paths and walkways, the redevelopment of downtown waterfronts, and many other community-driven projects. We see an upsurge of local action throughout Vermont work-

ing to advance community resilience and economic sustainability.

On the policy side, VCRD sees Vermont taking leadership in the climate economy with an advanced state energy plan, creativity in key utilities, model efficiencies efforts, and significant growth in energy sector jobs. Environmental philanthropists have led in investing for a renewed innovation economy that protects assets for the future. Most importantly, Vermont businesses are already leading in everything from power generation and green building to efficiencies, and they are creating models of success for the future.

In an age of climate change, Vermont businesses are not the problem; they are and will be the solution. No one has fully told the story of this economic movement in Vermont, celebrated business leadership enough, or framed strategies to advance opportunities in the climate economy or ways of taking them to scale. The board of VCRD initiated this project as a way to add up community and policy findings in order to highlight and advance this emerging economic trajectory for the state.

To initiate this process, VCRD hosted a February 2015 Summit conference. Then, acting on behalf of the Vermont Climate Change Economy Council, VCRD interviewed key policy and business leaders and held regional forums to gather ideas and strategies from the public. Key idea threads from these discussions can be found online at <http://vtrural.org/programs/climate-economy>. Following this report, VCRD will reach out to partners to advance this plan to move the Vermont economy forward to address this most significant challenge to our future.

The Challenge

Human beings the world over are faced with an unprecedented environmental and economic challenge. We are at a decisive point in human history. We must act now to prepare for change and to prevent the most disastrous long term effects of unchecked carbon emissions.

Over the past several decades, climate scientists have reached an overwhelming international consensus that our world's climate is changing. The burning of fossil fuels, the clearing of forests, and global soil loss have increased the concentration of carbon dioxide and other greenhouse gases in the atmosphere, trapping heat and contributing to warming global temperatures.

The resulting changes in weather patterns, global sea rise, reduction in snow and ice cover, and ecosystems disruption is predicted to have significant and unprecedented impact on the environment, the global economy, and human health and welfare worldwide.

Vermont stands to face significant impacts as the climate warms in the decades ahead:

- Since 2011, Vermont has experienced eight federally declared extreme weather disasters, including Tropical Storm Irene (2011), which destroyed 500 miles of roads and damaged 200 bridges, cutting off entire communities for days. We have also seen historic snowstorms, historic flooding of Lake Champlain, and many localized extreme weather events.
- The state's average temp has increased 1.3 degrees Fahrenheit since 1960. The last decade was Vermont's hottest on record. The annual freeze period has decreased by 3.9 days per decade since 1960. Current predictions add another 3 degrees by 2050 and 5 degrees by the end of the century.
- Average annual precipitation has increased by 5.9 inches since 1960. Increased precipitation is predicted to continue and to become more volatile threatening infrastructure and transportation systems.
- Extreme fluctuations in temperature and weather events will adversely impact critical sectors of the Vermont economy including agricultural production (dairy, fruit, vegetables, and maple syrup), tourism, and winter recreation.
- A changing climate will impact Vermont's people and our beloved rural communities. Climate change could intensify existing health threats and introduce new threats including asthma, heat related illnesses, intensified air pollution, injury related to flood events, and an increase in water-borne disease. Extreme weather and flooding events will damage our roads and other infrastructure, leaving many communities, especially the most rural and lower income communities, to face significant challenges picking up the pieces following weather events.

The world is looking for solutions to the global challenge presented by climate change. Meanwhile, in Vermont, we are wrestling with significant economic challenges: the aging of the population, loss of youth, and stagnation in job creation, especially in rural areas. Successful economic arenas, like food production and the Chittenden County technology and digital economy sectors, don't always see that they are complementary parts of a common economic path forward.

We don't yet know the precise path forward in Vermont or around the globe, or exactly what our lifestyle and environment will look like down the road, but we do know that our choices and our economy must change here in Vermont and around the world to provide for the well-being of future generations.

WHAT IS THE CLIMATE ECONOMY?

The Climate Economy is an aggregate economic arena that includes the following key sectors:

- Clean energy development and distribution
- Thermal and electrical efficiencies in buildings, workplaces, and homes
- Efficient building construction
- Evolving public and private transportation systems
- The working lands economy; farm and forest enterprises
- The recycling, reuse, and renewal of resources
- Building preservation and smart growth development
- Low-impact knowledge/innovation-based economic development: the digital economy, arts, and creative economy
- Outdoor recreation and tourism.

The climate economy is also, however, a broad set of economically significant aspects of almost all business and community life. The climate economy is a feature in all manufacturing, tourism, growth and development.

It's also a fertile area for research and development that can model new businesses, create jobs, and develop infrastructure for the future, while mitigating climate risks.

Ultimately, the climate economy is an evolving answer, the essential answer, to climate change; it is the economy of the future.

“Nordic skiing is a major focus for the Outdoor Center, so climate change is a real concern. The fact that a Nordic center now needs to have a snowmaking system is a sign of change. We want to grow outdoor recreation at the center and bring regional and national cross-country ski events to the Northeast Kingdom, but at the same time we want to implement this as responsibly and sustainably as possible. We know this is important to our members, guests and community, who share our love for VT winters.”

—Judy Geer, co-owner of the Craftsbury Outdoor Center on their motivation to build a new net-zero lodge and activity center which is equipped with rooftop solar panels, a solar tracker array, and a heating system which captures waste heat from their snow-making generators and a high-efficiency wood fired boiler

“We are dependent upon a naturally occurring resource—the sugar maple tree and the land upon which it grows—to provide us with our livelihood. Changes in climate and land-use, as well as development pressure, all pose the potential to significantly impact what we do. So beyond our inherent frugal Vermont nature, we have an added incentive to carefully steward the resources at hand.”

—Emma Marvin, Co-owner of Butternut Mountain Farm on their motivation to implement several waste reduction and efficiency measures at their Morrisville production facility

VCCEC

P R I N C I P L E S

In deliberating about steps forward for Vermont, the VCCEC framed its propositions from a set of key principles ▶

fairness

Solutions should benefit Vermonters and especially those who struggle most in today's economy.

assets

Vermont has many of the key assets it needs to succeed. We need to add up those assets and build from them.

power and impact

Each of us, and the people of Vermont, together, can make a powerful difference.

economic leverage

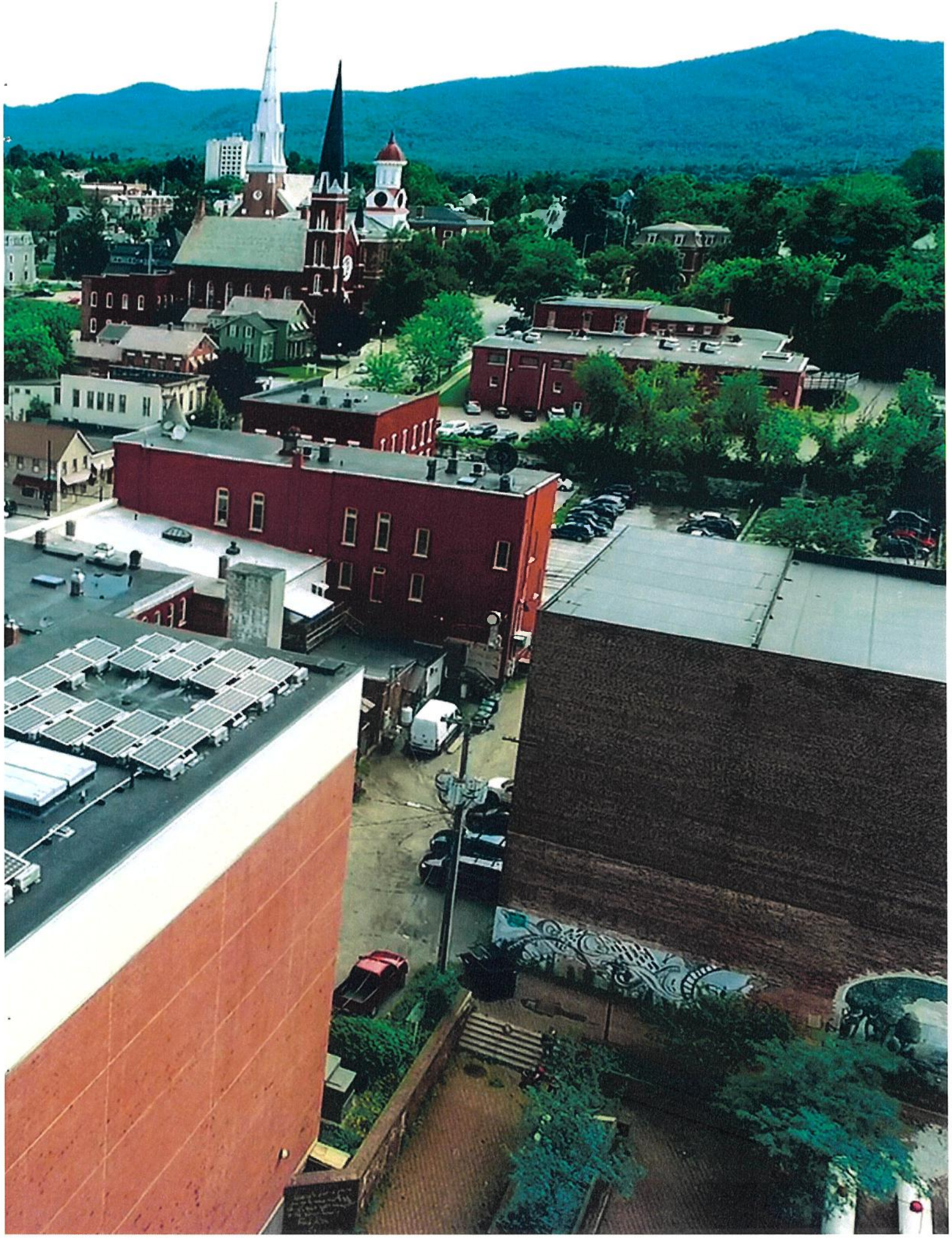
Economic progress in this arena can be a way to secure the well-being, health, and welfare of all Vermonters.

leadership

Vermont has the capacity to model climate economic innovation, especially at a smaller scale and for rural communities.



Photo courtesy Same Sun of Vermont



*Envision a future
where Vermont cultivates
a new generation
of creative entrepreneurs
and brings new vitality
to diverse businesses
and the rural economy
by investing in innovative
solutions to the challenge
of climate change.*

We See a Future Where...

Vermont is a **global center of green economic innovation and entrepreneurship**, providing a haven for businesses leading the world in solving, mitigating, adapting to, and reversing the effects of climate change. Vermont serves as an incubator where climate economy businesses can take root and grow to scale; both those that develop local solutions and those that focus on exporting innovative products and models that can help communities worldwide. Communities throughout the state serve as vibrant economic hubs that attract and foster entrepreneurs and businesses.

A Vision for Vermont's Climate Economy ▶

Creativity, ingenuity, and prosperity are encouraged and invested in and the business community works together and between sectors to identify innovative ways to adapt to and mitigate against a changing climate.

Our leaders facilitate **open communication** at all levels to encourage a broad public understanding of the benefits of the Climate Economy.

Vermonters mitigate our contribution to climate change and meet our renewable energy targets of 90% renewable by 2050 across all energy sectors: electricity, heat, and transportation. **The energy system is dynamic**, producing energy and keeping energy dollars local, while collaborating regionally on emissions reduction.

Home-scale generation opportunities, carbon-neutral energy, efficiency improvements, and decarbonized transportation options are universally available, affordable, and accessible. **Carbon reduction strategies work for all Vermonters**, benefit the low-income population, and contribute to human health and environmental quality.

Vermont puts a **true price on the cost of carbon consumption**. Carbon pricing leads to a dramatic reduction in carbon emissions as individuals and businesses lower their carbon footprint. **Vermont businesses are supported** as they transition from a carbon-based economy to one that puts a price on carbon.

Educational institutions and youth are critical partners in climate adaptation and mitigation. Primary and secondary schools develop curricula and educate our children about climate change and related economic opportunities, and prepare children for jobs in the climate economy. Higher education in Vermont leads in creative innovation, modeling solutions, and transferring concepts and technologies for private sector entrepreneurship.

Vermont collaborates with other states in the region to build resilience against the impacts of climate change; preparing Vermont for a changing land use pattern, moving away from population centers located along waterways and in flood zones and towards vibrant and resilient downtown centers.

Vermont's resilience to climate change impacts and rural prosperity have a foundation in a **dynamic food and forest economy**. Food produced locally spurs the local economy, and regional sales provide a dynamic source of imported income. The forest products industry contributes to efficient energy production while these working lands provide health and climate mitigation services from carbon sequestration to clean air, water, wildlife habitat, and recreational opportunities.

Vermont is a popular vacation destination offering **recreational experiences** that celebrate the natural and working landscapes and sustainable lifestyle choices.

Landfill waste and fossil-fuel-based inputs are reduced through efficient manufacturing, decreased product packaging, and more reuse of everything.

Economic development focuses on genuine improvement to the well-being of Vermonters and success is measured using a holistic model that encompasses values beyond economic growth including social and environmental factors. Vermont demonstrates what it means to have a sustainable lifestyle and an interconnected and well-funded economy that supports Vermonters while maintaining jobs, prosperity, the natural and working landscape, and the well-being of its citizens.

Vermont remains a place with **strong communities, active civic participation, and strong intellectual and social capital** which allow the state to model climate economy thinking and implementation in line with our creative brand and tradition of innovation.

Vermont builds a reputation as a **national model of success in the climate economy** that attracts youth, entrepreneurship, and capital for its economic future.

Vermont Leads in Climate Economy Innovation and Development

- There is strong clean energy leadership active in Vermont: at the state's leading energy utility Green Mountain Power and all of the state's energy companies; in Vermont businesses; in Vermont's first-in-the-nation authorized efficiency utility, Efficiency Vermont; in the non-profit sector; and in dedicated town energy committees in communities across the state.
- The clean energy sector in Vermont comprises over 2,500 business establishments employing more than 16,000 workers, an almost 10% increase since 2013. Solar companies alone employ over 1,300 people, leading the nation in solar jobs per capita.
- Higher education institutions across the state are leading in climate science and policy and modeling strategies to reduce carbon emissions while saving money through innovative energy and efficiency initiatives.

Vermont's Climate Economy Assets Today ▶

Vermont has many of the key assets that it needs to succeed and to lead nationally and globally as a climate economy innovator.

- Vermont is known for its innovative culture and entrepreneurial spirit and was recognized as the second most entrepreneurial state in the country in 2013.
- State policies, businesses and the working landscape have contributed to a "Vermont Green" brand which is a key to attracting and retaining youth for the future.

- Vermont leads today in exporting ideas and models through its intellectual capital leaders at the Vermont Energy Investment Corporation, Clean Energy State Alliance, Regulatory Assistance Project, and other leading non-profits.

Vermont's Policies and Leadership Foster Climate Economy Solutions

- Vermont has set a policy structure to support the growth of renewable energy. Expansion of the Standard Offer Program and raising the net metering cap to 15%, a target that has already nearly been met, has demonstrated that a supportive policy can generate clean energy growth and jobs for Vermonters.
- Credit unions, banks, and Vermont Economic Development Authority are already providing innovative financing and low interest loan programs to boost the development of alternative energy and efficiency throughout the state.
- State and congressional leaders have set bold direction around climate change.
- Vermont's clean energy policies have made it the only New England state to reduce electric rates while dramatically advancing distributed generation and the state's clean energy portfolio.
- Vermont prioritizes strengthening the resilience of the food system, conserving farm and forest land that provides critical ecosystem services and invests in working land enterprises to boost jobs and economic opportunity.
- Vermont's strong working lands policies have contributed to balanced smart growth development as a foundation for resilience.

Vermont is planning for a sustainable future

- Vermont has many assets in economic development and planning including a new State Economic Development Strategy that highlights the clean energy, working lands and the green economy.
- Vermont has invested in a state energy plan that contains an aggressive clean energy goal of 90% renewable energy by 2050.
- State and regional planning commissions, the Vermont Natural Resources Council, and the Institute for Sustainable Communities have led resilience planning efforts, while the Vermont Housing & Conservation Board, land use policies, and state grants and tax credits support and encourage Vermont's downtowns.
- The State's Universal Recycling Law will eliminate organic matter from landfills by 2020. This will reduce methane from landfills and will create new business opportunities.
- Vermont businesses and communities are modeling progress today; from the Rutland Solar City (first in per capita solar development) to the Windham County green building cluster and Burlington's Net Zero program, Vermont cities and towns are taking the lead.

towards action

Personal behavior and conservation alone cannot slow climate change or prevent its most catastrophic potential scenarios. The foundation for change must be the economy itself, and the leaders of that change will be the entrepreneurs, inventors, and investors of our future. How do we encourage them, and how can Vermont become a place that attracts, welcomes, and nurtures them?

The scale and momentum of climate change can be paralyzing. Many worry that addressing climate change is beyond our control or that action to address it could undermine jobs and diminish economic opportunity. We understand and respect the fears and concerns of all participants in the dialogue going forward, and recognize that any proposed action must be evaluated for its effectiveness and be implemented pragmatically to prevent potential negative impacts.

We believe that confronting climate change through innovative economic development, however, can be a competitive strategy, one that will build national reputation, create jobs, and attract youth and entrepreneurship to the states that lead. By working together, now, in Vermont, nationally, and globally, we can bend the curve to slow the impacts of climate change while building an economy that provides for healthy communities and a strong quality of life for future Vermonters.

Many Vermonters are concerned about the impacts of energy development on Vermont's future, especially wind turbine siting on sensitive mountain tops, and expansive solar arrays on good farmland. These concerns are serious and legitimate. It is critically important that Vermonters listen to one another and work together with respect, as we have done historically, to find the appropriate balance between new development and protecting our environmental assets, even as we advance an economy that provides for the health, welfare, and well-being of all Vermonters.

This VCCEC platform of action does not detail all the steps for the advancement of particular distributed energy projects, such as micro-hydro, or predict the specific entrepreneurial opportunities ahead—these ideas will come from creative individuals and organizations in the private sector. Instead, we have listed overarching policy directions that can provide systematic support for communities, entrepreneurs, businesses, and individuals. There is no one silver bullet to advance the Vermont economy and this report does not pretend to itemize all that could or should be done to support the progress of the climate economy. Instead, the VCCEC submits this platform as a contribution to the dialogue for Vermont's economic future and a set of ideas that encourages Vermonters to work together and lead rather than follow in this key area of economic development.

In challenging times, Vermonters are people who work together. We have a strong history of neighborliness, mutual assistance and economic innovation. We share values around community and the land that make leadership in the climate economy a natural role for Vermonters to play. We have a responsibility to do our part and an opportunity to model solutions, lead, and prosper in the times ahead.

Rooted in Vermont values and assets, Vermont's climate economy can build, expand, and promote our brand identity of wise environmental stewardship, of green fields and forests surrounding compact village centers. The climate economy can re-emphasize the creative innovation and problem solving that have long been foundations for economic activity in the state.

We believe that taking leadership today is a winning strategy, one that will contribute to the advancement of the Vermont economy, the revitalization of Vermont communities, and the renewal of progress of the state far into the future.

ACTION

P L A T F O R M O F

Vermont's Climate Economy Platform of Action ▶

Platform of Action ▶

1.

Comprehensive Energy Efficiency

Vermont has made significant progress as a national leader in electric efficiencies. Now transportation and home heating efficiencies need to move forward through a comprehensive effort led by Efficiency Vermont and the state's utilities in partnership.

Efficiency Vermont (EVT) and Burlington Electric (BED) currently provide electric energy efficiency services that have significantly reduced Vermont's electric demand and costs. Green Mountain Power (GMP) is also a proven leader helping customers save money through comprehensive home and business energy makeovers, and offering cutting edge innovations. As we look today at energy systems as a whole, energy efficiencies for transportation and heating are of equal importance and can have a greater impact from a carbon, climate and health perspective. Because their fuel sources are primarily petroleum based and unregulated, except for Vermont Gas which is also an efficiency leader, they have not had consistent and systematic support for efficiency efforts. Additionally, as of 2015, all utilities are now required to become Comprehensive Efficiency Utilities, delivering innovative products and services to reduce Vermonter's use of fossil fuels for heating and transportation under "Tier 3" of Vermont's Act 56 Renewable Energy Standard.

All Vermont utilities including GMP and BED should work in partnership with Efficiency Vermont to create a first-in-the-nation statewide Comprehensive Energy Efficiency Partnership to

advance innovative new efficiency services and initiatives. The Partnership will work with public and private partners to advance research and development to identify and implement next stage efficiencies and advance key ideas to go from innovation to market transformation, while providing simple, seamless, and consistent service to customers across their territories.

Vermont's Comprehensive Efficiency Efforts Should Lead All Fuels Home and Commercial Efficiencies

The comprehensive efficiency partnership should invest resources for low and moderate income weatherization and home energy retrofits, and provide incentives for Vermont homeowners and commercial properties that invest in efficiency improvements and energy retrofits.

Vermont's Comprehensive Efficiency Utility Should Promote Energy Efficient Transportation

Electric Vehicles

The Vermont Comprehensive Energy Plan has set standards and goals designed to lessen greenhouse gas emissions from the transportation sector, and ambitious targets for the expansion of electric vehicle use. Other states have developed funding to support consumer electric vehicle (EV) purchase or lease incentives. Vermont should institute similar incentives, for both new and used EV sales.

In addition to consumer incentives for personal vehicles, Vermont should develop programs to support electrification of school buses, transit buses, and other fleet and work vehicles. Reducing the operation and maintenance cost for transit operators and school districts will free up resources that can be used to

support expanded transit and to provide more resources for education and providing transportation services to low income Vermonters.

EV Charging Stations

Vermont should continue to support EV charging in designated downtowns and village centers and work with convenience store and retail fuel dealers to locate DC Fast Charging at their existing facilities, employing solar generation whenever possible. Vermont should work with its distribution utilities to support incentives for residential Level 2 EV charging stations and develop Demand Response programs and EV rates to encourage EV adoption.

Transportation Options

Vermont should look to the comprehensive efficiency partnership to incentivize new technologies to support and encourage access and mobility options that do not require the use of single-occupant vehicles. These options include the use of mass transit, ride sharing, car sharing, car and van pools, expanded park and ride infrastructure, and active transportation options (walk, bike, and push).

Location Efficiency

Vermont should continue and strengthen its support for compact and smart growth development. Realtors and developers should be encouraged to use the US Housing and Urban Development (HUD) Location Affordability Portal to reveal all true costs of housing choices, including costs connected to location and transportation.

Transportation Equity

Vermont should ensure that transportation programs are designed for all Vermonters and enable the most vulnerable to access jobs, services, and social activities. Vermont should consider programs that provide transit vouchers, electric car sharing in economically disadvantaged communities, "cash for clunkers" for income

qualified Vermonters that can be used for transit passes or newer, more efficient vehicles; and Vermont should ensure that sidewalks and bike lanes link economically challenged communities with jobs and services.

Funding the Comprehensive Energy Efficiency Program

Vermont has historically used Regional Greenhouse Gas Initiative (RGGI) and Forward Capacity Market (FCM) funds to deliver home heating efficiency services. RGGI revenues are based on an auction, but Vermont's RGGI revenues are generally predicted to increase over the next decade. In addition, Efficiency Vermont's continued success at reducing electric demand will enable aggressive participation in the FCM and bring increased resources to Vermont. Additional funds from carbon pricing could leverage further progress in home heating and transportation efficiencies.

A first-in-the-nation

Vermont Comprehensive

Energy Efficiency

Partnership will advance

innovative new efficiency

services and initiatives while

providing simple, seamless,

and consistent services

to Vermont customers.

Platform of Action ▶

2.

Climate Economy Network Development Initiative

Vermont's future economic success is predicated on attracting innovative entrepreneurs, young businesses, and jobs in the climate economy. By nurturing and stimulating dynamic innovation in the climate economy, we spur growth of small businesses and local jobs, prosperity of our communities, and, ultimately, a growth in our tax base.

The Vermont Climate Change Economy Council proposes that Vermont **launch a Climate Economy Network Development Initiative** to invest in our economic future by building and strengthening the network of businesses that reduce our need for carbon-based energy sources and the enterprises that support those businesses.

Answering the Major Challenge of Climate Economy Entrepreneurs

Between private efforts and public sector programs, there are many funding opportunities for start-up businesses within Vermont's entrepreneurial ecosystem. However, the ecosystem lacks a strong network to shepherd entrepreneurs to the resources they need. This breakdown in support to entrepreneurs occurs for several reasons: (1) there is no widely available directory to the many resources available; (2) the resources are segment-

ed and specialized; (3) government programs, while beneficial, often lag market demand for some services and types of funding; and (4) there are limited resources for seed funds, risk capital, and research and development.

The Climate Economy Network Development

(CEND) Initiative will build on the successful work of the Clean Energy Development Fund and be launched through an expansion of the statutory authority, investment capacity, and structure of the Fund. This change would expand the original mission of the Clean Energy Development Fund to go beyond investments in clean energy generation, to include investments in job creation and business growth across the spectrum of climate economic development.

Network Builders

Rather than the traditional model of a government-appointed board making individual funding decisions, CEND will employ outside organizations (CEND's "Network Builders") to administer the program in a capacity that best fits the market. The Network Builders will be selected through a Request for Proposals (RFP) process and managed by weighing performance against target metrics. A similar structure is used by the state's pension committee: Through an RFP, the committee selects third-party money managers to hit agreed-on investment targets. The Network Builders may be public, private, or non-profit entities and may elect a range of methods to spur small business development in the climate economy, including, but not limited to:

- Building or augmenting staff to **serve as trusted advisors to entrepreneurs**. These staff will assist businesses to help prepare business plans and financial models, make introductions to potential funders, connect new businesses to local vendors, and link similar businesses to build partnerships.

- Providing **micro grants** for new and early stage business enterprise development. These grants will attract small businesses and attract entrepreneurs to Vermont. This capital can act in these emerging creative enterprises as equity to leverage private sector investment to support start-up and growing businesses.
- Providing **research and development grants** to private sector businesses that are developing new business models in the sector and to advance entrepreneurship around technology transfer from higher education.
- Leveraging additional business opportunities through **targeted grant investments in supply chain clusters** and private sector infrastructure.
- **Identify barriers and impediments** to business development and advocate for change to support the establishment and growth of climate economy businesses and entrepreneurs.

The Council believes that the best and most creative ideas on how to power the climate economy will come from the market itself. CEND will allow Network Builders to choose the right approach to help entrepreneurs and will focus on outcomes rather than methodologies.

Advancing Industry Sectors

The Climate Economy Network Development initiative can promote rapid progress in advancing the Vermont climate economy in the following sectors:

- Clean energy development and distribution
- Thermal and electrical efficiencies in buildings, workplaces, and homes
- Evolving public and private transportation systems
- Efficient building construction
- Energy and efficiency innovations in the working lands economy
- The recycling, reuse, and renewal of resources

By nurturing
and stimulating
dynamic innovation
in the climate
economy, we spur
growth of small
businesses and local
jobs, prosperity
of our communities,
and, ultimately,
a growth in
our tax base.

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3.

Codes, Regulation and Incentives

Vermont should reward behavior that reduces carbon usage and provide incentives for the development of goods, services, and practices in businesses that contribute toward that goal. Regulatory improvements and incentives, from building codes and enforcement to efficiency labeling and downtown development incentives, are critical tools as Vermont works towards a less carbon-intensive future. Measures must also be taken to improve and create financing mechanisms that will fuel the transition to clean energy across all sectors and support lenders and consumers in implementing home and business weatherization and energy retrofits.

The following key regulatory changes and incentives should be advanced to lower carbon use and advance our creative climate economy:

Incentivize Downtown Development

Downtown Act 250 Exemptions

Current jurisdictional thresholds under Act 250 for housing and mixed use development should be strengthened to encourage new housing units and business development in designated centers as defined in Title 10 Chapter 151 §6001(30) rather than in sprawl locations. Current provisions include a cumulative impact trigger for developers of most market rate housing. When reached, this standard incurs Act 250 review regardless of the fact of smart growth location. This trigger should be removed to simplify the development of housing in downtown centers.

Expand Downtown and Village Center

Tax Credits

To further incentivize and leverage private investment in downtown redevelopment, the State of Vermont should budget \$3M annually for Downtown and Village Center Tax Credits that can support building redevelopments, new buildings on infill sites, access and safety improvements, and building weatherization or energy retrofits.

Encourage New Downtown Development with Graded Property Tax Abatement

An additional incentive for all commercial and mixed commercial development would allow municipalities with designated downtowns and village centers to choose to eliminate all property taxes in the first year of new or redeveloped commercial and housing units with step increases in subsequent years of 25% in the second year, 50% in the third year, 75% in the fourth year, with properties paying 100% in the fifth year. By encouraging development that may otherwise not occur, the tax abatement would provide a significant net gain in municipal and education taxes over time.

Use Market Signals and Code Enforcement to Encourage Efficiency

Include Energy Efficiency Disclosure in Homes Listed for Sale by MLS and Energy Labeling

Every home listed for sale by MLS should have an energy efficiency evaluation and disclosure embedded in the home inspection standards and the MLS listing as well as a label indicating the home's electric and thermal energy score. This mandatory rating, managed through the comprehensive efficiency program at Efficiency Vermont, should follow the model of the time-of-sale "Vermont Home Energy Label" developed by including the DOE Home Energy Score, the estimated annual cost of heating the home, plus other factors identified in the

building inspection, from insulation to roof, windows, and envelope quality, to appliance efficiency. Realtors and developers should be encouraged to use the US Housing and Urban Development (HUD) Location Affordability Portal, which estimates transportation costs, to reveal all the true costs of housing choices.

Enforce Energy Codes for Commercial and Multi Unit Residential Development

The Vermont Comprehensive Energy Plan produced by the Vermont Public Service Department has goals for expanding home and building efficiency and energy codes for new developments to help achieve these goals. The inspection system for the enforcement of current and evolving codes, however, is under the statutory authority and responsibility of the Department of Public Safety. Currently, this department has no inspection system for ensuring that buildings are built to the current energy code standard. The current building codes must be actively enforced in new building or rehabilitation projects with inspections for compliance. This will provide a stronger sense of predictability and accountability to developers and building owners.

Increase the Net Metering Cap for Utilities

Currently, utility companies are limited to source only up to 15% or their capacity from net metering. This cap should be lifted for appropriately priced projects to encourage further development of distributed generation in the state.

Explore and Strengthen Financing Mechanisms to Expand Vermont Efficiency Markets

Fix & Promote R-PACE

Vermont's residential Property Assessed Clean Energy (PACE) program has struggled to find traction given initial programmatic challenges. Currently, the appli-

cation, underwriting and approval process is cumbersome for both customers and towns. The Vermont legislature, working with Efficiency Vermont to redesign R-PACE and transform it into a more seamless and accessible offering, could help bring this program to scale.

Develop C-PACE

Commercial efficiency is a sizable investment opportunity in the state, yet there is little programmatic focus and few dollars aimed at this critical market. Commercial PACE has proven to be a highly effective tool for financing deep retrofits in small and medium commercial buildings. Like residential PACE, commercial PACE requires strong central coordination and program management to ensure that an otherwise complex process can be made turnkey for towns and customers. The Connecticut Green Bank's C-PACE model provides an example that can be borrowed and implemented in Vermont.

Encourage To-the-Meter Financing for Energy and Efficiency Projects

"To-the-meter," on-bill financing allows customers to repay clean energy loans directly through their utility bill. It also addresses the split-incentive problem that stops residents from investing in clean energy upgrades that will benefit those that move in after the original resident leaves. By tying the loan repayment to the utility meter, and not the person, customers can confidently invest in an upgrade knowing that the repayment burden will stay with the meter instead of being taken on as additional personal debt. Designing an effective program requires coordinating across utilities and communicating effectively with banks, customers, and contractors.

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4.

Clean Energy Finance Collaborative

Achieving Vermont's goal of shifting to an energy economy that is 90% renewable by 2050, presents an enormous economic development opportunity. New investments will be needed to fuel this transition across all sectors of Vermont's economy. To spur those investments and to systematically expand and catalyze clean energy and efficiency development in Vermont, **the state should structure and invest in a Vermont Clean Energy Development Finance Collaborative.**

Convened and led by Efficiency Vermont at the Vermont Energy Investment Corporation (VEIC), the Collaborative should work with its efficiency utility, the Vermont Economic Development Authority, credit unions, banks, utilities, and other trusted intermediaries to simplify and streamline the consumer experience in making rational, cost-saving investments for local distributed energy projects and home and business weatherization and energy retrofits. The Collaborative would utilize partnerships, structures and public resources to leverage private capital into Vermont's clean energy markets.

The Collaborative should be established with a charge to Efficiency Vermont/VEIC from the Governor and Vermont legislature with an executive leader, a board, and funding established by the State of Vermont. Funding sources could include:

- The direct appropriation of state seed funds
- Federal grants as available

- Carbon pollution pricing revenue investment
- State backed bonding capacity
- A portion of the existing systems benefit charge
- Possible new systems benefits charges

The Collaborative will improve existing public clean energy finance and market development programs through the following four areas of work:

Working with and providing investment through existing clean energy/efficiency finance programs to extend their reach and effectiveness, identify market gaps, and avoid overlap of existing programs. These include, but are not limited to: i) offerings related to whole-building/whole-home efficiency (and renewables); ii) R-PACE; and iii) low-interest finance capacity.

Developing new financial tools to address the scope and scale of investment needed to meet the state's energy and climate goals. The current set of public and private actors are not yet equipped to achieve this level of investment. One priority could be to identify areas where market gaps exist and where private sector money could match public funds to spur investment in clean energy technologies and projects. Possible new financial tools and programs could include loan guarantees, low interest financing, C-PACE, crowd funding mechanisms and more.

Establishing a Clean Energy and Efficiencies Consumer Finance and Business Information Hub to facilitate access to information on existing financing, incentives and tools for clean energy and efficiency, to identify gaps and coordinate response among public/private partners, and support consumers in making choices on efficiency and home energy systems and financing options. This information could also be shared by all