Building Collective Impact and Assessing Integrated Solutions to New England’s Changing Climate

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Summary

New England’s approach to climate adaptation, mitigation, and energy security has the potential to significantly enhance our quality of life over the coming decades. Climate Solutions New England (CSNE) envisions a robust, collaborative network to advance regional energy security and weather resilient communities. An integrated approach to local and regional climate change projections, impacts, and solutions that leverages collective impact can emerge from purposeful network development and targeted research. In order to advance this kind of shared vision and collaboration, CSNE proposes to undertake two interrelated activities:

1. Develop, manage, write, and communicate the findings of an assessment of integrated solutions to New England’s changing climate. This requires a broad collaborative effort to gather people, information, ideas, and efforts across New England to assess the current reality and challenges, establish desired future conditions, and determine collaborative transition strategies for moving in that direction.

2. Design and develop a New England collective impact network that integrates diverse knowledge and perspectives around a common agenda for regional energy security and resilience emphasizing integrated solutions. By collaboratively establishing a common agenda around building regional energy security and climate across diverse stakeholders, CSNE will significantly increase collective impact across institutional and organizational boundaries.1

Overview

While climate change is a global phenomenon, its direct and indirect impacts on local communities are complex and therefore challenge familiar approaches to managing risk and uncertainty. Spurred on by damages from the growing number of extreme weather events (Figure 1), communities and decision makers have begun to realize that they can no longer assume that the climate over the 21st century will be similar to climate over the past century and that occasional “surprise” events are anomalies that can only be responded to by improvising. Instead, expectations of increased damages in the future, driven by larger and more frequent weather disruptions, have begun to take hold. As a result, a growing number of decision makers across New England are attempting to integrate climate change mitigation (i.e.,
reducing emissions of heat trapping gases) and adaptation strategies into planning for their communities, their families, and their businesses.

While international and national climate assessments can support generalized thinking about climate, risk and uncertainty, they cannot provide decision makers with contextualized information at local and regional scales; and that is precisely what is needed to effectively manage uncertainty in the context of climate change.

![Figure 1. Federal Expenditures on Presidentially Declared Disasters and Emergency Declarations in New England. Data from FEMA: http://www.fema.gov/disasters/grid/state-tribal-government.](image)

Scientific knowledge is essential, but by itself insufficient to meet this need until it is integrated with practitioner and broader community knowledge and values and contextualized within the critical drivers of community health and well-being across the region. Communities have different strengths and vulnerabilities and therefore different needs and capabilities when it comes to climate change, and contextualized information must, by definition, reflect those conditions. In addition, mitigation (reducing greenhouse gas emissions) is an essential element of adaptation because if we do not figure out how to meet our energy needs and manage our landscapes while significantly reducing emissions, we will simply outstrip our ability to adapt. So our region’s communities are in search of integrated approaches to adaptation and mitigation and they require information and collaborative networks that are responsive to local and regional conditions. The challenge, then, is to establish the process and mechanisms by which these multiple forms of knowledge can be integrated to support diverse communities’ mitigation and adaptation effectiveness. This is the central challenge for CSNE.
Approach

In order to transition risk management approaches to effectively address climate change impacts, scientists, decision makers, planners and entrepreneurs will have to work closely together. Solutions that increase the resilience of our region’s ecological, economic and community health will have to be:

• **Integrative** – They must address multiple challenges simultaneously. For example, integrative approaches to energy production that reduce greenhouse gas emissions while increasing community resilience and economic opportunity.
• **Responsive** - Problems and potential solutions must be carefully diagnosed and evaluated from diverse perspectives and vantage points on the particular circumstances of a given community to avoid unintended consequences. This requires substantive involvement of researchers, stakeholders and policy makers.
• **Adaptive** – Solutions must be flexible in process, technology, and governance across spatial and temporal scales. Community solutions have to succeed both as individual initiatives and as components within the larger, nested, socio-ecological system where cascading impacts occur as the built and natural environments are directly impacted by climate change.

Our approach is centered on two interrelated objectives: the design and development of a network in which scientists, decision makers and community members commit to building shared understanding and trust that will lead to increasingly effective collaboration; and second, the undertaking of an assessment of “integrated solutions” to New England’s changing climate that reflect the best insights from scientific, decision maker, and community knowledge and that can contribute to a shared regional vision for climate and energy resilience and sustainable communities. Our process will be informed by relevant examples and experience of the convening team in conducting sustainability science and network design and development.

This dual focus on network building and assessing *integrated solutions* stems from the concept of *collective impact* or the idea that greater connectivity and goal alignment among participants in a complex system such as a climate and energy system, leads to more effective action and impactful change. The Climate Solutions New England Network we are building will reflect the five conditions that recent research has deemed necessary to achieve collective impact including:

• **Common agenda**: CSNE will articulate a shared vision for the region’s climate and energy future that reflects diverse perspectives and identify sustainable ways to strengthen climate resilience and energy security in the next 5-10 years.
• **Mutually reinforcing activities**: CSNE will support existing programs, projects and organizations; advance new ideas; and coordinate actions among participants.
• **Continuous communication**: Network participants will communicate, share resources, learn from one another and coordinate initiatives through easily accessible communication channels such as a list-serve and a collaborative website platform.
• **Shared measurement**: CSNE will work towards the development of indicators and metrics that can be shared across New England, for measuring progress towards goals and monitoring strategy effectiveness.
• **Backbone support**: UNHSI will continue to provide staffing, process design, facilitation, research and communication and related logistical and administrative support to coordinate the network building and integrated assessment.

The success of this collaborative effort hinges on our ability to comprehend the complex processes that create our current situation locally, state-wide, and regionally. Thus, our team will work to connect actors, organizations, and knowledge across the socially, economically, politically, and physically constructed boundaries that exist between science and society. Crossing such knowledge boundaries
requires the creation of networks and learning communities. Building a shared, systemic understanding of our shared context and current reality will allow us to connect regional stakeholders and align thinking and efforts to improve effectiveness and collective impact, identify key points of leverage, and help the system (including ourselves) evolve in a more sustainable direction.

Why Now?

The time is ripe for not only a new climate assessment for the New England region, but a new type of assessment that serves to focus our efforts on integrated solutions to New England’s changing climate and network building. There are many climate- and energy-related networks and activities already at work across New England. What is missing, however, is a broad regional network with a common vision and agenda and a focus on integrated solutions to reduce greenhouse gas emissions and the impacts of our changing climate. Key objectives of CSNE are to increase the collective impact of organizations, networks, and practitioners by establishing the conditions and processes that have been shown to increase effectiveness and collaboration across institutional and organizational boundaries and to carry out the assessment. The conditions for building an integrated assessment and collective impact network are in place:

- Since the publication of the Northeast Climate Impacts Assessment (NECIA) in 2007 several projects to reduce greenhouse gas emissions as well as enhance community resilience in the face of our changing weather and climate have been implemented across New England. Much of this work (and lessons learned) has not been synthesized or communicated to a broader audience;
- The 2013 IPCC Fifth Assessment produced an new suite of global climate model simulations with new global emissions scenarios (now called representative concentration pathways) that, when downscaled, can provide additional insights into how our climate across New England may change in the future. This is especially important for analyzing future trends in extreme precipitation and associated flooding;
- The 2014 National Climate Assessment contains information and analysis on potential regional impacts of our changing climate. However, the spatial coverage of the regional chapters remains too coarse to provide sufficient decision relevant information for New England’s towns, cities, and states;
- A new regional assessment would provide a consistent and coherent analysis that describes potential impacts across entire watersheds and regions, as opposed to a piecemeal approach commonly used today; and
- All six New England states have Climate Action Plans. However, outside of a few sector based regional efforts, there has been limited broader discussion of a regional response to climate change, as opposed to isolated actions at the state, municipal, or sector level. A new assessment and network development could build upon many of the ideas presented in the 2006 New England Futures report that highlighted five key areas (energy, education, growth, health, and broadband/transportation) where collaboration across New England would ensure that the region is thriving in the 21st century.
- Knowledge and experience with collective impact networks is now established and growing in New England but has not yet been applied to regional climate mitigation and adaptation. Mitigation, adaptation, regional energy security and weather resilient communities represent facets of the larger complex problem of climate change where no single entity in the region has the resources or authority to adequately respond to its challenges and opportunities. In order to achieve the level of collective impact required, organizations and actors must establish a collective strategy through building shared understandings, trust and mutual respect across differences.

In addition, new support from the Jane’s Trust Foundation is enabling the CSNE backbone organization to facilitate the foundational steps for the integrated assessment throughout 2015:

1. Develop, facilitate and write a set of four to six case studies of integrated solutions to New
England’s changing climate. Case studies will be identified and developed collaboratively by pooling the knowledge and experience of network participants who will refine evaluative criteria starting from the definition of integrated solutions offered above. Case studies are expected to include actual examples of efforts already underway as well as those not yet implemented or planned and will be situated in diverse settings and sectors across the region. Example case studies include coastal communities seeking to address sea level rise and storm surge, upland agricultural enterprises seeking to address risks of flooding and droughts, underserved urban populations addressing air quality and public health risks associated with the combined impacts of warming and the heat island effect. This will require a broad collaborative effort to gather people, information, ideas, and efforts across New England to update and contextualize projected climate change impacts for specific case study settings and then assess integrated solutions that build resilience and adaptive capacity in an economically viable and equitable way.

2. Design and develop the first phase of the CSNE network through a carefully designed process that identifies and recruits core stakeholders from the private, non-profit, government and academic sectors; builds a shared understanding and alignment around the context and current reality of New England’s vulnerability to climate variability and novel weather patterns; and uses the case studies to develop a collective vision of what climate and energy resilience looks like across the region and what leverage points can be collaboratively approached to move the region in that direction in a manner that is sustainable.

With additional support from other partners, CSNE can build from this strong foundation.

**Why UNH: Opportunity for Collaborative Partnerships**

The UNH Sustainability Institute (UNHSI) has provided preliminary startup funding for CSNE and is now seeking philanthropic partners to launch this critical next stage of collaborative work. The first phase of this effort is projected to cost $600,000 per year for two years to cover key personnel data gathering and analysis, and network convening process design and facilitation with subsequent phases requiring approximately $500,000 per year for key personnel, network infrastructure, convening and communication and analysis.

The backbone team currently consists of the following individuals:

**Jennifer Andrews:** Before coming to UNHSI in 2014, Ms. Andrews spent thirteen years at Clean Air-Cool Planet promoting practical climate solutions for campuses, communities and businesses. Jenn’s extensive project management experience is exemplified by the Climate Fellows program she developed and has run since 2006. This program pairs exceptional students with municipal, educational, corporate and NGO partners in New England and across the US working on innovative climate change initiatives.

**Matt Huber PhD:** Dr. Huber's research focuses on past, present and future climate: the mechanisms that govern climate, the different forms that climates can take on Earth, and the relationship between climate change and life. Major research areas include: the radiative and dynamical processes generating tropical "thermostats", polar amplification of warming, and the ecological and evolutionary implications of these processes and patterns.

**Tom Kelly PhD:** Dr. Kelly is the founding director of the UNH Sustainability Institute and UNH’s Chief Sustainability Officer. He has been working in the field of higher education and sustainability for more than 20 years in the US and abroad. Dr. Kelly’s work in facilitative leadership and network development that is relevant to CSNE includes being the principle convener of Food Solutions New England.
**Paul Kirshen PhD:** Dr. Kirshen has thirty years of experience serving as principal investigator of complex, interdisciplinary, participatory research. He is a Research Professor, Department of Civil and Environmental Engineering, and Institute for the Study of Earth, Oceans, and Space at UNH. Recent research includes developing climate change adaptation strategies for urban infrastructure, investigating the impacts of increased coastal flooding on particularly vulnerable populations and adaptation strategies, and adaptation planning for multi-purpose, multi-objective river basin systems. Most of his adaptation work has been in New England.

**Cameron Wake PhD:** Dr. Cameron Wake is the Josephine A. Lamprey Professor in Climate and Sustainability at the UNH Sustainability Institute and a Research Associate Professor at the Institute for the Study of Earth, Oceans and Space. Dr. Wake directs an active research program investigating regional climate and environmental change through the analysis of ice cores and instrumental records. Currently he is leading research programs to assess the impact of climate change in New England.

The UNH Sustainability Institute has supported CSNE since 2010 and is committed to serving as its backbone organization - contributing just over $100,000 of in-kind support annually. Recently, the UNHSI secured $25,000 from Jane's Trust to support CSNE’s work during 2015 to identify potential integrated climate solutions in the region. UNH institutes and faculty have provided intellectual and facilitative leadership in regional climate and energy assessments to date including the 2001 New England Climate Assessment, the 2006 the Northeast Climate Impact Assessment, and the 2014 National Climate Assessment. Faculty working on CSNE initiatives are currently engaged in innovative approaches to mitigation and adaptation research involving diverse stakeholders from across the region including the City of Boston and towns and municipalities.\(^{15}\)

UNHSI has a clear track record of success in playing a parallel role in Food Solutions New England—an effort which has been identified as an exemplary model of a building a collective impact network.\(^{16}\) Since 2010 it has facilitated greater collaboration among philanthropic funders, nonprofit organizations and networks, businesses, academic institutions, and government agencies engaged in local, state, and regional efforts to advance food system sustainability. CSNE efforts to date have focused on providing analysis and publically accessible information such as the recent reports on Climate Change in New Hampshire, federally funded research projects and dozens of public presentations. In 2012, Dr. Cameron Wake, who plays a leading role in CSNE, became the Josephine A. Lamprey Professor of Climate and Sustainability at the Sustainability Institute and in 2013 and 2014 Drs. Paul Kirshen and Matt Huber joined the CSNE team along with Jennifer Andrews. CSNE is a long-term undertaking and commitment; the next critical phase of its work will be built upon foundational structures and participants in the CSNE network and the integrated solutions case studies that funding from the Jane’s Trust Foundation will enable. We are confident in our ability to successfully leverage that support to establish sustained funding that will support a robust regional collaborative network.

**Conclusion**

Climate change mitigation, adaptation, regional energy security and weather resilient communities represent facets of the larger complex problem of climate change where no single entity in the region has the resources or authority to adequately respond to its challenges and opportunities. In order to achieve the level of collective impact required, organizations and actors must establish a collective strategy and approach. That collective approach in turn requires the facilitative leadership and analytical capacity of an experienced backbone organization to support a process of building a shared understanding and common agenda across an initial network team representing diverse sectors and perspectives of the region’s climate and energy system. Additional continued support for this effort from other partners will allow UNHSI to leverage its unique experience and human resources to establish the tangible foundation of the CSNE network that will continue to have collective impact in one of the most critical areas impacting New England’s future.
Endnotes


6 Exiting networks include those listed in endnote above, as well as:
- New England Governors, Northeast States for Coordinated Air Use Management (NESCAUM)
- New England Interstate Water Pollution Control Commission (NEIWPCC)
- Northeast Energy Efficiency Partnerships (NEEP)
- New England Clean Energy Council
- New England Municipal Sustainability Network
- New England Council/Environmental Business Council of New England
- New England Grassroots Fund

7 For example, Kania and Kramer (2011) identify five key factors as critical to increasing collective impact: 1) common agenda across organizations; 2) shared measurement systems; 3) mutually reinforcing activities that create synergy rather than redundancy; 4) continuous communication across and within organizations; and 5) backbone support organizations that can plan, manage, and support the initiative.


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Background and information on Food Solutions New England (FSNE) can be found at http://www.foodsolutionsne.org/ For identification of UNHSI as exemplary national model of a backbone organization see Center for Prevention at Blue Cross and Blue Shield of Minnesota: 2014, *Collective Impact Backbone Organization Exploratory Study Final Report.*