

Accelerating Regional Collaboration on Energy Efficiency and Climate Action

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Purpose:

This document describes an approach to building capacity for regional collaboration on municipal energy efficiency and climate action. This approach is informed by the pioneering design and implementation work of the Center for Neighborhood Technology (www.cnt.org) and its affiliate CNT-Energy (<http://www.cntenergy.org/>) in the Chicago and northern Illinois region, and by the national consultancies of CNT-E and its network of partners.

The base platform for regional collaboration is a regional Data Center that integrates multiple sources of energy usage data (e.g. utilities at the address level; transportation data) for easy baseline analysis and forecasting. Connected to this information platform is a set of regional services that bring national-class energy efficiency planning, implementation, and creative financing capacity to municipalities that would otherwise not have the resources to develop or purchase such capacity.

Building this capacity at the regional level can accelerate and deepen the energy efficiency work within and between multiple municipalities, and create a coherent strategy at the regional level where many of the key systems and leverage points for change operate. It also can allow for achievement of economies of scale and scope that will enhance the long-term sustainability of municipal initiatives to achieve energy efficiency and reduce greenhouse gas emissions, as well as lower regional energy costs and buffer the region from energy price spikes.

Problem Statement:

Across the country, local governments and others are increasingly interested in climate action and energy efficiency – and for good reasons: it's necessary to save the planet and it's critical to economic development. However, the interest is growing much faster than capacity. Municipalities want to act, but often do not know what to do, or how to do it, and often the most effective and efficient strategies are best implemented for geographies larger than one municipality.

Interest has accelerated as a result of Energy Efficiency and Conservation Block Grant (EECBG) funding, and climate mitigation planning is spreading at the municipal level. The leaders in this work tend to be the larger core urban centers (e.g. New York, Chicago, Boston, Portland, Seattle, San Francisco, LA, etc.), but increasingly mid-sized and smaller municipalities are also investing significant resources in similar kinds of strategies.

Currently, there are some efforts to develop shared tools for doing this work across cities, through organizations like ICLEI, the Clinton Climate Initiative, and the recently formed Urban Sustainability Directors Network.

There is, however, no effective infrastructure or framework in place to support collaboration across municipalities within a region on energy efficiency and climate action. As a result, there are significant lost opportunities for economies of scale – and cities within the same region are duplicating efforts and “reinventing the wheel” on key initiatives. Small and medium sized cities that lack the municipal staff and expertise required for some of the work have no efficient way to benefit from the knowledge of the larger cities in the region. This lack of regional infrastructure also creates barriers to addressing issues that affect energy efficiency at a regional scale, ranging from transportation systems to business development strategies.

Doing energy efficiency planning and program implementation well requires a level of technical expertise that is often lacking in many mid-sized and smaller municipalities. Some elements of this expertise include:

- **Data.** Experience working with multiple and geographically disparate data sources for energy use, including: electric and gas utility data; vehicle miles traveled; fuel sales data; aviation data; and data from the Energy Information Agency and other official government sources.
- **Regulatory.** Experience with evolving regulatory and market conditions in the region, including the operations of the regional grid operator; the evolving role of the state power agencies, and an appreciation of the impact of restructuring of electric markets, including the enactment of Renewable Portfolio Standards, Energy Efficiency Portfolio Standards, and other policy innovations.
- **Forecasting.** Expertise in forecasting energy supply and demand, next generation technologies, advances in renewable energy and the alternatives within conventional generation sources such as the resurgence of nuclear power and clean coal technology.
- **Best Practice.** Knowledge of emerging best practice for energy efficiency strategies, such as residential and commercial building retrofits; green building; updated energy codes; household renewable energy; mobility planning and technology; and consumer demand side management.
- **Delivery.** Capacity to manage effective energy efficiency delivery and financing programs.
- **Funding.** Awareness of and capacity to package a dizzying array of local, state, federal, and private funding options for energy efficiency and clean energy.

Making this expertise available regionally can help these communities achieve the level of implementation needed to achieve real emissions reductions on a regional basis. In this context, regional implementation can be approached in many different and creative ways. It does not mean that all municipalities have to agree on a

common approach, and it does not require any form of regional governance. Instead, collaboration can be achieved through the sharing of systems; expertise; experience and resources and the development of networks for connecting municipalities with each other; voluntarily aligning around best practice; and cooperating on implementation.

Key Elements in a Regional Energy Efficiency and Climate Action Infrastructure

There are three key elements in a regional energy efficiency infrastructure:

1. **Data Center.** Integration of key data sets as a foundation for baseline analysis, forecasting and performance monitoring.
2. **Shared Technical Support.** Regional capacity to provide high level technical assistance in analysis, comprehensive strategic planning and program, product and service development; peer networking; and program implementation to individual municipalities and groups of cities.
3. **Funding Intermediary.** A non-profit funding intermediary that can aggregate capital from local and regional funders; organize collaborative finance and grant opportunities; and provide outsourced project management to small municipalities.

Each of these is discussed in more depth below.

1. Regional Energy Planning Data Center

Detailed baseline energy consumption data by sector is important for two purposes:

- Understanding current usage in order to target opportunities for energy efficiency where they will have the most impact.
- Measuring energy consumption over time to assess actual impact of energy efficiency measures.

Integrating the necessary data sets at the required level of detail is a technically complex and politically sensitive task. It requires both sophisticated database management systems, as well as the ability to create confidence with data sources that issues of data integrity and confidentiality will be adequately addressed. In successfully working with regional utilities in northern Illinois, CNT Energy has developed both the technical data management systems, as well as the protocols for data sharing with utilities and municipalities.¹

¹ CNT has data sharing agreements in place with Commonwealth Edison, Nicor, Peoples Gas and North Shore Gas. As the use of regional energy data centers spreads, it may be possible to standardize these protocols across utility regions, making the start-up process easier and more

One of the benefits of the Data Center approach is that it allows for a level of data matching and aggregation that utilities are unable to do on their own. Since they are increasingly implementing their own energy efficiency portfolios, the Data Center helps them better target their resources and align utility initiatives with local government programs for an overall synergistic effect.

The regional data center will encompass the following core elements:

- **Utility Data.** The data center will implement and manage data sharing agreements with regional utilities to access address-specific electric and gas utility consumption data.
- **Property Tax Data.** The data center will integrate address-specific utility data with municipal property tax assessment data bases. This integration will allow both the generation of energy use per square foot data, and the analysis of energy use for different types and ages of structures, enabling customized designs and prioritizing interventions for different segments.
- **Transportation Data.** CNT's Housing and Transportation Affordability Index (H+TSM) model database provides unique access to transportation-related energy consumption data at the block group level that will greatly inform transportation energy planning.
- **Greenhouse Gas Emissions.** The data center will translate energy consumption data into a standardized carbon emissions analysis, using a set of protocols and algorithms developed by CNT for the City of Chicago baseline emissions profile.
- **Energy Profiles and Climate Inventories.** Data sets will be converted into standardized energy profiles and climate inventories for each municipality in the region.² The energy profiles display consumption on a sector by sector basis, providing essential information for the development of mitigation strategies targeted to each sector.
- **Scenario Analysis.** Standardized scenario analysis can be developed, showing the expected impact on both building and transportation energy consumption, and GHG emissions from implementation of specific energy efficiency strategies.

efficient. This could involve some national MOUs, and certification of data intermediaries qualified to engage in the data sharing protocols.

² CNT developed these standardized profiles for 270 municipalities in the Northern Illinois region under a recent grant from the Illinois Clean Energy Community Foundation. Copies of sample reports are available on request.

- **Trend and Impact Analysis.** The data center will manage the data sets on an ongoing basis over multiple years, enabling longitudinal analysis of regional energy consumption and greenhouse gas emissions trends, by sector.

2. Shared Technical Support

As municipalities move into serious energy efficiency and climate planning and implementation, the tendency is for each municipality to want to build their own internal capacity for program development, analysis and implementation. This approach becomes highly inefficient, however, when you are dealing with several hundred municipalities in a region, all of whom need to implement some package of programs, and many of whom need to collaborate on issues best addressed at a regional scale, such as transportation demand management; workforce development and economic development; large scale citizen mobilization; etc. Acting alone also greatly increases the risk of failure. For example, a well crafted \$500,000 loan fund is still much more likely to fail than a \$10 million fund simply because it cannot afford the cost of full-time staff or the use of state of the art risk management tools.

The need for technical capacity can best be addressed by developing an integrated technical support capacity at the regional level, with some level of standardization in approach. In most regions, this will best be done by creating a “production network” of technical assistance providers who work off of shared analysis and implementation platforms.³

The dimensions of technical support that can be addressed in this way include:

- **Analysis** – Customized analysis of specific implementation strategies and their potential and actual impact on energy consumption and greenhouse gas emissions. (See Attachment 1 for an example of the range of strategies for which this analysis might be carried out.) This can include longitudinal impact analysis.
- **Planning.** Comprehensive strategic planning and program, product and service development.
- **Learning** – Shared learning opportunities for groups of municipalities in the region, in the form of simple workshops, or more involved multi-day energy efficiency “academies.”⁴

³ We have advocated the creation of a national Climate Extension Service (<http://www.nupolis.com/public/item/236031>) to provide the kind of technical support to municipalities that the Cooperative Extension Service has provided to farmers, but this level of national commitment is unlikely to occur in the foreseeable future, so in the meantime regions will need to develop their own support infrastructure. In doing this work, however, regions can tap into the kinds of national networks of expertise that networks like Urban Sustainability Associates has developed.

⁴ The Institute for Sustainable Cities has successfully modeled this approach using 2-3 day learning sessions with teams of staff from 10-15 cities, focused on specific topics like building energy

- **Regional Networks** – Development of connecting, aligning and producing networks between subsets of municipalities in the region. Networks allow a focused subset of cities to engage in learning, advocacy and program development on a cooperative basis.⁵
- **Connecting to National and International Best Practice Documentation and Networks** – There is an increasingly rich network of best practice information and expertise available on the national and international level. It is difficult for smaller units of government to keep up with, and take advantage of, the expertise of these networks.⁶
- **Implementation** – Implementation support for specific programs in the form of off the shelf program models, custom program models, and recommendations for opportunities to join existing effective programs. This can also included the use of shared operating systems across municipalities. (As examples in the Chicago region, CNT Energy operates a multi-family residential retrofit program in the Chicago Region that is widely acknowledged to be the best performing retrofit program in the region. This program design is now being adopted by other municipalities, instead of each inventing their own. In addition, CNT Energy has developed some tools, such as building performance management software, which can also be used by multiple municipalities.)

3. Regional Funding Intermediary

One of the difficulties of advancing municipal-level energy efficiency work is that the funding to support regional work is highly fragmented and often difficult to manage for municipalities. In addition, financing tools (such as loan funds) often work best at scales that exceed a single municipality.

As an example, most municipalities are not set up to organize or receive non-profit funding to support their work. There is currently close to a half-billion in U.S. philanthropic capital going into climate change work, and virtually all of it goes through NGOs, even when the large change hypotheses are focused on the actions and behaviors of local units of government. Local governments often also have contracting and hiring restrictions that make it difficult for them to organize and

efficiency; transportation management; etc. A team (which includes CNT Energy and other Urban Sustainability Associates partners) has been working with ISC to adapt this model to regional applications.

⁵ The Green Cities California network is an example of a city advocacy and implementation network that has had significant impact (although not all the cities are in a metro region).

⁶ Examples of these networks include international best practice networks developed by ClimateWorks; national best practice networks supported by the Energy Foundation; the recently formed Urban Sustainability Directors Network; and content-specific practice networks such as the recently launched Emerald Cities initiative, focused on large scale building retrofit strategies in six cities.

execute rapidly changing project structures efficiently and with the required level of entrepreneurial management.

One or more regional funding intermediaries, whose function is to aggregate and manage capital on behalf of the municipalities in the region can help address these constraints.⁷ The role of the funding intermediary can include:

- Helping to network and organize local and regional funders around a common energy efficiency agenda.
- Serving as a re-granting organization for aggregated philanthropic capital.
- Helping to set up collaborative financing tools and mechanisms that can operate across municipalities.
- Outsourcing philanthropically-supported project management work for municipalities.

Planning the Regional Infrastructure

There is no single “model” to be applied in each region. The structures that can accomplish these three functions (Data Center; shared technical support; and funding intermediaries) will be different in each region, and will be dictated by the size and shape of the region; the existing level of regional organization; and existing technical and funding capacity in the region.

The process for designing the regional infrastructure will include:

- Definition of the region. This should be based on a combination of statistical areas; overlap of utility regions; and political identity.
- Scan of municipal practice. A quick summary of where each municipality is in their energy efficiency planning should be conducted to understand the range of practices that exist in the region.
- Scan of technical support capacity. The planning process should include a scan of the technical support capacity available through NGOs, consulting groups and other resources.
- Scan of existing program capacity. Understanding existing energy efficiency programs and activities, as well as programs that exist in other regions that can be easily extended to the region in question.

⁷ The Global Philanthropy Partnership, led by Adele Simmons, the former President of the MacArthur Foundation, plays this role in the Chicago region. Their function was a significant factor in the successful raising and managing of funds for the Chicago Climate Action Plan.

- Funders and finance scan. A scan of local and regional funders and energy efficiency finance opportunities will help understand the resources potentially available for this work.
- Utility data sharing. Finally, interviews with utilities in the region will help reveal any barriers to data sharing across utilities.

Summary

Energy efficiency planning is destined to become a more and more important feature of municipal life. Building regional structures to support collaboration in data management; technical support; and funding aggregation can help make this work happen faster, cheaper and with higher levels of impact.

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For more information on Urban Sustainability Associates, visit our web site at <http://usa.nupolis.com>

Attachment 1 – Examples of Implementation Strategies at the Municipal Level

Energy in Buildings

- Residential Retrofit Programs
- Commercial and Industrial Retrofit Programs
- Green Building for Major Renovation
- Green Building for New Residential Construction
- Green Building for New Commercial Construction
- Energy Code Upgrading
- Household Renewable Energy

Behavior Changes

- Resident Demand Management
- Commercial Demand Management
- Appliance Trade-In
- Increase Use of Transit

Transportation

- Coordinated Land Use and Transportation Planning
- Transit-Oriented Design
- Increase Fleet Efficiency
- Bike and Pedestrian Improvements
- Shared Parking/Reduced Parking Requirements
- Adopt Complete Streets
- Rapid Transit Improvement
- Freight Operations Improvement
- Variable Pricing on Expressways and Parking
- Intelligent Transportation Systems
- Advanced Arterial Signal Systems
- Alternative Fuels, Efficient Use of Fuels
- Grouped Transportation/Car Sharing

Water and Waste Management

- Improved Efficiency In Water Supply Systems
- Substitution Of Green Infrastructure For Gray Infrastructure
- Zero Waste Initiatives

Other Complementary Strategies

- Green Economy Economic Development
- Green Workforce Development