CREATING A CHICAGO REGIONAL BUILDING ENERGY EFFICIENCY SYSTEM

Final Report

Prepared by Center for Neighborhood Technology

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THE CHICAGO COMMUNITY TRUST AND AFFILIATES

CNT Sustainable Communities Attainable Results

CNTenergy

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About the Center for Neighborhood Technology and CNT Energy

The Center for Neighborhood Technology (CNT) was founded in 1978 to research, adapt and test new community revitalization strategies relevant to urban communities, especially strategies that harness the environmental and economic value of the more efficient use of natural resources. Over the years, CNT has worked to disclose the hidden assets of the Chicagoland economy and urban areas more broadly; to demonstrate the multi-bottom line benefits of more resource-efficient policies and practices; and to show how the value of what we demonstrate can be captured to benefit communities and their residents inclusively. CNT's work, especially in the areas of energy, transportation, materials conservation and housing preservation, helped fuel a generation of community development institutions and learning, garnering us a reputation as an economic innovator and leader in the field of creative sustainable development.

CNT Energy is the energy services and planning division of the Center for Neighborhood Technology (CNT). CNT Energy has experience delivering energy efficiency services in over 20,000 commercial and residential buildings across the Chicago Metropolitan Region. The group has developed a particular expertise in building performance measurement, post-LEED certification and post-retrofit; analyzing and communicating building performance in order to communicate the value of investing in efficiency and that result in on-going reductions in operating costs for building owners. CNT Energy also helps municipalities plan for efficiency by developing comprehensive energy and sustainability plans. CNT Energy served as a lead researcher on the Chicago Climate Action Plan.

More information about CNT is available at www.cnt.org

Executive Summary

The Chicago area's homes and offices must be brought up to 21st century standards for energy efficiency, both to save money and to reduce climate-altering green house gas emissions. Federal money available through the American Recovery and Reinvestment Act (ARRA) can jumpstart the creation of a market and infrastructure for accomplishing this, while utility and other financing can sustain the work over the long term.

In launching this effort, the Chicago area does not need to reinvent the wheel; successful programs in other states offer principles and models for how to proceed. The Chicago area should immediately begin a two-track process for creating a Chicago Area Building Energy Efficiency System. The first track would identify funding, including ARRA funds to quickly ramp up existing programs to launch significant weatherization initiatives in appropriate locations around the seven-county region. The second track would begin designing the network or institution to carry on this work over the long term.

While there are significant hurdles, creating such a system would meet the needs of homeowners, municipalities, utilities, suppliers, and citizens. By strategically combining available resources and existing knowledge, the Chicago area can undertake the massive work of making its physical structure more energy efficient, in the process bringing environmental and economic benefits to the eight million people who live in this region.

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The Chicago area faces the huge task of retrofitting its buildings to save energy and reduce carbon emissions. It has access to money, and successful models, to get the work done – but Chicago area residents must act strategically to take advantage of this historic opportunity.

Chicago is world-famous for its downtown skyscrapers, neighborhood bungalows and leafy suburbs, but behind their facades Chicago-area buildings conceal an embarrassing and expensive reality: they use way too much energy. The inefficiency is partly a consequence of age: 45% of the city's housing units and 21% of the region's housing were built before 1939. But a lack of public and utility commitment to conservation has, until very recently, been another factor. Other parts of the country, especially the northwest and New England, faced high energy prices and a supply crunch in the 1980s and began investing in efficiency, with significant gains. The Chicago area, on the other hand, had a surplus of supply, relatively stable demand, and relatively low prices, providing building owners little incentive to upgrade old, inefficient buildings and systems. Even in comparison to other Midwest cities, Chicago is dramatically less efficient: a typical Chicago building uses twice the energy of comparable buildings elsewhere in the Midwest. Energy consumed by buildings accounts for 70% of Chicago's GHG emissions; for the surrounding six-county area, where transportation emissions are higher, building energy still accounts for 61% of emissions.

Chicago area residents are waking up to the realization that maintaining the status quo is not sustainable any longer. Rising prices for natural gas and electricity plus concern over climate change have combined to initiate a flurry of conservation programs by local utilities and growing interest by private contractors and nonprofits (see Figure 1). Though promising, such efforts are nowhere near the scale required to effectively address the situation. Take, for example, the

Figure 1. Sample List of Existing Chicago-Area Energy Efficiency Programs

Residential Market Programs

- Peoples Gas Incentive Programs
- ComEd's AC Tune-up Programs

Subsidized Residential Programs

- CEDA's Weatherization Program (Single Family)
- CEDA's Weatherization Program (Multifamily)
- Lead Abatement Program, Department of Housing
- Neighborhood Housing Services
- Aviation Noise Abatement
- Green Bungalow Program
- Shorebank Single Family
- Energy Savers Program
- Bethel New Life
- Bickerdike Redevelopment Corporation
- Heartland Housing
- Delta Institute
- Clinton Foundation/Mercy
- Clinton Foundation (ESCO)

Commercial Energy Efficiency Programs

- City of Chicago Industrial Rebuild Program
- ComEd's lighting and AC incentive programs
- SEDAC
- City's Green Office Challenge

2008 Chicago Climate Action Plan which calls for retrofitting 400,000 residential housing units, as a keystone of its commitment to reduce greenhouse gas emissions by 25 percent by 2020 though current capacity can retrofit only 8,900 units a year. Suburban capacity is even more limited. Individual communities have similar goals and CMAP is currently developing regional goals.

Fortunately, in recent months, a dramatic opportunity has emerged to jumpstart local conservation programs (see Figures 2 and 3). The American Recovery and Reinvestment Act commits substantial federal funding, funneled through the states, to promote energy efficiency, including:

- Energy Efficiency Block Grants, an estimated $101 million directly to Illinois communities for conservation programs, ranging from $150,000 for small cities to $27 million for Chicago
- State Energy Efficiency Programs, $101.3 million for Illinois (twenty times the previous funding level); these funds will be available to local communities through an RFP process
- Weatherization Assistance Programs, $250 million for Illinois (again, twenty times the previous funding level) for nonprofit weatherization programs serving low-income families
- Tax credits to individual building owners, to a maximum of $2500, for energy efficiency improvements
- Qualified Energy Conservation Bonds, tax-credit bonds available for capital expenditures, totaling $2.4 billion nationally
- Additional funding under housing ($221.5 million for Illinois to upgrade public housing, including energy efficiency improvements) and training (participation in Green Jobs Training)

The ARRA funds provide a critical opportunity to start down the road toward a more sustainable energy future for the Chicago region, and create hundreds of jobs in the bargain. And although these are one-time funds, once the work has begun, other sources could sustain the activities over the longer term. In fact, all three Chicago-area utilities have launched, or are contemplating, programs to promote conservation. The largest of these, from Commonwealth Edison, is projected to build up to a $180 million fund over

Figure 2. ARRA Energy Efficiency Block Grant Funds Available to Illinois Municipalities and Counties

City or county name	SEO Allocations
Addison	$168,300
Arlington Heights	$714,100
Aurora	$1,574,100
Bartlett	$157,500
Belleville	$179,200
Berwyn	$444,300
Bloomington	$746,400
Bolingbrook	$652,300
Buffalo Grove	$179,900
Calumet City	$149,300
Carol Stream	$173,000
Carpentersville	$146,800
Champaign	$763,200
Chicago	$27,648,800
Cicero	$727,300
Crystal Lake	$183,500
Decatur	$768,200
DeKalb	$186,800
Des Plaines	$576,900
Downers Grove	$232,100
Elgin	$1,002,600
Elmhurst	$205,300
Evanston	$749,700
Glenview	$207,100
Hanover Park	$141,600
Hoffman Estates	$515,100
Joliet	$1,346,400
Lombard	$187,500
Moline	$190,200
Mount Prospect	$489,600
Naperville	$1,392,200
Normal	$488,500
Oak Lawn	$495,900
Oak Park	$200,600
Orland Park	$520,700
Palatine	$614,500
Park Ridge	$158,700
Peoria	$1,174,300
Plainfield	$143,700
Quincy	$180,600
Rock Island	$168,600
Rockford	$1,582,800
Romeoville	$153,200

Continued on following page

Figure 2 continued ARRA Energy Efficiency Block Grant Funds Available to Illinois Municipalities and Counties

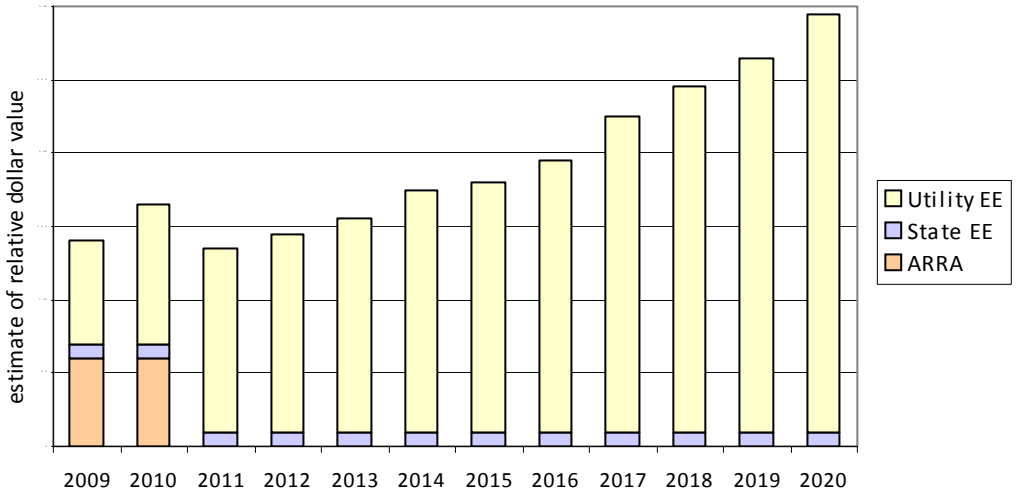
City or county name	SEO Allocations
Schaumburg	$776,500
Skokie	$654,200
Springfield	$1,225,600
Streamwood	$142,900
Tinley Park	$537,600
Urbana	$185,200
Waukegan	$851,900
Wheaton	$514,400
Wheeling	$160,000
Cook County	*$12,696,000*
DuPage County	*$4,653,700*
Kane County	*$2,469,100*
Lake County	*$5,658,700*
Madison County	*$2,490,200*
McHenry County	*$2,475,900*
St. Clair County	*$2,040,800*
Tazewell County	*$548,400*
Will County	*$3,009,700*
Winnebago County	*$568,800*
Total for state of IL	$21,834,600

three years; Peoples Energy has a $7.5 million annual fund which is projected to increase and Nicor is in the process of developing a program. Chicago-area utilities could also follow the example of utilities elsewhere and begin allowing building owners to finance energy retrofits through their utility bills.

Other possible future sources for funding conservation include carbon credits and forward capacity credits. The latter recognize that reduced demand achieved through conservation reduces the need for, and therefore the costs of, expanding and/or replacing generation, transmission, and distribution capacity. Efficiency Vermont currently receives approximately $1.5 million through such credits.[1] In addition, there is the possibility of future funding from government sources, Home Performance with ENERGY STAR or Illinois' Urban Weatherization Assistance Initiative which could provide funding for training of laborers and other workforce development services.

Unfortunately, the convergence of need and resources does not guarantee that the Chicago region will take

Figure 3. Utility and ARRA Funds Available to Implement Energy-Efficiency Measures in Illinois



1 For more detail on these and other potential funding sources, see Center for Neighborhood Technology and the Delta Institute, "Energy-Efficiency Implementation in Chicago: An Analysis of Energy Consumption and Financing Mechanisms," August 13, 2008. There are also various parts of the HUD FY 2010 budget proposal that could support a regional energy initiative, including the Energy Innovations Fund, the proposed Sustainable Metropolitan Grants program, the general thrust of the new Office of Sustainable Communities and Housing.

advantage of this opportunity in strategic and cost-effective ways. History (especially recent Illinois history) is rife with public programs in which waste, fraud, and inefficiency defeat even the best of intentions. This is of particular concern here since energy conservation is relatively new to most Chicago area residents and tackling it can seem complex and intimidating. Building owners interested in improving their efficiency will need to answer many questions, including:

- How do I measure energy use and compare my building to similar structures?
- What opportunities are there for reducing energy use?
- Which are the most cost-effective?
- What funding, financing, and incentive programs are out there?
- What contractors can do the work? Which are most reliable?
- How much should it cost?
- How long will it take to pay back?
- How will I know if it's working, and how can I improve performance?

Municipalities face similar complexities. At a time when public budgets are feeling the crunch of the economic downturn, local governments must decide how to spend the energy-related stimulus money in ways that match program goals, help plug budget holes, and create jobs and other benefits for local residents. The market and infrastructure to help with those decisions is fragmentary at best, leaving them to struggle with the same questions that daunt homeowners, only with larger buildings and sums at stake.

There is, at present, no single, comprehensive source to answer such questions and provide assistance in financing and carrying out the work here in the Chicago area. Only the most determined (or well-staffed and financed) owner or municipality is likely to persevere.

Chicago has pioneered many areas of public policy, from the Burnham Plan and the juvenile court system to its current leadership in school reform and climate change planning. In this instance it is fortunate, given the short time frame, that there are well-established models that the Chicago area can learn from and adopt to scale up its conservation efforts quickly. It is also fortunate that there already exists a strong set of public, private and non-profit institutions throughout the Chicago area which have been working together and can be mobilized to build and effective regional system based on models and best practices around the country.

In preparing this paper CNT draws on two decades of promoting energy conservation, including its current Energy Savers Program, which retrofits 3,500 low-income housing units per year. In addition, CNT consulted the economic literature on market formation, examined successful large-scale conservation programs around the country and visited program operators in Wisconsin, New York, Vermont, and Minnesota. We also convened a design charette attended by individuals with deep experience in designing conservation programs in Vermont, California, and Oregon, plus people with expertise on program development and training for green jobs. This paper reflects the lessons and best thinking gleaned from this experience on how to achieve sustainable regional building energy conservation for the Chicago area.

II. What the Chicago Area Needs

To make the most of the current critical need and opportunity, the Chicago region should establish a single coordinating entity to promote building energy efficiency across the region.

The experience, research and design charette suggest that the creation of a single entity to promote and coordinate building energy efficiency would organize a market infrastructure, supply chain, and financing options for conservation investments in Chicago area buildings. By operating at a regional level, the system can control administrative costs, aggregate customer service and financing, and achieve economies of scale. To the extent that it can get started quickly, a Chicago Area Building Energy Efficiency System would help ensure that the ARRA funding is spent in cost-effective ways. For the longer term, it would create the institutional basis for managing future investments and creating and maintaining a trained workforce to bring buildings in the Chicago area into the 21st century.

The Chicago Area Building Energy Efficiency System should have as its goals: to serve the seven county Chicago region, to cover building energy broadly (gas and electric, building systems and consumer behavior), and to operate independently of, but in cooperation with, local governments and utilities.

The System would simplify the task of the building owner or municipality embarking on conservation by coordinating the following elements: [2]

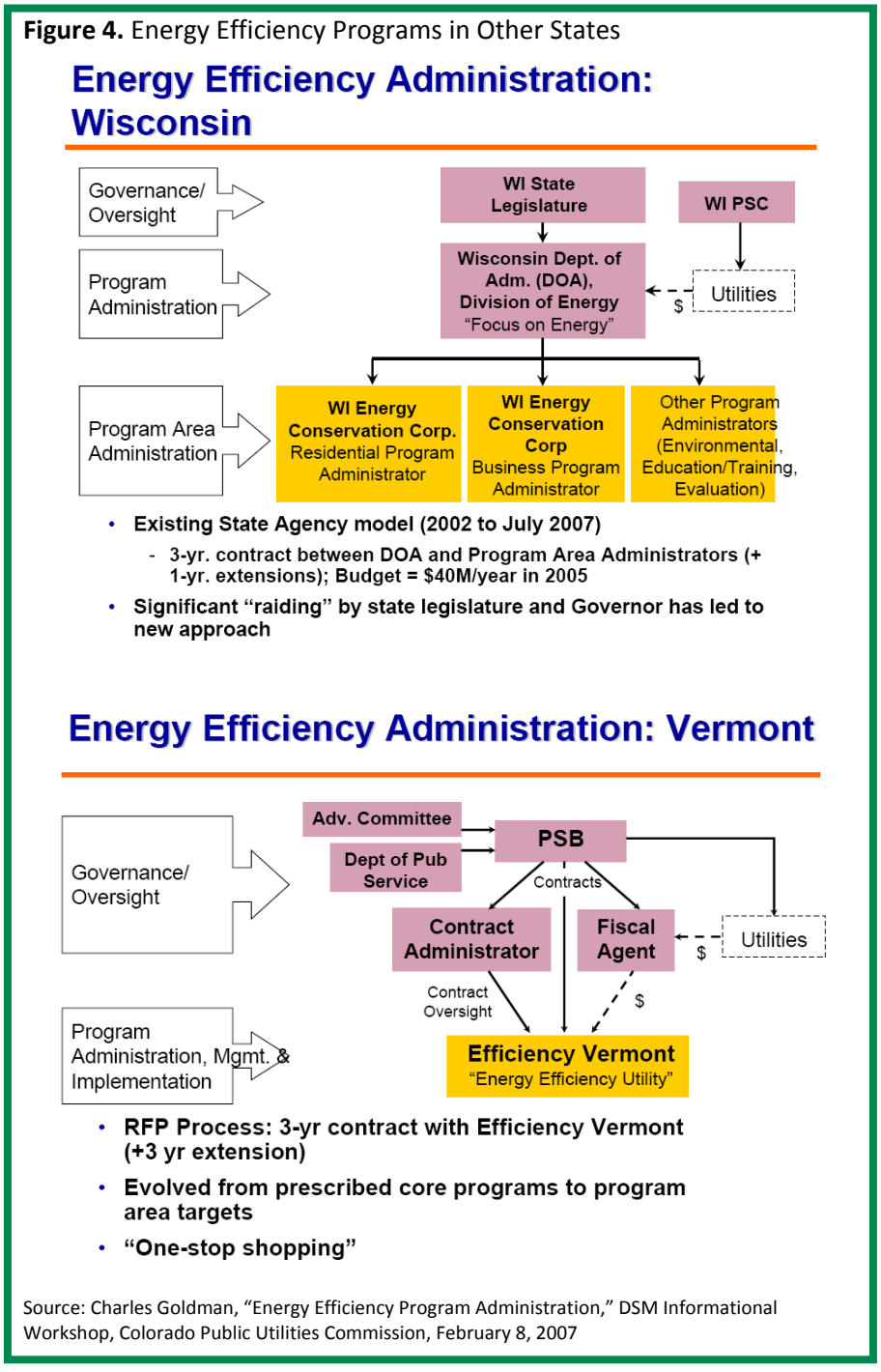
- Information: A scoring system that measures the energy performance of homes and provides a breakdown of each energy component and its retrofit potential.
- Customer Assistance: A simple process to connect homeowners with everything they need, including suppliers, contractors and financing; this will not only help building owners but it will build the market for contractors and suppliers.
- Financing: Ability to identify, negotiate and aggregate financing from government and utility sources, as well as to create and/or administer appropriate consumer loan products (potentially including low-cost loans marketed and underwritten directly by contractors).
- Marketing: Educating consumers about energy efficiency and marketing the products and services offered by the system.
- Subsidies: Providing outreach to and assistance for low-income customers, including subsidized loans and grants.
- Monitoring: Providing real-time household energy consumption information to enable consumers to measure the energy savings impact of any retrofit or behavioral change.
- Certification: A simple, uniform certification system to establish building energy performance standards, so that real estate markets will, over time, recognize and value energy efficiency improvements.

2 For a comprehensive examination of the potential functions of such an enterprise, see RW Ventures and O-H Community Partners, "Market Development for Building Energy Efficiency Retrofits: Concept Paper," December 2, 2008.

- Supply Chain Development: Building capacity of suppliers, including contractor training and professional workforce development.

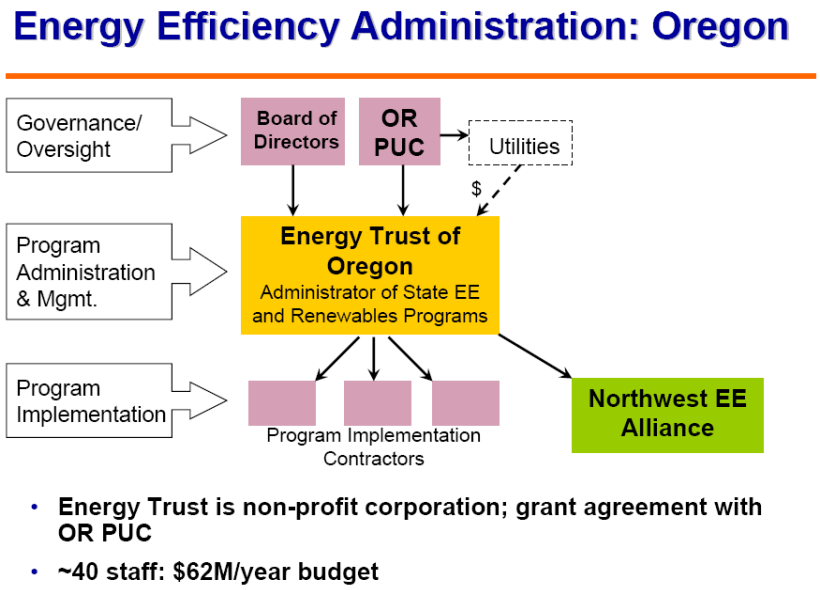
There is no one organizational model for creating such an institution. Successful examples have included single-purpose nonprofits (Oregon), programs of existing nonprofits (Vermont), government-launched entities (New York, Connecticut, Nova Scotia), quasi-utilities (Delaware), and hybrids (California, Wisconsin), as well as multi-state models. (See Figure 4)

Figure 4. Energy Efficiency Programs in Other States



Source: Charles Goldman, "Energy Efficiency Program Administration," DSM Informational Workshop, Colorado Public Utilities Commission, February 8, 2007

Figure 4 Continued. Energy Efficiency Programs in Other States



Source: Charles Goldman, "Energy Efficiency Program Administration," DSM Informational Workshop, Colorado Public Utilities Commission, February 8, 2007

Potential models for a Chicago Area Building Energy Efficiency System share some core principles and operating strategies (see Figure 5). For example, successful programs have a clear and overriding commitment to conservation, with no conflicting goals or disincentives. This principle leads many to conclude that conservation is best achieved by a nonprofit rather than as a program of an investor-owned utility because of the potential conflict with a need to generate profits for stockholders. Another central idea is a commitment to performance: payment is based on performance and rewards reductions in energy use, rather than simply for compliance with program structures or regulations. The best programs combine flexibility, to adjust for market changes, and stability, so that excellent performance is rewarded over time. Finally, a critical element is a robust information technology system that identifies opportunities, tracks implementation, and measures results.

In addition, the best programs understand that they are in business to serve customers, not run programs. Some have found that providing genuine, high-quality service can be more effective than financial incentives at attracting and maintaining customers. Good programs maintain a vibrant institutional culture that is constantly seeking opportunities and new strategies, changing rules, and willing to take risks to achieve goals. [3]

It is imperative that the Chicago area start immediately to create a regional coordinating system for energy efficiency programs. As one participant in the charette put it, "Someone needs to grab the wheel and start driving this bus in the right direction." The vast majority of ARRA funds

3 Efficiency Vermont, presentation at CNT Charette, May 13, 2009.

are to be spent between now and 2013 , much of it in the next 36 months, and absent some organizing system, the money will likely be spent in less-than-optimal ways with modest to minimal results. The urgency demonstrated by the pledge of both the city of Chicago and the state of Illinois to reduce greenhouse gas emissions to 75% of 1990 levels by 2020, makes that likelihood completely unacceptable. The Chicago area must start upgrading the efficiency of our buildings yesterday. Fortunately the need has been identified and successful models exist to help coordinate efforts to reach this goal.

Figure 5. Core Principles for Energy Efficiency Consortium

1. **Clarity of Goals:** Clearly stated policies and objectives.
2. **Mission Alignment:** Clear incentives focused on promoting conservation, with no conflicting incentives; this principle leads many to believe that conservation is best achieved by a sole-purpose entity, rather than a utility which has as a fundamental and continuing purpose generating profits for stockholders.
3. **Motivation:** A well designed contract in which payment is tied to performance in reducing energy use.
4. **Accountability for Results:** An institutional culture that focuses on achieving results, not compliance, and rewards risk-taking in pursuit of goals.
5. **Flexibility:** Programs that allow for change as markets and conditions change.
6. **Stability:** Sustained effort and good performance over time are keys to longevity.
7. **Information:** A robust information technology system includes customer contacts, corporate contacts and supply chain relationships, and a database of all energy efficiency measures installed, along with ratepayer information, usage, and complaints.

Source: Scudder Parker, Vermont Energy Investment Corporation, Michael Wickenden, Vermont Public Service Board, and Blair Hamilton, Efficiency Vermont, "What Does it Take to Turn Load Growth Negative? A View from the Leading Edge," ACEEE Summer Conference, August 2008.

III. How to Get There

Creating the proposed regional system should proceed on two tracks: scaling up existing programs immediately to take advantage of ARRA opportunities while creating the institutional framework to continue the work long term.

The immediate opportunity created by the ARRA funds demands a short-term approach, but the enormity of the task and the potential availability of non-ARRA funding streams both require a long-term commitment. This paper proposes a two-track process toward establishing a regional building energy implementation system for the Chicago region. The first track would begin immediately and quickly to scale up existing services to get "boots on the ground" implementing efficiency measures in select communities around the region. The second, contemporaneous track would begin designing a formal institution or network to take over the work and sustain it.

Track One: Start the Work

ARRA funding creates the immediate opportunity to launch significant weatherization work in select communities in the seven-county region. Various organizations and programs in the Chicago area are already well positioned to collaborate in efforts to create a Chicago Area Building Energy Efficiency System. See Appendix A for a summary of existing capacity and potential roles plus an potential design for the market support and market delivery systems.

Figure 6. Energy Efficiency Opportunities in Chicago

1. The most energy intensive buildings are single-family and two- to four-unit buildings, which make up 67% of Chicago's housing stock. They represent the biggest opportunity for energy-efficiency retrofits.
2. Five- to twenty-four-unit multifamily buildings make up 18% of Chicago's housing stock and also represent an opportunity for energy-efficiency retrofits.
3. The most energy intensive buildings are located in low- to moderate-income communities where most families earn $50,000 or less (southwest, west and northwest sides of the city).
4. The most energy intensive buildings are those built before 1940. This applies to 45% of Chicago residential housing.
5. Average whole-house retrofits may cost $5,000–7,000 per unit to achieve a 30% reduction in energy consumption and emissions.
6. Energy conservation measures that affect both natural gas and electricity consumption are necessary to achieve the goal of 30% average savings.
7. For the commercial and industrial sectors, initial programs should target establishment types that have a strong economic interest in reducing operating costs.
8. Businesses that may be good candidates for initial programs are those with high energy use and a large number of establishments, including printing, arts and social services facilities, hospitality industries, and food and apparel stores.

Source: Center for Neighborhood Technology and the Delta Institute, Energy-Efficiency Implementation in Chicago: An Analysis of Energy Consumption and Financing Mechanisms, August 13, 2008.

The list below outlines 12 steps that need be taken immediately and quickly to scale up existing services:

1a. Market research. Research should examine building types (residential, commercial, etc.), building characteristics (size, occupancy, building systems, etc.), energy consumption, and demographics (income of occupants, rental versus ownership patterns) in the seven-county region. That analysis will make it possible to identify priority sectors that promise the greatest opportunities for initial savings. A preliminary review of buildings in Chicago (see Figure 6) suggests that immediate opportunities include efforts to improve the efficiency of single-family homes and small to mid-size apartment buildings in Chicago's older, low- and moderate-income neighborhoods. For the broader metro area, immediate opportunities include upgrading lighting systems and controls in small commercial buildings and improving energy efficiency across the board in municipal buildings, including schools.

1b. Identify resources. It will also be important to research the specific requirements of ARRA and other funding sources as they develop. At the same time we should begin identifying existing supply markets and potential workforce development resources in the seven-county region to ensure that supply and demand are linked in a meaningful and productive manner.

1c. Identify and contact potential partners. The City of Chicago currently has a network of energy-efficiency providers; other potential partners in the seven-county region will need to be identified (see Figure 7). The location of potential startup partners will help identify those communities that offer the best immediate targets.

1d. Choose programs to meet the needs of priority market sectors. Once the priority market sectors and potential startup partners have been identified, the task is to match programs to the market opportunities. This would involve expanding existing programs in the Chicago metro region that can be scaled up (see Figure 1), adopting programs from other regions that can be quickly implemented (see Figure 8), and providing technical assistance as needed to the startup partners. Programs that match the needs of the priority market segments should be adopted wholesale, with the understanding that they can, over time, be adapted to satisfy Chicago-area performance outcomes and customer needs.

Figure 7. Partners for a Chicago Area Building Energy Efficiency System

Current Partners

- Building Owners and Managers Association
- Center for Neighborhood Technology
- Chicago Community Loan Fund
- Chicago Jobs Council
- Citizens Utility Board
- City of Chicago
- Community Economic Development Agency & Other CAP Agencies
- Community Investment Corporation
- Cook County
- Council for Adult and Experiential Learning
- Delta Institute
- Faith in Place
- Foundation Community
- Historic Chicago Bungalow Association
- Housing & Community-based groups
- MEEA
- Neighborhood Housing Services
- Other Local Governments
- Shorebank & Other Banks
- Stakeholder Groups (ELPC, NRDC, EI, RHAMC, AARP, others)
- State of Illinois
- Technical Experts, Energy Auditors, Inspectors, Contractors' Associations, Trade Associations, Unions
- Utility Companies including ComEd, Peoples & North Shore Gas, Nicor, & Others

Prospective Partners/Capacity Building

- Financing & Implementing Partners to add capacity

See Appendix A for a preliminary discussion of the possible roles to be played by these current and prospective partners.

Figure 8. Some Model Programs for Immediate Learning and Potential Adoption

City/State	Scale	Program Structure	Financing	Operating Funds	Marketing
Washington	Residential home owners	Home Energy Rating System Program (HERS)/ Loan Program. Promotes energy efficiency loans for upgrades to existing homes to reduce operational costs. Home energy ratings are on-site inspections by an accredited ResNet provider. Homeowners receive a rating sheet and report listing cost-effective options for improving the home's energy rating.	Energy efficiency improvements can also be financed by energy efficiency mortgages offered by financial institutions approved for the program by the DC Energy Office.	DC Energy Office http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,492761.asp	
Vermont	1&2) customers with "larger than average gas use" (1,400 ccf)	1) Utility Loan & 2) Utility Rebate Programs- Vermont Gas HomeBase Retrofit Program	1) Furnaces, boilers, heat pumps, duct/air sealing, building insulation. Residential, multi-family residential 0% interest for up to 3 years, 2% interest for up to 5 years, or 4% interest for up to 7 years. Requires a Heat Loss Analysis to select appropriate equipment.	Efficiency Vermont, Utilities and Opportunities Credit Union	
Wisconsin	All residential customers, existing residences.	Home Performance with Energy Star program, Focus on Energy. In-home energy audits and cash incentives for installing select recommended efficiency measures. Energy consultants inspect home energy systems and identify measures to increase efficiency. Cash-back rewards on efficient heating and cooling equipment and on selected Energy Star products.	The incentive amount varies by case and by auditor recommendations.	State and utilities http://www.focusonenergy.com/page.jsp?pageId=34	
Oregon		Avista Utilities - Weatherization Rebates & Financing Program Customer must have received Avista's Home Energy Analysis in-home inspection prior to requesting a loan.	Loans up to $5,000 for cost-effective weatherization measures. APR 6.5% or 10.52%. a Maximum rebate of $350 per home is also available	Avista Utillities http://www.avistautilities.com/saving/conservation/rebates_or.asp	
California	PG&E Service Area (most of northern and central California)	Run by the nonprofit California Building Performance Contactor Association. Trains contactors in diagnostic remediation, business and marketing skills.	Program budget 2002-05 averaged $900,000 per year No financial incentive for homeowners	California energy ratepayers under the auspices of California Public Utilities commission	Contactors marketed with program materials and at home show exhibits
New York		New York State Energy Research and Development Authority (NYSERDA) Improved efficiency in 10,000 homes with its Home performance with Energy Star program, whole house program, comprehensive consumer and contacting marketing, "one-stop shop." Contractors are required to have relevant BPI certification, to preclude the need for training.	Decreased interest rate on financing. Incentives: For Contactors: 75% of the certification was paid for, partially forgivable loans for equipment Homeowners: Home improvement Loan at a subsidies rate. And for those that did not qualify for the loan they were offered a 10% "Homeowner Financing Incentive"	5,000,000 per year	Marketing: paid broadcasting media with the goal both of increasing consumer knowledge about the program and attracting contactors to the program
Colorado		E-Star Colorado and Southwest energy-efficiency project in 2004 administered a pilot program with the local utility. Contactors applied to participate in the program, then contractors paid for training and equipment. Contactors were trained in the "whole house" approach and gave homeowners recommendations.	No incentives were offered but homeowners were notified of local rebates	Utilities Low funding approach	No marketing

1e. Design the information system. A critical component of all effective systems, and especially important for sustaining the work over the long term, is the existence of an organized database of information. The information system should include metrics for measuring baseline energy use and performance impacts, along with information on customers, contractors, suppliers, and financing options. (See Figure 9)

Figure 9. Consortium Information System: Essential Elements

- Energy audits to advise owners on options
- Database to track all efficiency measures implemented
- Simple metrics to measure energy efficiency
- Comparative data to show relative building performance
- Real-time monitoring of building performance and verification of performance impact by unit and by market sector
- Certification to acknowledge performance improvements
- Accurate and timely reporting of program impact
- Customer contact database and protocols, including activity reminders for users and tracking/responding to/reporting complaints
- Contractor and supply chain database
- Financing database

Source: Scudder Parker, Vermont Energy Investment Corporation, Michael Wickenden, Vermont Public Service Board, and Blair Hamilton, Efficiency Vermont, "What Does it Take to Turn Load Growth Negative? A View from the Leading Edge," ACEEE Summer Conference, August 2008.

1f. Design the one-stop customer service system. Maintaining high-quality customer service is a critical component of successful energy efficiency programs. Designing an online and in-person customer service function will simplify the process of contracting for and financing efficiency improvements and help maintain customer loyalty and commitment. (see Figures 10 and 11)

1g. Hire and train staff. Due to the large number of organizations involved in financing, marketing and implementing this system successfully it will be important to hire and train staff to conduct administrative functions of network, organize the partners, identify and address gaps, and manage and monitor implementation to assure quality.

1h. Create appropriate internal system. The program will benefit from a clear and consistent internal system, to include policies, procedures, and forms for application, energy audit, financing, construction and installation, verification, monitoring, evaluation, and reporting.

1i. Design financing options. Banks and other financing partners are critical partners in such an endeavor and will be relied upon to lend and develop loan pools. It is likely that distinct financing tools will be created for the different priority market sectors and perhaps a carbon trading program and other financing options will be developed.

1j. Design and launch a marketing and public education program in the parts of the market being served. Once programs are chosen to meet the needs of the priority market sectors, 1d above, it will be important to make potential participants aware of the services and, in some cases, help create a demand for the services by educating people to their value.

1k. Implement and manage programs. Program implementation and will achieve retrofits of buildings and result in savings for building owners, jobs for local residents and improved environmental outcomes. This step is, arguably, the most important component since, as stated previously, the best programs understand that they are in business to serve customer

1l. Monitor and report results, evaluate performance, make improvements. As with any endeavor, continuous monitoring and improvement are an important component of successful energy efficiency programs.

Figure 10. Basic outline of the customer service function

Source: RW Ventures and O-H Community Partners, "Market Development For Building Energy Efficiency Retrofits : Concept Paper," Powerpoint version, November, 2008.

Figure 11. Example customer interface

Welcome to the Efficiency Vermont resource page featuring information about energy-efficient actions and products that can lower your energy costs, saving you money in your home.

When you buy lighting, appliances and other products for your home, choose models that are ENERGY STAR® qualified. Made by manufacturers you know and trust, ENERGY STAR qualified products use less energy, saving you money for years to come. You can even buy an ENERGY STAR home.

Here's what you'll find when you click on the green tabs that run along the top of each page in this section:

Saving Energy
Find out why your electric bills are high, get energy-saving tips that save you money, learn about saving energy on a budget and find out about energy efficiency services.

Building Efficiently
Learn what it's like to live in an ENERGY STAR home and how to locate a house site. Find helpful resources you can give your builder, energy-efficient building tips and a list an ENERGY STAR home builders.

Lighting & Appliances
Get the facts on ENERGY STAR qualified products find stores that sell ENERGY STAR products, and learn about the latest special offers.

Marketplace
Find an ENERGY STAR lighting or appliance retailer near you, locate a home energy auditor or ENERGY STAR home builder.

Rebate Center
Download our rebate forms and new construction enrollment forms.

Resource Library
Find links to energy efficiency organizations and other resources, and request a Home Energy Audit CD that helps you identify opportunities to reduce your energy costs.

About Us - Learn more about Efficiency Vermont, get contact information.

Source: http://www.efficiencyvermont.com/pages/Residential/

Track Two: Create the Institutional Framework

There is no one single model for creating a regional energy system; different regions have developed different approaches. Some, facing the same pressures and opportunities as the Chicago area, are currently exploring potential regional structures. Models reflect local realities: for example, programs in California, which has strong, longstanding statewide policies promoting energy efficiency, are more advanced than would be possible in Illinois, which generally lacks such policies.

Two models for a potential regional system in Chicago appear to offer the most promise:

2.1 Scale up an existing program into a centralized, region-wide institution. This approach would begin with an existing program, such as CNT Energy Savers, that would be spun off into a freestanding organization and aggressively scaled to a capacity along the lines described above. Alternatively, a new institution could be created serving the same purpose. The end result would be a single nonprofit entity that coordinates information, financing, and services for the seven-county region.

OR

2.2 Build a regional network with certain centralized functions. This approach would build off and expand existing programs in Chicago while, for the rest of the metro region, it would build a network of partners that would tailor services to local communities. Such partners could be associations of municipalities (e.g., South Suburban Mayors and Managers, North Central Municipal Conference), more targeted regional associations (e.g., Transportation Management Associations and corridor associations), existing nonprofits (NHS chapters in regional cities, or local CDCs), or new associations (e.g., alliances of municipal housing and community development officials). Preliminary feedback from some suggests that this approach is better suited to the variation in suburban workforce development initiatives that the previous option. And, since none of these associations have energy efficiency as a current function then creating and building their capacity would be a critical early task. In this model, some functions would be centralized though the services would be decentralized. For example, there would be a single, one-stop, online tool for building owners to include common information products – audits, monitoring and reporting mechanisms, and certification. But the building owner session would begin by entering a zipcode, which would trigger provision of local information, financing options, incentive programs, and contractors. Local financing sources (local banks, foundations) and workforce training institutions could be organized regionally to share best practices.

Working through these and other options to create an appropriate system for the Chicago region should begin by convening potential partners. This would include the organizations engaged in the activities described above, and also identify potential new partners for the seven-county region, including local governments and regional associations, banks, community colleges, private and community foundations, community development corporations, business organizations, and nonprofit organizations (see Figure 7). These potential partners and other stakeholders could start by reviewing the principles established by Efficiency Vermont, outlined

above, as well as the organizational models of other similar entities.[4] The partners, under the leadership of the network manager, would then develop a system appropriate for the Chicago Area to undertake the functions described in Track One, as well as functions essential to sustain the work going forward, including workforce development and new financing options.

4 Charles Goldman, "Energy Efficiency Program Administration," DSM Informational Workshop, Colorado Public Utilities Commission, February 8, 2007.

IV. Why This Makes Sense

Creation of the Chicago Area Building Energy Efficiency System will be challenging, but it will get the job done in ways that meet the needs of local stakeholders.

The Chicago region faces an historic convergence of need and opportunity: the need to weatherize its buildings and the availability of short-term and long-term resources to do so. Creation of a Chicago Area Building Energy Efficiency System, drawing on experience from other successful programs around the country, will bring strategic coherence to the region's response to this opportunity in the short term, and create a market and an infrastructure for institutionalizing the region's energy conservation commitment going forward. And, creating a regional response positions the Chicago metro area more favorably to receive competitive ARRA funds and regional utility funds while allowing for better coordination with housing and transportation policy across the region

The Chicago area is not alone in considering this approach at this time: leaders in the San Francisco area, San Antonio, Portland OR and Atlanta are exploring similar options. There is some possibility that HUD will may make funding available to support a national network of such regional associations, and there is potential for foundation funding as well.

There are significant hurdles for achieving this vision. Doing the planning right will require data for the region, from both public and utility sources, that may be hard to get; there could be an important federal role to backstop this function. Especially important will be integrating this proposal for the region with the effort now underway for the City of Chicago to create a network of energy efficiency providers. Whichever model is chosen, organizing local partners into a regional system will be a daunting task.

Still, the Chicago Area Building Energy Efficiency System clearly makes sense for the various local stakeholders.

For building owners, the System will offer one-stop shopping to connect them to the information, products and services, and financing they need to retrofit their buildings. Over the longer term, investing in energy efficiency enables them to reduce energy use and costs, provide more comfortable and affordable housing for themselves and their tenants, redirect spending toward more economically productive local purposes, and have the satisfaction of playing their part to achieve critical climate change goals.

For local municipalities, the System will make it possible to take advantage of ARRA and utility funding sources by connecting municipal leaders to the information, products and services, and financing they need to identify and implement the best opportunities for retrofitting municipal buildings. This is especially important at a time when public budgets are hamstrung by rising demands and reduced tax revenues caused by the economic downturn. It will enable them to

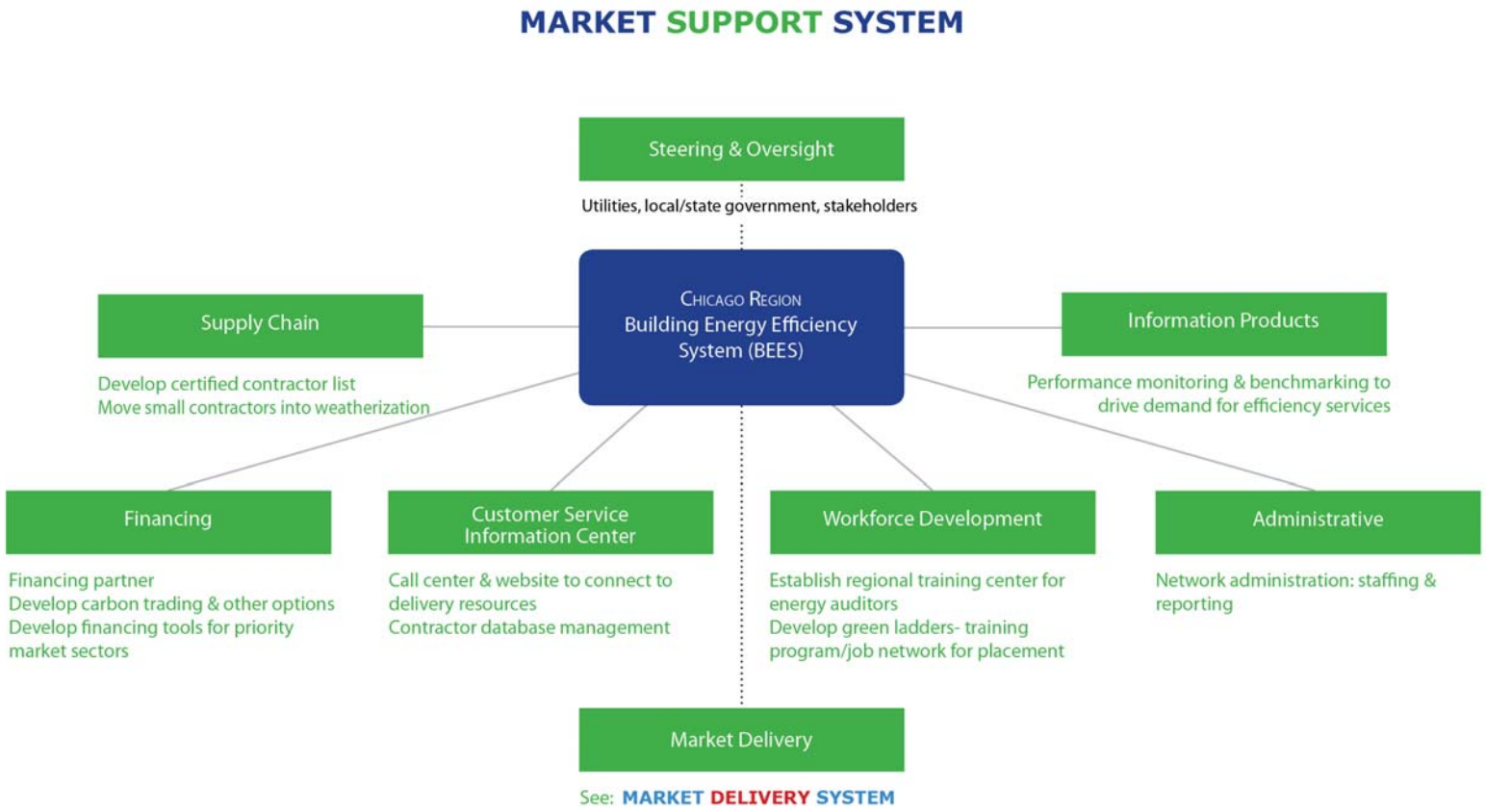
save operating costs and earn the public relations benefits of popular green buildings and help promote regional economic activity, including potential green jobs for local residents.

For utilities, the System offers a rational delivery mechanism for their fledgling (and heretofore underutilized) conservation programs.

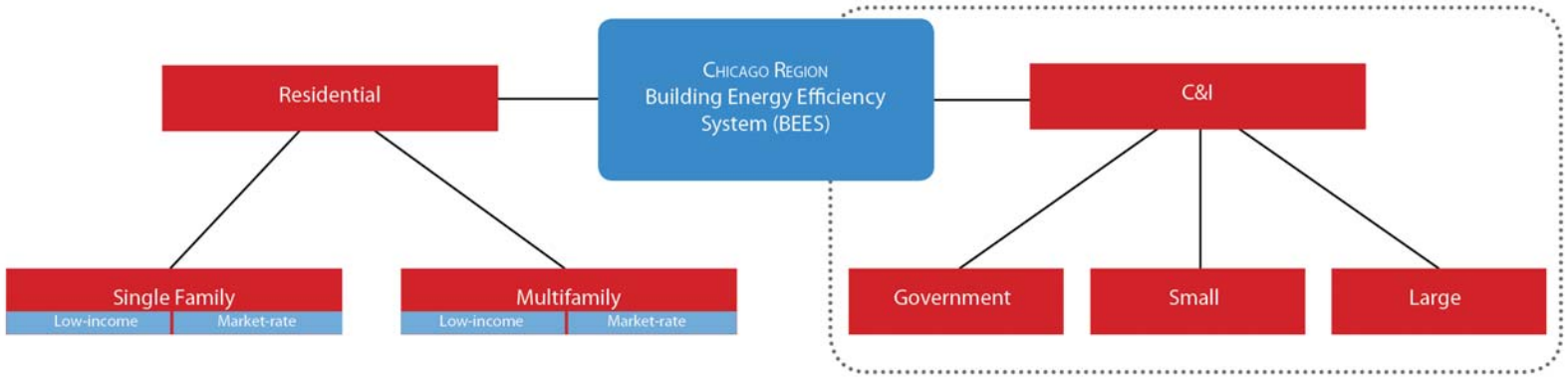
For contractors and suppliers, the System will dramatically expand business opportunities by making information, services, and finances readily available to a broad range of building owners.

For citizens, an effective initiative to reduce the massive inefficiencies of Chicago area buildings will make housing more comfortable and affordable, enable some of the dollars that are currently spent on energy (the vast majority of which go outside the region) to be redirected to local economic revitalization, and allow Chicago-area residents to take a first, critical step toward addressing climate change that will dramatically affect future generations of Chicago area residents.

Appendix A. Building Energy Efficiency System and Potential Roles for Partners



MARKET DELIVERY SYSTEM



CNTenergy

A preliminary review of existing resources and capacities in the Chicago area identifies groups that are potentially positioned to collaborate in beginning an effort to create a Chicago Area Building Energy Efficiency System. Note that these are not commitments, but CNT's observation of existing capacity and potential roles:

Identify and expand market opportunities:

- CNT, Local Government and Partners could conduct research and identify market priorities
- CEDA and the Delta Institute could work to expand the single-family market in the city
- CEDA and other CAP agencies could grow the low-income single-family market in suburban Cook and the other six counties
- CNT could serve the low-income multifamily market in the city and provide assistance as needed to enable CAP agencies to begin serving the low-income multifamily sector in select suburban communities

Create the one-stop customer service system:

- Midwest Energy Efficiency Alliance (MEEA) could create and manage the database of contractors
- CNT could create and host the website for building owners and the customer service function
- CUB could provide direct education to consumers

Develop the supply chain:

- The Delta Institute could help small contractors get into weatherization
- MEEA could develop the certified contractors list

Develop financing options:

- CIC could serve as financing partner
- Shorebank and other banks could lend, CCLF could develop loan pools
- Delta could develop carbon trading and other financing options
- CNT and Delta could jointly create appropriate financing tools for priority market sectors

Staffing and workforce development:

- CEDA and/or area community colleges could establish a regional training center for energy auditors
- CAEL and CJC could develop a network comprised of green career ladders, training programs, and jobs to facilitate job placement

Develop the information products:

- CNT could develop performance monitoring and information products

Manage the network:

- CNT and Delta could conduct administrative functions of network, organize the partners, identify and address gaps, create appropriate internal systems, and manage and monitor implementation to assure quality
- Marketing/public information function could be subcontracted

Appendix B. References

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