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# Implementing Residential Energy Efficiency

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Oberlin, Ohio

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**TABLE OF CONTENTS**

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Introduction	1
About Oberlin	1
Current Energy Efficiency Programs	5
Covering the Sectors	9
Barriers to Energy Efficiency	10
Energy Efficiency Program Designs	14
Estimating Costs, Savings, and Payback Periods	22
The Energy Efficiency Supply Chain	24
Recommendations for Oberlin	31
Learning from Oberlin	39
Conclusion	42

**APPENDIX**

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Legal Barriers and Implementation Framework	45
Introduction	45
Legal Authority for Existing Programming	45
PACE	47
On Bill or “Pay as you Save” Programming	51
Signature Loans	52
On Bill Light	52
Sample Legislation	54
Regional Manufacturers of Energy Efficiency Products	71

## Introduction

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This document will cover the state of energy efficiency work in Oberlin, OH, describe common barriers to such work and program designs that overcome them, and lay out several policy options for Oberlin to consider as it moves forward. It will also describe more generally how other communities may learn from and use this material. This document is designed to address, either explicitly or implicitly, several deliverables under the NETL grant, specifically:

- 1) Analysis of clean energy programming for Oberlin; identifying gaps in programming and planning deficiencies and making recommendations for remediation;*
- 2) Implementation plan for an energy efficiency financing mechanism in Oberlin, Ohio;*
- 3) Developing, in coordination with Columbia Gas, a natural gas savings program and inclusion of policy and program recommendations for the Oberlin community*
- 4) Identification of potential appropriate administrative entities*
- 5) Estimates of energy efficiency costs, savings, and payback periods*
- 6) Identification of Ohio-based labor and material sourcing opportunities*
- 7) Program recommendations for 9th Congressional District communities to employ similar energy efficiency financing mechanisms*

## About Oberlin

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The City of Oberlin and Oberlin College have a tradition of being forward thinking. Oberlin was a stop on the Underground Railroad and a center of the abolitionist movement, and the College

was the first to admit women and African Americans. In keeping with this progressive history, the City of Oberlin and Oberlin College have both made strong commitments to reduce greenhouse gas emissions and promote sustainability. Today, they are working collaboratively, along with other stakeholders in the community, on the Oberlin Project—an effort to become climate positive while simultaneously revitalizing the City and its surrounding communities.

In 2001, the Oberlin City Council adopted a resolution affirming the City's commitment to promote a sustainable future by supporting a stable, diverse and equitable community; protecting the quality of the air, water, land and other natural resources; conserving where possible and enhancing ecosystems; and minimizing adverse human impacts on local, regional and worldwide ecosystems. In 2004, the City made sustainability the central theme of its Comprehensive Plan. In 2007, Oberlin became one of the first municipalities in Ohio to join the International Council on Leadership in Environmental Initiatives (ICLEI) Cities for Climate Protection (CCP) program. In 2010 Oberlin became the 18th city in the world to join the Clinton Climate Positive Development, a project that will demonstrate that cities can grow in ways that are "climate positive," striving to reduce the amount of on-site CO<sub>2</sub> emissions to below zero. The City is currently developing a Climate Action Plan, which will position it to be a leader in seeking and developing solutions to the environmental issues facing the nation today.

In addition to the City's work, Oberlin College has a long history of work in the realm of sustainability. Spearheaded by Professor David Orr, in 2000, the College built the first-of-its-kind "living" building, the Adam Joseph Lewis Center. A decade later this building still wins architectural awards for its innovative building design merging biology and building science, and continues to serve as a model in sustainability (it's a zero energy building that produces an excess of solar electricity). In 2004 Oberlin College created a comprehensive Environmental Policy that establishes its special obligation as an institution of higher learning to educate its students, manage its internal affairs, and interact with the broader community in ways that serve as examples that others might follow. In 2007 the College became one of the first in the nation to accept the goal of carbon neutrality by signing the American College and University Presidents Climate Commitment (ACUPCC). Most recently, the College has embarked on the Oberlin Project, which will, according to David Orr, "(1) rebuild a 13- acre block in the downtown to U.S. Green Building Platinum Standards as a driver for economic revitalization; (2) transition to carbon neutrality by a combination of radically improved efficiency and deployment of renewable energy; (3) develop a 20,000 acre greenbelt for agriculture and forestry; and (4) do all of the above as a part of an educational venture that joins the public schools, the college, a community college, and a vocational educational school that equips young people for decent and creative lives in a post-cheap-fossil fuel economy." The second

item is the most relevant to this document, which will examine options for moving Oberlin, both City and College, toward the goal of carbon neutrality via energy efficiency measures.

Oberlin's carbon emissions are already lower than the national average at 20.9 tons/resident/year (the latest numbers available are from 2007). The largest percent of emissions (38%) is generated by the commercial sector, followed by the College (22%), the residential sector (16%), the transportation sector (15%), and municipal emissions (7%). The residential sector is about 44% rental and 56% owner occupied, and 38% of residential structures were built before 1940. Older buildings and rental units are less likely to be energy efficient and thus present greater opportunities to achieve energy savings through energy efficiency measures.

Oberlin Municipal Light and Power System (OMLPS) is a community-owned, not-for-profit electric utility created in 1934 to provide high quality, affordable services tailored to the unique needs of the Oberlin Area. OMLPS generates, purchases, transmits and distributes electric power to over three thousand residential and commercial customers. OMLPS is governed by the residents it serves. OMLPS is overseen by an Electric Director who is governed by the Oberlin City Council. OMLPS owns and operates 20 megawatts of diesel/natural gas generation capacity that is used for peak-shaving for 42 municipally-owned electric utilities in the northern Ohio area.

In 2008, City Council voted to opt out of a 50- year contract to purchase power from a proposed coal-fired power plant to be built in southern Ohio. This decision led the city to search for more renewable resources for the electrical power supply in Oberlin. Performing due diligence through professional consultant studies and vendor proposals, the City entered into a long-term power supply contract in two Ohio based landfill projects. This contract will supply over half of Oberlin's power supply needs with renewable landfill gas generated power for the foreseeable future. The remaining supply will be made up of long-term contracts for hydro-power, limited wind from the AMP (American Municipal Power) wind farm in Bowling Green, a small amount of solar capacity, and wholesale market purchases. Starting in 2015 Oberlin's energy supply will be 90% renewable, a remarkable, and—outside of areas where widespread hydro-power resources are available—unprecedented achievement. Depending on the amount of Renewable Energy Credits that the city chooses to retain, OMLPS will be one of the cleanest utilities in the nation. Oberlin's energy supply will be very cost-competitive, when compared to most other renewable energy supply mixes in Ohio; this is largely due to the landfill gas supply which is among the lowest-cost renewable resources in the state.

The stable supply developed by Oberlin has some important implications. The longer-term nature of the supply and the diminution of reliance on wholesale market purchases mean that

there is little room for changes in energy supply or consumption. However, Oberlin can legitimately claim leadership in clean energy development, and its supply has already been touted as a selling point for businesses focused on sustainability. Additionally, Oberlin is within striking distance of a 100% clean energy electricity supply; a remarkable achievement.

This transition to clean energy and carbon neutrality will be facilitated and enhanced by increased energy efficiency. As the amount of energy used decreases, it is possible to meet more and more of energy demand via renewable resources. Oberlin's adopted sustainability policies include the promotion of energy efficiency in addition to the commitment to be carbon positive (a goal unlikely to be reached without widespread energy efficiency work). Further, energy efficiency will help address the significant energy poverty issues Oberlin faces. Many Oberlin residents struggle with energy costs. In 2008, Oberlin Community Services assisted 606 homeowners with utility bills, an increase of 41% from 2007. In the same year, utilities were shut off in an average of 25 homes per month for lack of payment. Finally, energy efficiency programs can save money across all sectors, which is always an attractive prospect and has economic benefits for the entire community.

Oberlin's building stock is older than the average community in the state; however, Oberlin's older building stock means that efficiency savings potential for the community is most likely higher than the statewide average. The American Council for an Energy Efficient Economy (ACEEE) released a useful state-wide assessment of energy efficiency potential in Ohio in 2009. The study concluded that a total economically exploitable resource of 1/3 of projected electricity consumption was available on average state-wide; of which, 16% was anticipated to be CHP or combined heat and power related, 33% was anticipated in the residential sector, 23% in the industrial sector and 27% in the commercial sector.

## **Current Energy Efficiency Programs**

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Oberlin is not without energy efficiency programs, now or historically. However, in keeping with national trends in the uptake of existing efficiency programs, these programs have only been able to capture a very small portion of the economically exploitable energy efficiency resources in the community. The following paragraphs provide a brief overview of the energy efficiency and weatherization programs available to Oberlin residents and businesses.

### Efficiency Smart Power Plant (VEIC/AMP):

This program offers comprehensive large commercial and industrial electric efficiency options; it offers prescriptive and customized energy solutions programs that include audits, recommended measures, and rebates for HVAC, lighting, refrigeration, compressed air, etc. This is essentially a commercial and industrial program, which offers multi-level support (i.e. local and state staffing) and provides tried and true energy efficiency options for participants. The program will produce guaranteed savings, and has already been approved by City Council and OMLPS. The program is currently funded for a 3-year period, though there is an option to renew after that time period.

The program also has some limited residential options, including an online discount lighting program through which consumers can purchase CFLs; \$50 rebates for Energy Star dishwashers and clothes dryers; and an appliance recycling program for secondary appliances, such as refrigerators. VEIC also offers a meter loan program through which customers can borrow a meter-reading device that displays the electricity draw for plug-in electronics and appliances. Like many programs, the measures recommended and incentivized for customers will for the most part require some out-of-pocket expenditure. Importantly, for all sectors served by the program, natural gas savings will not be captured or addressed. The program is not tailored or designed to focus on the low-income community.

### OMLPS:

Oberlin Municipal Light and Power System offers several energy efficiency programs. OMLPS conducts free heat-loss inspection services that include a blower door test and building envelope analysis with a thermal imaging camera (inspections must be conducted in cold weather). Following the inspection, they provide a report and recommendations for cost effective energy-efficiency measures. OMLPS also offers customers the opportunity to review appliance energy performance with appliance meters. Customers can then reference energy usage for potential new appliances. During “Public Power Week” OMLPS gives out free CFLs to customers and works to educate customers on energy efficiency measures and benefits. The online “Energy Depot” tool is a no-cost self-assessment tool for residential customers to review home energy performance and get some basic data on potential cost savings measures.

### Columbia Gas:

The local natural gas distribution and (separately) supply utility provides various programs addressing energy efficiency and weatherization through a compendium of rebate, no cost, and loan programs covering all incomes and sectors.

The Home Performance Solutions program, available to all Oberlin residents, is a rebate based program, offering rebates of up to 70% for eligible installed measures as well as no cost low flow shower heads and programmable thermostats. At the heart of the program is a reduced cost comprehensive energy audit that is \$20 for residential customers within 200% Federal Income Poverty Guidelines (FIPG) and \$50 for all other residential customers. The program has had substantial participation throughout Ohio and has generated significant savings. Right now, the program is only offered to residential customers and there is a three month waiting list. Despite its positive reviews with the participating customers, participation rates in Oberlin have been low; only 12 households in Oberlin have participated to date. Finally, the program is focused on natural gas savings only, not electric savings. Columbia Gas's program is open to building owners and renters.

The WarmChoice program is a residential income eligible weatherization program. Similar to the Home Performance solutions program, it includes a comprehensive energy audit using infrared sensors and blower door tests to identify heat loss and installed weatherization and EE measures. The program is available at no cost to customers that earn up to 150% FIPG, and provides an 80% discount to customers that are above the 150% FIPG but below 200% FIOG.

Simple Energy Solutions is a rebate based energy efficiency program offering \$10 for low-flow shower heads, and \$25 for programmable thermostats.

#### Lorain County Community Action Agency:

The Lorain County Community Action Agency is the Home Weatherization Assistance Program (HWAP) provider for Lorain County. The HWAP program is funded by federal and state dollars to provide no cost energy efficiency and home weatherization retrofits to income eligible residents. In order to be eligible for the program residents can be either renters or home owners and earn up to 200% of FIPG. The HWAP program includes a comprehensive energy audit using infrared scanners to identify leaks and a blower door test to identify home heat loss. In addition to the audits, the program provides funding for the repair or replacement of HVAC, high energy usage appliances, duct sealing, caulking, attic and wall insulations, as well as other identified needs. Participation rates for the program are less than 1% in Oberlin. Nationally, Ohio's HWAP program is well-known for high-quality workmanship and its holistic approach to home weatherization. However, the application procedure, based on credible feedback, is difficult and cumbersome, and within the City of Oberlin, the program has a negative reputation.

#### POWER (Providing Oberlin With Efficiency Responsibly):



POWER is a local organization that works with nearby contractors and partners to provide limited gas and electric efficiency services to low-income customers. Grants for program participants are available up to the median income. The program has a positive reputation in the community. Unfortunately, the program is not available for higher income participants, is limited to insulation at this time, and has limited funding and staffing, and no program or incentives for renters.

#### Community Housing Improvement Program (CHIP):

The CHIP program was sponsored by the City of Oberlin and provided grants and deferred loans to households for rehabilitation of their properties. The intent of the rehab program was to install weatherization and energy efficiency retrofit measures while addressing necessary structural and health and safety issues. Funding for the CHIP program was not renewed in 2010-11 but may be reapplied for in the next grant cycle.

#### USDA:

Oberlin fits the definition of a rural area according to the United States Department of Agriculture, which offers grants and loans for energy efficiency and renewable energy. The Very Low-Income Housing Repair Program provides grants, loans, or a combination of the two to income-qualifying homeowners to repair, improve, or modernize their dwellings or to remove health and safety hazards. The Rural Energy for America Program (REAP) administers grants to rural small businesses for energy efficiency and renewable energy improvements of up to 25% of total project cost.

#### Loans, Tax Incentives, Other Available Resources:

A wide variety of loans and tax incentives are available on a federal- or state-wide basis, and can be taken advantage of by Oberlin residents. While some loans offer favorable rates, taking on debt can be a major barrier. Similarly, since tax credits are not available until after the work is done and paid for, they may not be practical for many households.

This assessment of existing programs leads us to several conclusions; first – Oberlin’s current suite of energy efficiency programs is a good start, but does not exploit fully the economically available potential; second – Oberlin has substantial room to implement cost-effective measures as cataloged by the ACEEE in its Ohio study. Existing programs in Oberlin suffer from a variety of deficiencies. While there are several programs serving low-income residents, they could be better utilized, and even at full utilization may not be sufficient. Middle-income households, however, are currently only served by loans and piecemeal incentives. Existing programs are also not necessarily comprehensive within a particular sector; programs may

cover only electric or gas savings, may not include a comprehensive audit or financing, may have limited staffing, and every program listed (with the exception of the VEIC program, which is still in early phases of implementation) has low participation rates, indicating a failure to overcome the barriers to participation (see below) and/or marketing and outreach deficiencies. Most importantly, existing programs are not coordinated in terms of enrollment, outreach strategies, and measures offered.

We would also like to note some challenges in providing energy efficiency resources in Oberlin. If Oberlin approaches achievement of economic potential for energy efficiency, the city and OMLPS will be faced with an energy surplus, based on the long-term contracts signed. That would generate a loss to the municipal utility and the residents it serves. Accordingly, it is our recommendation that load-growth planning be undertaken as part of the Oberlin Project. In addition, Oberlin lacks an obvious candidate organization with energy efficiency program delivery experience and sufficient staffing and financial resources to take on the role of running a coordinated gas and electric energy efficiency program. Accordingly, program design efforts must take into account efforts to attract or build such an organization in Oberlin. Outreach, communication, policy drivers, and marketing of the eventual program delivery option will be an essential component of the project.

## **Covering the Sectors**

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It is useful to conceive of energy efficiency programming addressing three main sectors: Commercial and Industrial (C&I), made up of most businesses, manufacturing, etc; Municipal, University, Schools and Hospitals (MUSH), made up of all public buildings, educational institutions, medical facilities and other non-profit entities; and Residential, made up of all housing stock and sometimes divided in to single family and multifamily.

Because the VEIC/AMP program for the commercial and industrial sector is just beginning to be implemented, we recommend allowing that program to show results before considering further electric efficiency programs for the commercial or industrial sectors. It could be worthwhile to assess other fuel usage in this sector to determine the feasibility of a C&I fuel efficiency program.

In the MUSH sector, Oberlin College has multiple building energy efficiency projects underway, including upgrades to building controls, lighting, HVAC systems, fans, motors, pumps, and windows and insulation in six student dormitories. The City has also undertaken energy

efficiency upgrades in many of its buildings, including upgrades to lighting, HVAC, building envelope, cooling system pump controls at the OMLPS power plant, and other mechanical systems; the City will be continually tracking building energy consumption through the use of an Environmental Scorekeeper software developed by Planet Footprint. Ongoing evaluation and implementation of efficiency upgrades is integrated into the City's forthcoming Climate Action Plan. We recommend continued investment in these types of projects.

Despite the existing programs serving the residential sector, we recommend a concerted effort to design and provide additional resources for residential buildings. In addition to the energy savings potential, there are substantial equity and quality of life issues that underscore the need for a residential program. Currently, energy cost burdens are inequitably borne by low-income households, which also tend to be households of color. Oberlin's sustainability policy contains several goals relating to this, including promoting quality housing and avoiding placing burdens inequitably. Oberlin's population of 8,286 people is housed in about 2,500 housing units. Demographically, Oberlin is slightly more diverse than Ohio as a whole, with 14% African American and 5% Latino residents. While the median household income is \$50,000, 15% of families and 25% of residents live below the poverty line (both percentages are higher than those for the country as a whole).

## **Barriers to Energy Efficiency**

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On the face of it, energy efficiency retrofits are a winning proposition – you can improve your home, increase your comfort level, do something good for the earth, and save money, all at the same time. As we've just shown, there are a number of programs promoting residential energy efficiency in Oberlin. It's also apparent, however, that these programs are not successfully reaching the households that need them. This is in keeping with national trends toward low uptake of efficiency programs, despite clear economic benefits, suggesting that market barriers plague the efficiency industry generally. Below we detail some of the barriers that households experience related to residential energy efficiency.

### Upfront Costs:

Consumers may not have the funds necessary to invest in efficiency or they may be unable to access funds through traditional mechanisms due to bad or lack of credit, reluctance to take on

more debt, or other uses for the money (see opportunity costs, below). Incentives and rebates can reduce total costs but are often not available until after the work is done and the bills are paid. Loans provide interested consumers an option to finance via traditional methods (and low interest loans are an additional incentive) but do not avoid the debt issue. Innovative financing mechanisms such as Property Assessed Clean Energy (PACE) and on-bill financing (see below) provide a way to capture the value of efficiency and use it to pay the up-front costs over time. They also are not based on credit score, but rather bill and tax payment history.

### Opportunity Cost:

Even when energy savings from an efficiency project are clearly greater than the up-front cost, efficiency project investments compete with other potential investments. In addition, energy is a regressive good – the less money a household has, the greater the percentage of disposable income that must be spent on energy bills. This is commonly referred to as the energy burden a household faces, expressed as a percentage of income. A median income family spends approximately 6% of income on home energy. In lower income households, the energy burden can rise to 40% or more. A household with a high-energy burden may be more motivated to invest in energy efficiency, but less able.

A household's relative energy burden impacts its choice to spend more out of pocket on energy-related measures. Concerns about securing food, transportation, and health care are more pressing in lower income homes, even though energy efficiency measures could reduce the cycle of energy poverty they face each year with the onset of large winter heating bills. In addition, more efficient technologies tend to cost more up-front than their less-efficient counterparts (e.g., efficient lights are more costly than inefficient lights, well-insulated homes cost more to build than those with less insulation, higher efficiency furnaces and air conditioners cost more than the least efficient models). Despite the fact the efficient technology will pay off in the long run through lower energy bills, the more immediate impact of lower prices at the store often prevails.

Consumer rebates, grants, and other incentives can help reduce the immediate cost differential. Financing mechanisms that provide upfront funding dedicated to energy efficiency improvements can overcome this barrier. Such funding mechanisms could be associated with repayments coming out of projected energy savings or with energy efficiency measures funded through the utility as a capital investment instead of as an expense. The upfront availability of funding reduces competition with participants' other spending needs, opportunities for investment and/or competition for limited borrowing capacity.

### Lack of Knowledge/Understanding:

Many households are simply not aware of the opportunities or benefits of energy efficiency. If they are, they often have incorrect perceptions of what measures are most effective in increasing the efficiency of their home and lack understanding of the payback time of various measures. Nor are they necessarily familiar or comfortable with best practices in selecting and managing an auditor and contractor. This lack of knowledge is a significant barrier to the widespread uptake of energy efficiency retrofits. In addition, the reputation of the program and the type of outreach it conducts are crucial to its success. If a one person has a bad experience, those she talks to about it are not likely to apply. The same is true if outreach efforts are insufficient or not culturally appropriate.

Educational tools, such as requiring sellers and lessors to share energy performance scores with potential buyers and lessees, community leaders advocating that consumers take advantage of efficiency programs, and competitions with rival communities can be helpful in increasing uptake. Providing a “one-stop shop” with high-touch customer service for households once they know they want to participate can overcome their lack of knowledge about measures and their installation, and help ensure a positive reputation for the program going forward. Designing outreach specifically for the communities the program is trying to reach, using cooperation or competition as appropriate, using trusted messengers and community institutions, and using grassroots organizing techniques may all improve success.

### Risk:

Homeowners may be unsure that savings from energy efficiency improvements will pay for themselves over time in energy savings. Owners or occupants may be unsure they will stay in the structure long enough to recoup their costs. Recommendations on cost-effective measures from a trusted source can help. Designing a program to cover selected improvements that will cover their costs through energy savings, as predicted by audits or deemed savings calculations, can reduce the risk and uncertainty of investments. Warranties can cover mechanical measures while the participant is paying, and payments should not extend beyond the expected life of measures. Most crucially, structuring the payment obligation to run with the meter or the property ensures that occupants who benefit from the energy savings continue to pay the installation costs.

### Transaction Costs:

Currently people must educate themselves about energy usage and efficiency measures to conserve. Without adequate information people are at risk of being taken advantage of, particularly when evaluating what the costs of measures should be and what measures yield

the biggest savings for the available dollars a household has to spend. Customers who want to improve energy efficiency must find and supervise auditors and contractors. Obtaining financing may involve more time, plus fees for loan origination and agreement to a lien. Further, people may be reluctant to take on debt in these troubled financial times. People are also unmotivated or unable to set aside time to stay home while contractors do the work.

Structuring the program to connect customers directly with pre-qualified auditors and contractors can eliminate this concern. Many programs are using the “energy advocate” model, where customers have one point of contact with an advocate who can walk them through the process and help educate them about things like price ranges and estimated energy savings per implemented measure. Structuring the financing to cover upfront costs without loan applications, fees, or liens is also important. Some programs provided financing based on the consumer’s bill payment history, rather than their credit history, and are structured as an efficiency service rather than a loan.

#### Split Incentives:

Landlords have little incentive to improve their properties’ energy performance if tenants pay the energy bills. Aside from reductions in their utility bills, there is little incentive on behalf of the renter to fund improvements to the property that ultimately benefits the landlord. Any installed measure a renter makes will ultimately benefit the landlord through property appreciation because the majority of installed measures will stay with the property. Utility-based programs can place repayment charges on energy bills that go to tenants. With the energy savings, the tenants’ net cost decreases, and the landlord benefits from an improved property at no cost other than to notify subsequent tenants of the arrangement. In addition, programs could design “cost-shares” between tenants and landlords.

#### Structural Barriers:

Many of the structures most in need of energy efficiency improvements are not ready to be retrofitted because of issues such as lead paint, asbestos, dilapidated roofs, antiquated electrical wiring, and other needed structural repairs. Program design must address this, most likely through identifying existing sources of funding that can be used to correct these issues and “bundling” the applications so the customer experience remains straightforward.

#### Multiple Utilities:

Many households are served by multiple utilities, e.g. an electric company and a different source of heating, such as a gas company or fuel oil company. This presents a challenge for “on-bill” programs in that measures are likely to impact both heat and electrical use, and savings

will thus be seen on both bills, but costs will only be charged on one of the bills. A related problem exists for PACE and signature loan programs – savings will be seen on utility bills, but will be paid as a monthly loan payment or on the property tax.

## Energy Efficiency Program Designs

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As one might infer from the descriptions of barriers above, designing an energy efficiency program to overcome all of them is tricky. Traditional energy efficiency programs for residential buildings include tax credits and rebates, loans, and low-income weatherization (HWAP). Of these, only HWAP overcomes all the barriers. Unfortunately, it is not realistic to think that HWAP programs, which are entirely government funded, will grow enough to serve all low-income households, much less all households regardless of income. Similarly, tax credits and rebates are limited by the amount of money available for them, and they do not overcome most of the barriers listed above. In order to overcome all the barriers, programs need to be comprehensive in nature, offer a one-stop shop for consumers, and provide funding options that make it possible for families and landlords to participate regardless of income.

Any comprehensive program must cover energy efficiency measures (where cost-effective) such as:

1. Building shell (walls, ceilings, floors, ducts, joists, pipes, windows, and doors).
2. Heating and cooling system, and other mechanical equipment/appliances – ensuring efficient operation, safety, proper air flow and moisture levels.
3. Consumer behavior through education, marketing and outreach.

Typical work may include:

- Perform whole house diagnostic using blower door testing to determine air leakage
- Repair missing plaster/drywall and missing/broken glass in windows
- Insulate attics, sidewalls, floors, and crawl spaces as needed
- Insulate the water heater, pipes and joists
- Service or replace HVAC equipment
- Install water heater wraps if under-insulated
- Service and/or replace appliances, installing Energy Star appliances when appropriate

- Seal return ducts to ensure proper air flow
- Replace incandescent bulbs with compact fluorescent bulbs

We will proceed on the assumption that any program designed will cover such things and include comprehensive marketing and customer service components, as these are similar regardless of other choices made about program design. We will focus on financing and repayment design, since these elements are crucial in overcoming many of the identified barriers. Because funds for energy efficiency are limited, the ideal structure will capture the value of performing energy efficiency (the money saved on utility bills) and use it to pay for the cost of making the improvements. This requires a source of capital, a method of making financing available to pay for the improvements, and a repayment structure to capture the value. Potential sources of capital include:

- State bonding
- Municipal bonding
- Utility capital
- Private lending from local banks or credit unions
- Program related investments from foundations
- Grants

In all cases, programs will want to establish a loan loss reserve to guard against defaults. To date, default rates in these types of programs are quite low (less than 1 percent), but a reserve brings security to the program and lowers risk for the source of capital.

#### **Financing Methods:**

*Revolving Loan Fund:* The fund would finance any and all improvements made under the program, and all repayments (minus administration costs) would return to the fund. The size of the fund and speed of repayments would limit the number of households that could participate in the program at any given time. A percentage of the fund should be set aside to cover any defaults.

*Private Lenders and Credit Enhancements:* Improvements made under the program would be paid for by a private financial institution, either directly (loan to the household) or indirectly (loan to the program). Interest rate, how to determine household financial eligibility, and other terms would be set via negotiation between the lender and the program. In order to improve both the number and type of households eligible and the terms offered to households, it's likely that the program would have to offer credit enhancements. These could include a loan loss reserve fund (which would constitute 5-10% of the expected volume of the program and cover some or all of any defaults), an interest rate buy down, an "eligibility buy down" (some form of security that



would make more households eligible), or other measures. Payments from households would either go directly to the financial institution (in which case the program needs to determine how to cover administrative costs) or come to the program, which would then pay back the financial institution.

In addition, there are multiple options for repayment. Here we discuss four of them.

**PACE for Energy Efficiency:**

Property Assessed Clean Energy (PACE) programs provide a method of financing renewable energy and energy efficiency projects for property owners, utilizing a special assessment. A special assessment is a property tax charge that is traditionally utilized to fund infrastructure in cities. For example, when a municipality installs or replaces a sidewalk, it will often assess some portion of the cost to the properties the sidewalk runs in front of, based on the assumption that those properties will benefit the most from the sidewalk, both in terms of use and in terms of increased property value. In a PACE context, a property owner may elect to pay for renewable energy or energy efficiency improvements on their tax bill by assessing the cost to their property. Similar to other assessments, the charge can stay with the property, even if the current owner moves – in other words, PACE is a “loan” to the property, not an individual. PACE works as follows: a property owner signs up for the program and decides what energy improvement to make to their property. Next, some sort of entity – a specially created development corporation, or even a division of a city – helps the customer arrange for contract services and complete improvements to the property. The entity is also responsible for payment to the contractor, and for any other payment associated with the improvement. Once the improvement is complete, the property owner pays back the costs associated with the improvement over a number of years through the assessment on their property tax bill. In the case of default, the municipality can take any actions it would in the event of default on the property tax, including seizing the property. PACE, under Ohio law, had been limited to solar energy applications, but Senate Bill 232, passed and signed into law last year by Governor Strickland, opened it up to energy efficiency and other types of advanced energy.

A successful PACE program requires a couple of important components. First, a source of capital is necessary. Though property owners will eventually pay back all of the cost of improvements, plus modest interest, an initial pool of capital is essential. Municipal bonds are a potential source of funds, as are federal grants, Qualified Energy Conservation Bonds administered by the Ohio Air Quality Development Authority, and private sources. Additionally, that capital must have competitive interest rates for the program to operate effectively. Capital from public sources is likely to have lower interest rates associated with it. Once capital is identified, the program needs an administrator. This administrator must be able to handle all

the duties of program management; it must have basic legal, financial, and technical expertise, and must be able to negotiate pooled contracts for energy efficiency services. Also essential is city support, as there are a number of legal steps that must be taken to set up a PACE program.

A variation on PACE is to spread the repayment out over the year rather than simply adding it to the property tax bill each year. Many municipalities already charge for services such as water, sewer, garbage pick-up, etc. in a monthly or semi-annual bill. Adding energy efficient retrofitting to this list treats it as a service the municipality provides. The obligation is secured by the property tax, and any unpaid bills would be added to it. Renters can also participate in this model if they pay the municipal bill, and with permission of the landlord.

*Strengths:* PACE offers building owners dedicated financing for work that otherwise might be cost-prohibitive, and thus overcomes both the upfront cost and opportunity cost barriers. PACE financing is an assessment, not a personal loan, so the obligation stays with the property and not the person, overcoming the risk barrier associated with longer payback periods when the resident is unsure about the time length they intend to stay in a property. Additionally, it allows the coordinating entity to lower costs through pooling of resources, bulk purchasing, and contract negotiation opportunities that would not be available to a private citizen looking to advance a project on their own. A PACE program also allows the coordinating entity to provide much needed guidance and expertise to participating property owners. Because PACE can be funded through state, federal, or municipal capital, it often allows individuals to get financing rates that are otherwise unavailable to them.

*Weaknesses:* PACE is not generally available to renters, and thus doesn't overcome the split incentive. Like all other types of financing, PACE does not, in and of itself, overcome the knowledge or transaction costs barriers, although it can be embedded in a program that does. Measures that are "portable" (e.g. appliances) may be removed from the property, thus lessening the savings over time, or the program may choose to exclude them, limiting the savings from the start. Perhaps most importantly, the Federal Housing Finance Authority (FHFA) has issued a statement that it will not accept mortgages for residential properties that have PACE obligations. This controversial action has been challenged in the courts, and there is federal legislation pending that would overturn it. As of now, however, the FHFA position has put many PACE programs on hold, while others are currently focused on its application in the commercial sector.

#### **On-bill/"Pay As You Save" Type Programs:**

On-bill repayment programs are similar to PACE programs, but repayment runs through a utility rather than a municipality. Energy efficiency improvements are treated like a utility service, and

the customer pays for them over time on their utility bill. A customer elects to participate in the program; the utility conducts an audit of the home, helps the customer select the improvements desired and a contractor, and pays for the improvements. A charge is then added to the utility bill, and the customer pays it back over a number of years. A critical element is that the improvements made must pay for themselves in energy savings over the term of the customer's participation, and ideally the payback will be arranged such that the customer is saving a little each month. Similar to PACE, the energy efficiency service is not a personal loan; instead it is an obligation on the utility meter, and can transfer from one resident of the property to the next. In the event of default, the utility may employ its normal collections mechanisms, including suspending service. Investor owned utilities regulated by the state of Ohio (IOUs) need approval from the Public Utilities Commission of Ohio (PUCO) to put a charge for energy efficiency services on their customers' bills, but this is not necessary for municipal utilities.

On-bill repayment programs are generally run by utilities, although their administration may be contracted out. Initial capital is required, and may come from the utility or from a partner. There is currently movement to make some federal dollars available as no-interest loans to these types of programs as well. As with all repayment types, on-bill repayment will be most successful if offered alongside a comprehensive "one-stop shop" approach to marketing and customer service.

*Strengths:* This approach allows renters to participate (with the permission of the landlord), overcoming the split incentive. It also overcomes the risk barrier, since the program is tied to the meter, not the person. Like PACE, it overcomes the up-front cost and opportunity cost barriers by offering financing that is only available for energy efficiency projects. It may offer bulk purchasing and contract negotiation benefits, since the utility could aggregate the contracts. Delinquency is low (because utility bills tend to have a low default rate and the utility can withhold services from delinquents). Finally, it puts savings on bills, which allows customers to see both cost and benefit in the same place.

*Weaknesses:* Like PACE, on-bill repayment requires a comprehensive program to overcome the knowledge or transaction costs barriers. In the common case where a home purchases electric service from one utility and heating fuel from another, it may be difficult to get the utilities to cooperate, and the costs and savings may not appear on the same bill. "Portable" measures may be problematic, as with PACE. Because on-bill repayment programs rely on a utility for implementation, and utilities generally make their money by providing more energy, not less, it is often hard to find a utility willing to host the program. In addition, utilities are often reluctant

to disconnect service, and any action that increases the likelihood of disconnection will deter acceptance by the utility.

#### **Signature Loans:**

An increasingly common option, signature loans are essentially unsecured personal loans that can only be obtained for energy efficiency work. Offered through or in cooperation with a bank or credit union, customers must go through a credit check to be eligible. They must be embedded in a comprehensive program to be effective. Since they are personal loans, the obligation stays with the person over the term of the loan.

*Strengths:* Because a credit check is required, there may be less risk to the lender. Signature Loans may overcome the opportunity cost barrier because they are only available for energy efficiency work. They can overcome the knowledge and transaction cost barriers if embedded in a well-designed program.

*Weaknesses:* Because they require credit history and the assumption of personal debt, they do not fully overcome the upfront cost barrier. Because they are personal loans, they do not overcome the risk barrier. They also do not overcome the split incentive, since tenants are not likely to borrow money to improve property that is not theirs, and the costs are not tied to the savings.

#### **On-bill “Light”:**

This is a hybrid of the on-bill repayment and the signature loan, where the payment of the loan is placed on the utility bill. The process is exactly the same as the signature loan, except that instead of receiving a separate monthly bill, the utility agrees to act as a billing service and add the charge to the utility bill.

*Strengths:* The same as the signature loans. In addition, costs and savings are presented on the same bill.

*Weaknesses:* Same as the signature loan.

Note that the sources of capital, repayment options and financing options are “mix and match”, although some combinations will work better than others. The repayment options are summarized in Table 1.

**Table 1: Repayment Options**

	On-Bill	On-Bill Light	PACE	Signature Loan
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Security	Utility shut off	Loan Loss Reserve	Property Tax	Loan Loss Reserve
Repayment	Utility Bill	Utility Bill	Property tax bill or Municipal Bill	Bill from Financial Institution
Eligibility based on...	Bill payment history	Bill payment history, Credit score	Property tax payment history, Loan/Value ratio	Credit score
Reach tenants?	Yes	No	Maybe	No
Obligation stays with...	Meter	Individual Participant	Property	Individual Participant
Likely financial administrator	Utility	Utility Municipality Private business or non-profit	Municipality	Financial partner

An alternative approach to the above repayment options is an Efficiency Purchase Program, where a utility purchases efficiency instead of power to meet its projected demand. Municipal utilities in Ohio largely purchase power as a part of packages, for terms of years. Some terms are shorter, others longer. These purchases are based on existing and projected demand for power. The Efficiency Purchase concept allows a utility to meet demand not through the purchase of power, but instead through a purchase of energy efficiency at a local level.

Demand for power can be met one of three ways by a utility: first, it can be generated “in-house” by power plants, wind farms, etc. owned by the utility; second, it can be purchased by the utility from other generation sources and transmitted to the customer; third, demand can be reduced through response programs or energy efficiency. Traditionally, utilities of all types have met demand requirements through purchases of power or the construction of new generation. When utilities have done energy efficiency or demand response programs, they have not used funds that would otherwise be utilized for power purchases. An Efficiency Purchase Program allows a utility to spend dollars that would have been allocated to power purchases or power plant construction to buy efficiency instead; the result is the same, demand is met, but the method is changed.

A utility looking to make an efficiency purchase would first determine its budget for power purchases and demand needs. Once these budgets and needs were adequately understood, the utility would develop an RFP for energy efficiency services. The RFP would request efficiency services that provide guaranteed energy savings (demand reduction) over a period of years. The price paid per kWh must be equal to or less than the price of power that the utility would have otherwise purchased. Organizations would submit bids to the utility in response to the RFP. If a bid were accepted, the entity would be contractually responsible for providing the savings. This would likely be accomplished by developing energy efficiency programs for the community,

implementing them, and documenting savings. These programs could be comprehensive, whole-house retrofits, or they could use other approaches.

*Strengths:* This is a simple concept, it requires no outside capital, and it can provide substantial savings on a quick timetable. It allows the market to supply the most cost-effective energy efficiency programming, and it side-steps the question of barriers, since it doesn't specify how the energy efficiency would be delivered.

*Weaknesses:* The purchase option will not work if a utility has all of its demands already met through long-term contracts, unless there is a way to escape some of those contracts and free up demand. Additionally, though large amounts of energy efficiency could be completed, only a portion of demand could conceivably be met through the program. Because it does not detail how efficiency will be achieved, there is a danger of the programs not overcoming the various barriers to participation. There is also a danger of going after only the "low-hanging fruit", the easiest efficiency projects, making future work in the community harder and less cost-effective. Finally, the concept may benefit some customers more than others, which may be viewed as unfair.

Assuming a whole-house retrofit program, the next logical question is "who will do the work?" There are four basic categories of work involved in a program like this: Administrative, Financial, Outreach and Auditing/Construction. These functions could all be performed by one entity, or they could each be performed by a separate entity, with the appropriate contractual relationships between the entities. Table 2 below shows representative tasks for each type of work and suggests what type of entity would be appropriate to perform each under the different repayment options outlined above.

**Table 2: Administrative options**

Type of work	Representative Tasks	On-Bill	On-Bill Light	PACE	Signature Loan
Administrative	Manage any employees. Hold contracts with other entities. Determine eligibility. Scheduling Manage contractor eligibility. Manage projects and measures eligibility. Track data. Hold RLF or LLR?	Utility Municipality Private business. Non-profit	Municipality Private business. Non-profit	Municipality Private business. Non-profit	Municipality Private business. Non-profit

Financial	Determine financial eligibility. Process payments. Hold RLF or LLR? Collections	Utility	Utility Municipality Private business. Non-profit	Municipality	Financial partner.
Outreach	Marketing Energy Advocates Community outreach. Referrals	Community partner. Utility Municipality Private business. Non-profit	Community partner. Utility Municipality Private business. Non-profit	Community partner. Municipality Private business. Non-profit	Community partner. Municipality Private business. Non-profit
Auditing/ Construction	Audits Installation of Measures	Auditors and Contractors.	Auditors and Contractors.	Auditors and Contractors.	Auditors and Contractors.

The utilities in Oberlin are OMLPS and Columbia Gas, and the municipality is obviously the City of Oberlin. Financial partners could be any local banks or credit unions, or Ohio-based CDFIs. Community or business partners that might manage the administrative, financial or outreach functions include POWER and LCCAA (see above). It would also be possible to contract with a national company (like VEIC) to do this work, although our analysis of existing programs suggests that outreach at least should be managed by a local entity. The auditing and construction work could be done by LCCAA and/or local auditors and contractors.

## Estimating Costs, Savings, and Payback Periods

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### Challenges to Estimating Costs, Savings, and Payback Periods:

Estimating individual household costs, savings, and payback periods can be difficult because there are a number of factors that influence the outcome. At the programmatic level, these factors include the source and type of capital, the program design, and the initial size and scale of the program itself. At the household level, these answers will depend on a home's current electricity use, the types of energy efficiency measures taken, the price of future energy compared to the current price, as well as the age, size, and type of construction of the house.

Additionally, the element of human behavior can greatly impact the energy performance of a home, even after efficiency measures have been installed.<sup>1</sup>

Ultimately, the most accurate way to determine the total cost and payback period for a residential energy efficiency retrofit is by performing a comprehensive home energy audit. Lacking that, we can still arrive at some useful estimates given what we know about similar programs implemented in other communities, the impact of Home Weatherization Assistance (HWAP) measures implemented by OPAE, and general information about Oberlin and its current energy composition. Typically, residential energy efficiency measures can see a 30% reduction in energy usage – and with larger investments – significantly more energy can be saved.<sup>2</sup>

### Energy Efficiency in Oberlin: Three Scenarios

In Table 3, we outline three scenarios to demonstrate the potential costs, savings, and payback periods for energy efficiency measures in Oberlin. The first scenario looks at the impact of a home that spends \$2,400 per year (\$200 per month average) on energy. In this example, we assume the cost of measures will be \$4,500. If household energy use is reduced by 18 – 24%, the home will save \$432 - \$576 in energy costs per year. Once all rebates and tax incentives are included, the payback period is 6.9 – 5.2 years. These numbers compare favorably with the energy reductions achieved by OPAE’s HWAP providers and the US Department of Energy (DOE) which estimates the average payback period for energy efficiency measures is 6.1 years.<sup>3</sup>

The second scenario assumes annual energy expenses of \$3,200 and, like the previous scenario, sets the amount for efficiency measures at \$4,500. Typically, the greater the amount of energy being used, the greater the potential for savings. So in this scenario, the measures are likely to reduce annual energy costs by 24 – 30% or \$768 - \$960. Once all rebates and incentives are included, this scenario will see a payback period between 3.9 – 3.1 years.

In the final scenario, the annual energy costs are \$3,800 and the cost of efficiency measures is raised to \$6,500. This time, annual energy costs are reduced by 30 – 35% or \$1,140 - \$1,330.

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<sup>1</sup> [http://ageconsearch.umn.edu/bitstream/61678/2/Suter\\_AAEA\\_2010.pdf](http://ageconsearch.umn.edu/bitstream/61678/2/Suter_AAEA_2010.pdf)

<sup>2</sup> [http://www.cows.org/pdf/bp-milwaukeeeretrofit\\_050807.pdf](http://www.cows.org/pdf/bp-milwaukeeeretrofit_050807.pdf)

<sup>3</sup> <http://www.nrel.gov/docs/fy09osti/46021.pdf>



Including tax incentives and available rebates, the payback period for this scenario is 4.3 – 3.7 years.

It is important to note that these costs and payback periods do not consider the program costs or any additional finance costs/interest rates which will impact the payback period.

**Table 3: Energy Efficiency Scenarios**

Annual Energy Costs	Cost of Efficiency Measures	Energy Reduction %	Annual Savings	Payback Period	Payback w/ Rebates, Incentives, etc.
\$2,400	\$4,500	18% - 24%	\$432 - \$576	10.4 - 7.8 yrs	6.9 - 5.2 yrs
\$3,200	\$4,500	24% - 30%	\$768 - \$960	5.8 - 4.6 yrs	3.9 - 3.1 yrs
\$3,800	\$6,500	30% - 35%	\$1,140 - \$1,330	5.7 - 4.8 yrs	4.3 - 3.7 yrs

## Local Workforce Opportunities

Energy efficiency cuts across multiple industry sectors including architecture, engineering, HVAC & controls, service and installation, commissioning, product sales, lighting, and technical consulting as well as many other areas. “Energy efficiency is foundational to the creation of a clean energy economy. If buildings are not designed, constructed, and operated to ever increasing levels of superior energy performance, clean energy generating sources will not have sufficient capacity to deliver a truly sustainable energy environment. Moreover, the deployment of energy efficiency results in the lowest cost energy future at both the individual consumer and at the societal level.”<sup>4</sup>

<sup>4</sup> Northwest Energy Efficiency Council. “Workforce Development Needs of the Energy Efficiency Industry Survey Results from Washington and Oregon” (2008) available at:

<http://www.centralia.edu/coe/pdf/WorkforceDevNeedsEnergyEffIndustry11-08.pdf>

Energy use affects economic growth because energy is purchased and used by every part of a community's economy, including producers, distributors, and marketers of goods and services. But the all-encompassing effects of energy use and purchases on a local economy are not always obvious. Investments in residential energy efficiency programs create jobs, the wages from which are spent on goods and services, thus creating more jobs, the wages from which are spent on more goods and services, and so on multiplying through the economy. The economic multiplier, also known as the multiplier effect, is a measure of how much economic activity can be generated in a community by different combinations of purchasing and investment. The American Council for an Energy Efficient Economy (ACEEE) reported that for every public dollar spent, clean energy leverages an additional \$3 in related business and consumer investment.<sup>5</sup> Residential energy efficiency programs result in lower energy bills for consumers, thus increasing a households' disposable income and in turn increasing their purchasing power – putting additional dollars into the local economy through increased purchases of goods and services. A survey of studies, compiled for the National Action Plan on Energy Efficiency, estimated the total employment effects of energy efficiency programs through direct and indirect effects, show a range of estimates of direct jobs per million dollars invested ranging from 5.4 to 24.3 jobs.<sup>6</sup>

Energy efficiency improvements also benefit commercial and industrial customers through helping to reduce production and operational costs and have in fact led to business growth. This, in turn, is good for local economies and the employment picture. The annual energy bill

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<sup>5</sup> Policy Matters Ohio and The Apollo Alliance. "Investing to Re-Energize Ohio" (2007) p. 6. Available at: <http://www.policymattersohio.org/pdf/investingtoenergizeohio2007.pdf>

<sup>6</sup> Final Report 2009. Rapid Deployment Energy efficiency (RDEE) Toolkit: Planning and Implementation Guides. Developed by the National Action Plan for Energy Efficiency, with support from the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE). It was prepared by Peter Lemoine, Tyler Huebner, David Pickles, Bill Prindle, and Nora Buehler of ICF International. (December 9, 2009). P. 166.

for an entire community is made up of all the energy purchases from residential, commercial, industrial, agricultural, and institutional customers. The largest components of the community energy bill include utility bills and petroleum fuel product purchases (fuel oil, gasoline, natural gas, heating oil, etc). The summation of these components can be quite a telling story of the economic size and representative power of energy spending, particularly when a similar analysis is done on where this payment stream is going. Oftentimes, we see in excess of 80% of energy expenditures being sent outside of local economies. The magnitude of the energy dollar drain from a local economy can represent a significant leakage of financial resources. And this loss prevents the “economic multiplier” benefit that these energy dollars could generate

### **The Energy Efficiency Supply Chain:**

The market supply chain for energy efficiency spans product development, manufacturing, wholesale and retail distribution, deployment (e.g., project design, construction, and evaluation of savings) and operations and maintenance. Some examples of career pathways include energy auditors, insulation and weatherization technicians, HVAC technicians and installers, manufactures, distributors, and salespeople of energy efficiency products, state energy office staff, and policy analysts.

According to a report by Environment Ohio;

There are at least 680 stores in Ohio that now sell energy efficient products and appliances. The stores offering these appliances range from large retail centers offering a wide array of products, such as Radio Shack, to smaller and more specialized stores, such as those owned by the Air Tight Corporation, which specializes in window products. These businesses provide jobs to thousands of people who work as sales clerks, managers, technological specialists, janitorial staff, and in other supportive positions.

They also create numerous indirect jobs, ranging from transporters to financial advisers.<sup>7</sup>

Ohio's strong manufacturing base coupled with the available skilled and trained labor force, increased support for energy efficiency programs will create a surge of replacements and demand for new products, boosting manufacturing. This is particularly relevant to Oberlin. In addition, the above referenced report surveyed retail distributors of energy efficiency products and designers and builders of energy-efficiency buildings throughout Ohio. In Lorain County, only two retail distributors of energy efficiency products were identified and only two builders of energy-efficient buildings were based in Lorain County.<sup>8</sup>

The following table highlights jobs in the commercial and industrial sector that increase as greater investment in and demand for energy efficiency products, practices, and policies come online:

**Table 4: Employment by Sector: Energy Efficiency**

Category	Industries Indirectly Impacted
Lighting	Wholesale trade, power equipment and transformer manufacturing, truck transportation, building services, machine shops
HVAC	Wholesale trade, truck transportation, services to buildings, machine shops, ferrous metal foundries, iron and steel mills
Water heating	Wholesale trade, machine shops, truck transportation, services to buildings, business support services, architecture and engineering

<sup>7</sup> Kaplan, S., Frontier Group, and, McCourt, J., Environment Ohio Research and Policy Center. "Ohio's Green Energy Economy, The Energy Efficiency Industry". (2010) p. 27. Available at: <http://www.environmentohio.org/uploads/c1/fc/c1fc7b684979ac6d548727db2497e0ca/Ohios-Green-Energy-Economy--the-Energy-Efficiency-Industry.pdf>. An excerpt of these companies providing manufacturing of energy efficiency products in Lorain, Erie, Medina, Cuyahoga, Ashland, and Huron counties has been provided in Appendix, Table 6.

<sup>8</sup> Kaplan, S., Frontier Group, and, McCourt, J., Environment Ohio Research and Policy Center. "Ohio's Green Energy Economy, The Energy Efficiency Industry". (2010) Appendix, Tables A1, A2.

<b>Motors and drives</b>	Wholesale trade, truck transportation, services to buildings, copper rolling and drawing, crown and closure manufacturing, iron and steel mills
<b>Office equipment</b>	Wholesale trade, semiconductor manufacturing, software publishers, scientific R&D, advertising
<b>Environmental controls</b>	Wholesale trade, scientific R&D, software publishers, services to buildings, custom computer programming, semiconductor manufacturing
<b>Envelope improvements</b>	Wholesale trade, truck transportation, services to buildings, accounting, maintenance and repair construction, architecture and engineering
<b>Source: Garrett-Peltier, H. "Employment Estimates for Energy Efficiency Retrofits of Commercial Buildings". Political Economy Research Institute University of Massachusetts, Amherst. (June 2011) Table 4.</b>	

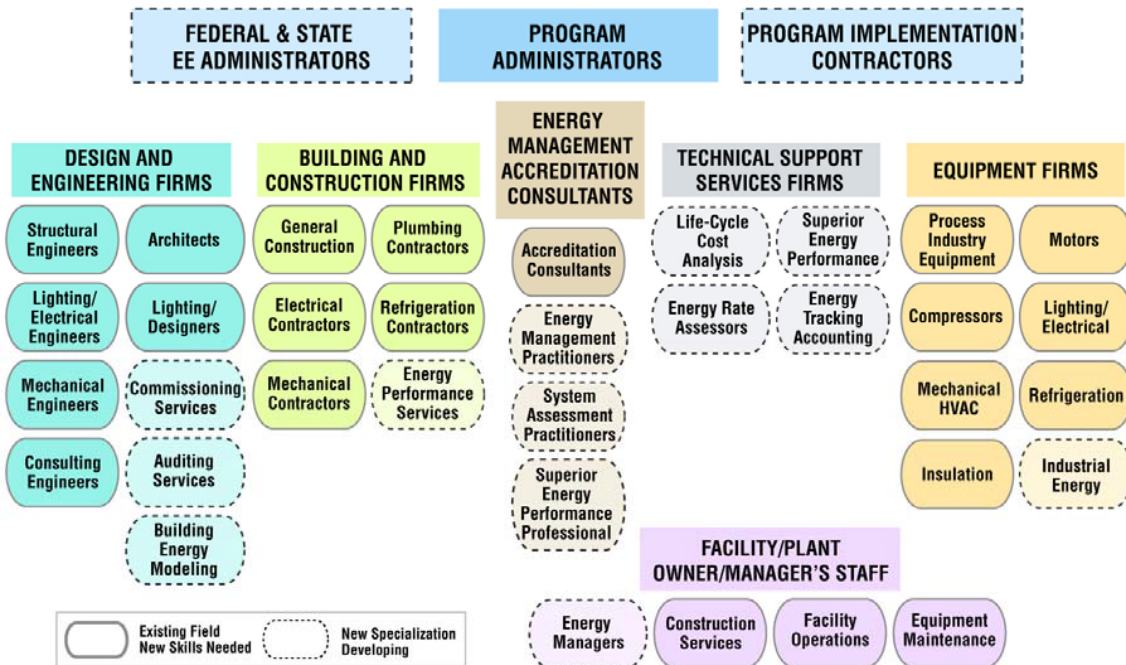
In order for a robust energy efficiency climate to exist there has to be a mesh between available training programs and supporting community energy efficiency policies. Without jobs to go to, the training will not materialize into employment opportunities. As the energy efficiency market develops, the training programs offered through universities, community colleges, trade schools and union apprentice programs must be connected and engaged to keep up with changing energy efficiency technologies, codes and standards, as well as both federal and state incentive programs.

#### Supply Chain Capacity:

The following chart provides the workforce and labor supply chain for residential energy efficiency programs:<sup>9</sup>

<sup>9</sup> Peters, J.S., McRae, M., Albers, N., Lutzenhiser, S., Spahic, M. Energy efficiency Services Sector: *Workforce Size and Expectations for Growth*. LBNL-3987E September 2010 (Figure ES3, p. 4). Available at: <http://eetd.lbl.gov/ea/emp/reports/lbnl-3987e.pdf>

**Table 5: Energy Efficiency Services Sector**



The above chart clearly lays out some of the career pathways that emerge from investment in energy efficiency programs. To date, the bulk of residential energy efficiency programs have focused on low-income populations, funded through federal, state and utility sponsored programs. Ohio has a well-established and collaborative network of qualified, skilled, knowledgeable and credentialed workforce in residential energy efficiency/home performance retrofit sector. The bulk of contractors in Ohio that have been serving low-income populations are working (primarily) for Ohio’s Home Weatherization Assistance Program (HWAP) through Community Action Agencies or with private subcontractors (typically very small firms) across Ohio in coordination with utility sponsored programs. All of the employees serving low-income weatherization programs have been trained through the Ohio Weatherization Training Center (OWTC), operated by the Corporation for Appalachian Development (COAD). This network has been serving the weatherization program and service delivery network throughout Ohio since 1980.

The ability to provide energy efficiency and weatherization services expanded significantly with the passage of the American Reinvestment and Recovery Act (ARRA). The legislation provided \$267 million to be spent over a twenty-two month period to weatherize low-income homes. By comparison, the low income energy efficiency provider network has spent around \$50 million in combined federal, state, and utility funding in 2008. The massive expansion triggered by the ARRA funding has resulted in significantly increased training capacity and staff by over 1,000 for a total employment base of over 1,500, plus an additional 200+ trained contractors.

Recognizing that there is a substantial labor force and that this infrastructure has weatherized over 37,000 homes since June, 2009, there is significant capacity for expansion. As ARRA-funded WAP has begun to close out in Ohio, agencies have begun to lay-off weatherization workers across the state. The opportunity to transition those dislocated workers to the private residential energy efficiency retrofit market is critical in avoiding large numbers of unemployed, but highly skilled workers.

Currently, OWTC provides training for four distinct occupational pathways recognized by the US DOE (1) retrofit installer technician; (2) crew leader; (3) energy auditor; and (4) quality control inspector. This provides a clear career pathway for individuals and accompanying courses and certifications available.

Successful experience in the residential energy efficiency arena paves the foundation for greater awareness at the local level, in communities, and expands to the commercial and industrial sectors. Residential energy efficiency programs leads to greater job development and investment in energy efficiency from the private sector. This expansion creates opportunities for program administrators, urban planners, marketing fields, and private energy efficiency service provider companies. In addition, as demand grows for increased savings from energy efficiency a wider service offering will be provided by the marketplace, potentially bringing in new technology providers, additional training opportunities, apprenticeship programs, and new suppliers.

As demand in the commercial and industrial grows new opportunities will emerge in advanced lighting components, building control systems, motors, technologies utilizing renewable forms of energy, on-site cogeneration, and demand management consultants specializing in coordinating optimal performance of all the available energy efficiency opportunities. According to a report by “ICLEI – Local Governments for Sustainability” the job potential of energy efficiency investments range up to 70 person years of employment per \$1M invested. This is a significant number for a town the size of Oberlin, OH. Preliminary estimates of energy efficiency investment in Oberlin exceed \$13M<sup>10</sup>, this translates to 910 person years of employment, or 91 new jobs over a ten year period or 5.6 – 7.1 jobs per \$1M invested in energy efficiency.

In the absence of robust state and federal policies that drive energy efficiency investments, local governments have tremendous potential to creating demand and support growth by developing efforts that push high-road strategies, incentivize wide-scale adoption, and offer accessible financing models. These efforts are critical in refining the model and bringing it to scale where applicable.

## **Recommendations for Oberlin**

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### Goals

At their March 11, 2011 meeting, the Oberlin Project Energy Policy Committee articulated the following goals for a residential energy efficiency program:

- Environmental stewardship
- Reduce GHG emissions

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<sup>10</sup> The \$13M investment in Oberlin is based on a proposed comprehensive residential energy efficiency program, using \$4500/home as the average investment applied to 3,000 residential units. This estimate does not assume the cost of financing and program administration.



- Save money for all property owners/rate payers, with an emphasis on tenants and low income households
- Provide financing of some sort to households to overcome first cost barrier to energy efficiency retrofits
- Target, but do not limit, the program to the SE quadrant of the city
- Include all EE measures, but focus on those that are thermal (rather than electric) in nature and those that have a 5-10 year payback
- Create jobs for local residents
- Leverage private capital
- Leverage existing programs
- Show national leadership
- Build relationships and have clear communication between stakeholders

Based on these goals, we recommend the following for Oberlin:

#### Program Structure

Residential properties in the City of Oberlin will be eligible to participate. Rental properties are eligible so long as both landlord and tenant agree to participate, and new tenants are informed that the property is participating in the program. This may depend on the type of financing (see below). A third party entity will administer all marketing, contractor and auditor certification, financial, and customer service program functions. The program will work alongside existing state, federal and utility efficiency programs. Customers who qualify for existing tax credits may still take advantage of these. Any rebates, subsidies or incentives available as a result of this work should be used to expand the measures installed or to reduce either the length of the payment term or the amount paid.

#### Size of Program

According to the 2009 American Community Survey, there are 2486 households in Oberlin. Seventy percent of those are single family homes, and 56% are owner occupied. Forty two percent of the structures were built before 1939 and 80% heat with gas. According to OPAE, weatherizing a home costs, on average, \$4500. If the program could reach, and convince to participate, every household in the City, it would need less than \$12 million to accomplish the work.

Another consideration is the availability of certified auditors and contractors, and how many houses they have the capacity to retrofit in a given time period. Since one of the goals is job

creation, it is also important to investigate the availability of training – is there a pool of qualified people contractors could hire to increase their capacity? Administrative capacity, workforce availability and the availability of capital will dictate how many households the program can reach in a year.

### Sources of Capital

We recommend pursuing Qualified Energy Conservation Bonds (QECBs)<sup>11</sup> or other state bonding opportunities to supply capital for a revolving loan fund with a 5% loan loss reserve. If PACE is pursued, Oberlin may be able to issue municipal bonds to support the program. In addition, Ohio-based Community Development Financial Institutions (CDFIs) should be approached about providing low-cost capital. Similarly, local banks, credit unions or foundations should be asked to make program-related investment loans at below-market rates.

### Repayment options:

We believe any of the following would work for Oberlin, depending on the preference of City leaders and the types of capital secured.

PACE: Improvements would be paid for via an assessment district, and repayment would happen via a municipal bill. The value of the improvements would be secured by the property tax. Financial eligibility would be based on property tax payment history and an appropriate loan/value ratio. The program could be open to tenants that have permission from the property owner. The obligation would stay with the property, not the person. The City would accept any potential risk that might stem from the FHFA's disapproval of such programs.

On-bill Light: Columbia Gas, OMLPS or the City would agree to place a charge on the utility or municipal bills of customers who opt-in, but would not treat this as a tariff nor be able to discontinue service for non-payment. Financial eligibility might need to be based on more than bill payment history. Columbia Gas, OMPLS or the City would not be liable for non-payment, so additional security for the loan would be needed, or the program would have to accept the risk. The obligation would stay with the person, not the meter.

Signature Loan: The program administrator would assess the financial eligibility of the household (most likely based on credit score) and offer the loan, either directly or via a financial partner. Interest rates could be tiered based on credit score (either way – lower credit scores could get higher rates or lower rates, if the program can buy them down), and/or credit enhancements could be used (see above). The loan would be to the person, not the property.

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<sup>11</sup> See <http://www1.eere.energy.gov/wip/solutioncenter/financialproducts/qecb.html> for more information.

While this option could apply to both owners and tenants, it is unlikely that it would appeal to tenants.

How the program works:

- 1) Participant (as a result of outreach or word-of-mouth) contacts program coordinator
- 2) Program is explained, pre-screen completed (for eligibility).
- 3) Participant applies to program, submitting application fee (\$25?).
- 4) Coordinator and participant schedule home inspection/audit.
- 5) Auditor completes audit, generates list of cost-neutral measures and payback time. Audit is subsidized by existing programs (if eligible). If participant proceeds to install measures, audit cost is covered by program. If no measures installed, participant pays for audit cost (minus any rebates).
- 6) Program coordinator works with participant to identify any available rebates, incentives or financing options for which the participant is eligible, and to select contractor.
- 7) Participant and program sign contract.
- 8) Contractor performs work.
- 9) Auditor or other contractor completes post-test measurement and verification.
- 10) Contractor is paid by program (program may authorize partial payment in advance).
- 11) Upon satisfactory completion of retrofit, homeowner begins repayment.

Program Eligibility:

Financial eligibility depends in part on the type of financing and repayment selected. See above for the various criteria. The program may wish to screen applicants on the basis of the age of their home (likely pegged to building code implementation dates), the magnitude of their energy expenditure, their income level, or their geographic location. Participants who are eligible to receive fully-subsidized retrofits from the HWAP program should be strongly encouraged to participate in that program and given help to fill out the necessary paperwork. The program should set up a cross referral system with other energy efficiency providers, and may want to offer assistance navigating the HWAP application process.

Eligible measures:

The scope of retrofit measures to be implemented in a given property is determined by the results of the energy efficiency assessment/audit, using modeling software, conducted by a certified professional. The audit will evaluate air leakage, HVAC efficiency, refrigerator plug load, windows, light fixtures, etc. Bundles of measures that have a Savings to Investment Ratio (SIR) of greater than 1.1 over a 10 year period are eligible, providing the life of the measure is equal to or greater than that time. In addition, the program may choose to add or eliminate individual measures. For example, “portable” measures may be excluded or limited. The minimum cost for total improvements to a property is \$1000.

#### The One-Stop Shop:

The “one-stop shop” will provide outreach, education, marketing, referrals, a web portal, and comprehensive support to program participants. Each participant will have a single point of contact who will facilitate all aspects of the energy efficiency program for participants, including but not limited to answering general questions, choosing auditors, interpreting audit results, choosing measures, choosing contractors, facilitating installation, and facilitating post-test. The one-stop shop will also coordinate with other energy efficiency programs, making sure participants take advantage of any discounts, rebates or tax credits they are eligible for. Under some types of financing (PACE and On-Bill), participants may assign such benefits to the program and thus decrease their overall obligation, or increase the number of measures they can implement. Another function will be to conduct referrals of any interested parties that are not eligible for the program, helping them identify other sources of funding or resources available.

#### Outreach:

Program participation and conversion rates will be bolstered by strong public outreach. Potential strategies include:

- Community outreach teams
- Mailing eligible members/bill insert
- Letter to homeowners from trusted member of the community
- Friendly competition with rival community
- Web presence
- Social media
- Earned media (press events, initial participant home tours)
- Outreach to community groups
- Tabling at home fairs and similar events
- Municipal, College and Utility employee education

- Contractor and auditor training and education
- Partnerships with local hardware stores
- Partnerships with local schools

#### Contractor Participation:

The program has several options with respect to how it chooses contractors to do the work:

- 1) It may delegate the choice to homeowners entirely, requiring them to show proof of multiple bids (not recommended).
- 2) It may determine criteria for contractor eligibility and provide a list of contractors that meet those criteria to the homeowner, allowing the homeowner to choose among them.
- 3) It may create a list as in 2), bid each job out to the list and offer the homeowner the 3 best bids to choose from.
- 4) It may create a list as in 2) and allocate jobs to contractors directly, based on bids, geography, capacity, timing, or other factors. In this case, the program could also create tiered eligibility, in which contractors that meet more of the eligibility criteria get allocated more of the work.

There are many possible criteria by which to screen contractors. The most basic is that contractors:

- Be certified by the Building Performance Institute (or equivalent certification, determined by program administrators)
- Have no history of complaints regarding work done through the program
- Consistently perform work of a high caliber, as determined by the post-audits (see below)

Additional criteria could include:

- Willingness to participate in contractor education series and responsible contracting network
- Paying a living or prevailing wage
- Offering health or retirement benefits
- Based in Oberlin
- Having a local hire policy

- Agreeing to make a certain percentage of new hires from a designated training program (may want to be one that trains local residents, particularly those that are unemployed, low income, etc.)
- Are or subcontract to women and minority owned businesses
- Achieve higher levels of certification or have more of their employees certified
- Are signatory contractors with one or more labor unions and/or use union sub-contractors

Contractor participation is at-will, and the program reserves the right to remove contractors from the program list at any point.

#### Data Collection, Quality Control and Verification:

Properties that participate in the program should undergo a full post-improvement audit to determine the efficacy of installed measures. Program participants will give the program permission to access their utility bill data, including heating bills, for the entire repayment period. The program will calculate and track GHG reductions based on the program.

#### Does This Design Meet EPC's Goals?

Ultimately, this program design must meet the goals laid out by the Energy Policy Committee. This section examines whether or not it does or could do so.

1. Save money for all property owners/rate payers, with an emphasis on tenants and low income households: Once implemented, this design will save participating households money. Whether or not it reaches tenants depends on what repayment structure is chosen. If the outreach component is targeted correctly, maximum participation in existing programs is properly supported where possible, and the financial offer is suitable, it should reach low-income households.
2. Provide financing of some sort to households to overcome first cost barrier to energy efficiency retrofits: Yes.
3. Include all EE measures, but focus on those that are thermal (rather than electric) in nature and those that have a 5-10 year payback: Yes. By funding eligible measures with a SIR of 1.1 or better, the program will cover measures that pay for themselves. We recommend a 10 year time frame because the total energy and financial savings will be greater than with a shorter time frame.
4. Leverage existing programs: Yes.

5. Leverage private capital: As designed, the energy efficiency work, and at least some portion of the administrative costs, will be paid for by the program participants over time. However, it is necessary for the program to access a pool of capital to begin the program. If this comes via the participation of private financial partners, this goal will be achieved.
6. Target, but do not limit, the program to the SE quadrant of the city: This will depend on how the outreach component is targeted.
7. Reduce GHG emissions: Yes. Any energy savings achieved will reduce GHG emissions. The magnitude of the reductions will depend on whether the savings are achieved via thermal or electric measures and what the current electric generation portfolio is.
8. Create jobs for local residents: Possibly. This depends on the number of program participants (how much demand is created), the existing slack in the home weatherization/contracting market, and whether or not local hire requirements are established as part of the contractor eligibility criteria.
9. Environmental stewardship: Promoting environmental stewardship as part of this program would best be incorporated in the outreach and marketing component. There are also possibilities to connect the program to other aspects of the Oberlin Project, or to other environmental stewardship components, such as water conservation, stormwater management, or distributed renewable energy generation.
10. Build relationships and have clear communication between stakeholders: This process goal is difficult to quantify. Given the number of stakeholders necessary for the success of the program, however, it is an important one.
11. Show national leadership: Simply adopting an energy efficiency retrofit program will not be sufficient to show national leadership, as there are already significant leaders in the field. There are, however, opportunities to be on the cutting edge. For example, a program that successfully reached every household in the City would be extraordinary. Similarly, a program that successfully overcame the split incentive and reached a significant proportion of renters in the community would be a national model. Other metrics that could indicate national leadership would include high conversion rates of initial contacts to finished projects, deep savings achieved, and rapid program growth. Additionally, there are complementary policies discussed in the next section (Section 8), that could play that role.

## Complementary Policies and Programs

Citizen Survey: Cities have solicited input from and documented interest of residents in clean energy programming by sending out customer surveys. With help from partners, and based on the interest of committee members, we drafted a customer survey for input from stakeholders, that could be sent out as an insert in the Oberlin utility bill.

Energy Performance Disclosure: As mentioned earlier, one of the greatest market barriers to efficiency is the lack of knowledge around energy use of existing buildings. When buying or renting space, typically little is known about the relative energy performance of those spaces. However, energy costs associated with inefficient buildings can mean greater expenses associated with a given space, information that should factor into the decision of where to rent or buy. To address this market barrier, a few cities have passed laws requiring the disclosure of a building's energy performance during the sale or lease of a building. Attached is a brief documenting those efforts and the basic elements of a disclosure policy.

## Learning from Oberlin

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Other communities in Ohio's 9th Congressional District, Ohio, and indeed the nation can learn from the process Oberlin is undertaking. At the risk of stating the obvious, communities should first identify their goals. Having at least a rough sense of energy consumption by sector is useful in prioritizing which sector to work in. In general, it is smart to work on energy efficiency before pursuing renewable energy, as reducing demand can save effort. If energy efficiency is the overarching goal, then other questions must be considered – to what end does the community want to reduce energy use? Reducing carbon? Saving money? For whom? Different goals will lead to different program design decisions. For example, if reducing carbon is a primary motivator, that might lead us to focus on “deep” retrofits (including measures that have longer payback times) and to include renewable energy generation in the package. On the other hand, a focus on saving money would limit the list of measures to those that pay for themselves over a shorter period of time. Having agreement on both the list and relative importance of goals is critical. Below we list some possible goals for discussion.

### Possible Goals:

- Reduce Carbon emissions
  - From electric generation
  - From natural gas use



- Save money for...
  - Property owners
  - Tenants
  - Low-income residents
- Target a program at households...
  - That are owner-occupied
  - That rent their home
  - That are not eligible for HWAP assistance
  - That are at or below a certain percent of the poverty level or median income
  - That spend a certain percentage of their income on energy
  - That use more than the average amount of energy per square foot
- Improve the condition and value of residential building stock
  - Target a particular geography or neighborhood
  - Target buildings of a certain age
- Introduce a more efficient energy efficiency program model
- Build relationships between relevant partners
- Create jobs...
  - Good, family supporting jobs
  - Jobs that can be filled by local residents
  - Reduce the number of union workers currently unemployed
- Provide financing for energy efficiency work
  - At or below market rate
  - Without requiring a credit check
  - Without requiring a lien on the property
  - That is accessible to/affordable for low income households
- Conduct “deep” retrofits
- Install only measures that pay for themselves in X years
- Leverage existing EE programs and their funding sources
- Consider using your inherent municipal power authority
- Bring private capital into this market
- Minimize the amount of public dollars used
- Design a program accessible to tenants
- Generate opportunities for local businesses
- Avoid long term costs for utilities (e.g. generation, capital infrastructure costs)

Some of these are mutually exclusive. Others can be achieved jointly. Regardless, knowing what the most important goals are will help identify the correct policy tools and determine how to navigate important tradeoffs.

Once goals are established, a community can move on to assessing the legal, financial and program landscape. State and local policies may impact the work. There are four general categories: policies that incentivize or mandate retrofitting, policies that enable particular

forms of financing that would support retrofitting programs, policies that govern job quality and policies that include local and targeted hire requirements. Also critical is an understanding of what energy efficiency services are already available in the community, and what gaps in service exist. Securing initial funding or staff time to support planning work is important as well. This could come from a private source, or municipal or utility funds.

There are five fundamental design questions for these types of programs. These questions are:

1. What type of financing will be used?
2. What repayment option will be used?
3. How is the obligation secured?
4. What is the source(s) of capital?
5. Who will administer the program?

The options outlined above should provide a good start to the discussion. If possible, plan the scope of project. Estimate goals such as number of buildings or percentage of neighborhood to be retrofitted, number individuals trained, number of jobs created, amount of energy saved, greenhouse gas emissions avoided, etc.

Once the fundamental design questions are answered, establish or choose the administrative agency. It could be private or public, environmental or business, for-profit or non-profit, or any mix. It must be able to handle day-to-day operations such as recruiting and hiring contractors, targeting and selecting homes or neighborhoods, arranging financing, procuring materials, collecting payments, etc. Some of these may be contracted out, but the goal is to have one organization ultimately responsible for the program.

There are a series of design decisions to make. Without getting into too much detail, here are a few things to consider:

- Finance
  - What existing funding streams can be leveraged (rebates, tax credits, etc)
  - Grants vs. revolving fund vs. loan loss reserve and minimum/maximum amounts
  - Source of capital – private, public, utility
  - Account management
  - What screening of applications is required?
  - What security for any loan or service is required?

#### Measures

- What measures are allowable?
- What payback is required?
- Consider warranties, lifespan of measures, etc.
- Can customer choose measures or must they accept the whole suite?

#### Outreach

- Labeling efforts or policies

- Target geographies or demographics
- Mutual referral agreements
- Media, social media, etc.
- Outreach partners

#### Audit and Retrofit work

- In-house or contracted?
- Requirements re: wage levels, availability of benefits, credentials, training, hiring?
- Are jobs bundled?
- Are jobs bid or assigned? Does program or customer choose?
- Is a post-audit required? By whom?

#### Customer Service

- Energy advocates
- One-stop shop design
- Quality control and evaluation

Based on the scope of the project, the program administrator may need to work with a local workforce development professional to estimate the available labor force, and discuss the need to provide training programs. A large retrofitting endeavor would require large amounts of labor of various skill levels, which may or may not be available locally. Targeting local labor, especially from lower incomes, is a good way to capture additional benefit from a retrofitting program for the community.

Implementation, although the final step in this list, is really just the beginning, as programs will need to adapt and grow with their communities.

## Conclusion

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### Deliverables

This document addresses seven of the deliverables for the NETL grant. **Current Energy Efficient Programs** describes available energy efficiency programs in Oberlin, discusses their strengths and weaknesses, and identifies gaps where more programming is needed. **Energy Efficiency Program Designs and Recommendations for Oberlin** describe and make recommendations for energy efficiency financing mechanisms, and a comprehensive program to save both electricity and natural gas. These sections also identify existing entities in Oberlin that might administer all or part of such a program. **Estimating Costs, Savings, and Payback Periods** outlines the challenges in making estimates and lays out household estimates. **The Energy Efficiency Supply Chain** explores the economic potential of energy efficiency in Northeast Ohio. Finally, while other communities may find the entire document of interest, **Learning from Oberlin** makes

specific recommendations to other communities wishing to establish their own comprehensive energy efficiency program.

### Recommendations

We recommend that all parties in Oberlin work to establish a comprehensive, whole-home energy efficiency improvement program for residential structures in the city. This program should overcome as many of the barriers identified above as possible. It should include “high-touch” customer service in the form of a one-stop shop, and should provide financing that is as accessible as possible to its customers. Although the details of our recommendation for Oberlin are contained in Section 7, it is useful to restate them simply here, using the five design questions we identify above.

#### 1. What type of financing will be used?

We recommend a revolving loan fund if at all possible, since it will allow funds to work in the community in the long term. If not possible, we recommend working with a financial partner to offer generous terms for individual loans.

#### 2. What repayment option will be used?

We recommend PACE, if the objections to it are resolved at the federal level, or if the City is willing to proceed anyway, and we recommend placing the charge on a monthly municipal bill. Another recommended option is On-bill light. In this case, placing the charge on the gas bill would be most preferable from the customer point of view, since most of the savings are likely to be thermal, but it may be easier to place it on either the municipal or electric bill. A third, less attractive, option is signature loans.

#### 3. How is the obligation secured?

In the case of PACE, the obligation is secured by the property. In the case of On-bill light or signature loans, it is a personal obligation of the customer, secured by their credit history and backstopped by a loan loss reserve.

#### 4. What is the source(s) of capital?

We recommend pursuing QECB bond funds with the state for any repayment option. If PACE is chosen, Oberlin should strongly consider using municipal bonds to capitalize the program. Other lending options such as CDFIs or local financial partners may be needed as well.

#### 5. Who will administer the program?

We recommend that POWER work with the City, the utilities, LCCAA and OP&E to design, establish and administer the program.

### ***Next Steps***

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Although our recommendations are fairly detailed, there is still much work to be done before a comprehensive whole-home retrofit program and financing mechanism can be implemented in Oberlin. The first and most important step is to secure the understanding and agreement of all stakeholders on the need for such a program and conceptual agreement on what kind of program to pursue. Second, some group must take responsibility, with the consent of the stakeholders, for designing a detailed program that can be piloted. This group will likely require some funds to support the design work. Third, a pilot program should be launched, to test the concept and work out any administrative kinks. Fourth, the program should be scaled up to the entire city, and promoted by all the stakeholders. Finally, all stakeholders will need to remain engaged to make sure the program is fulfilling its mission, and to adjust as needed to serve the energy efficiency needs of the Oberlin community.

## Legal Barriers and Justification

### Introduction

This section reviews the varied legal issues associated with the development of a comprehensive energy efficiency program in Oberlin. It reviews the legal and administrative requirements associated with a variety of program designs that are currently under consideration by the Oberlin Project Energy Committee, an influential group of energy stakeholders in Oberlin looking to develop long-term sustainable energy solutions for the city. This section will address the following deliverables for this energy efficiency program development project:

- a) Identification of *legal* and *policy barriers* specific to Oberlin and the state of Ohio to an energy efficiency financing mechanism;
- b) Recommendations for *city ordinances* and policies;
- c) Legal framework that can serve as a template for other communities;

*Emphasis added*

Portions of these deliverables are incorporated into other sections of this document, specifically the identification of policy barriers and recommendations for policies.

### Legal Authority for Existing Energy Efficiency Programming

The City of Oberlin, in conjunction with its municipal electricity provider, or through its provision of a variety of municipal services, has clear legal authority to develop and implement comprehensive energy efficiency programming.

This authority is granted in statute and through the Ohio Constitution. The Ohio Constitution contains numerous “home rule” provisions, which guarantee municipalities the right to provide certain municipal services to residents. Utility service is included in this authority. Section four of article 18 outlines the authority to create a municipal utility:

“Any municipality may acquire, construct, own, lease and operate within or without its corporate limits, any public utility the product or service of which is or is to be supplied to the municipality or its inhabitants, and may contract with others for any such product or service. The acquisition of any such public utility may be by condemnation or otherwise, and a municipality may acquire thereby

the use of, or full title to, the property and franchise of any company or person supplying to the municipality or its inhabitants the service or product of any such utility.<sup>12</sup>”

Accordingly, Ohio’s municipalities have broad, wide ranging authority to acquire assets to provide electric services to municipal residents inside and outside corporation limits. According to section four of article 18, services may be provided to customers directly, or through contracts with third parties. These broad powers are further elaborated by sections 6. Section 6 reads:

“Any municipality, owning or operating a public utility for the purpose of supplying the service or product thereof to the municipality or its inhabitants, may also sell and deliver to other any transportation service of such utility and the surplus product of any other utility in an amount not exceeding in either case fifty per cent of the total service or product supplied by such utility within the municipality, provided that such fifty per cent shall not apply to the sale of water or sewage services.<sup>13</sup>”

Section 6 therefore allows the provision of services beyond the municipal corporation line. This provision has important implication for advanced and energy efficiency program design in the context of municipal utility authority; it allows a limited expansion of such programming beyond the boundaries of the municipality. The Ohio Constitution also reserves some special powers to municipalities for the purpose of developing robust public utilities. For instance, Ohio’s municipal corporations have the opportunity access capital otherwise off-limits if an expanded public utility is the goal:

“Any municipality which acquires, constructs or extends any public utility and desires to raise money for such purposes may issue mortgage bonds therefor beyond the general limit of bonded indebtedness prescribed by law; provided that such mortgage bonds issued beyond the general limit of bonded indebtedness prescribed by law shall not impose any liability upon such municipality but shall be secured only upon the property and revenues of such public utility, including a franchise stating the terms upon which, in case of foreclosure, the purchaser may operate the same, which franchise shall in no case extend for a longer period than twenty years from the date of the sale of such utility and franchise on foreclosure.<sup>14</sup>”

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<sup>12</sup> Ohio Constitution, Article XVIII, section 4

<sup>13</sup> Ohio Constitution, Article XVIII, section 6

<sup>14</sup> Ohio Constitution, Article XVIII, section 12

This provision then gives a municipal authority the power to borrow beyond general bonding limits, if the funds are secured with utility assets and utilized to expand utility services.

The Ohio Revised Code describes municipal authority and powers; as well as spelling out how in part municipal utilities are to be managed. These management capabilities have implications for program development in Ohio. For instance, utility managers have extensive contracting powers:

“In a city in which a water works, electric light plant, artificial or natural gas plant, or other similar public utility is owned by the city, the director of public service, with the consent of the legislative authority thereof, may enter into and contract with the owners of any power plant or of any hydraulic or other natural or artificial watercourse to furnish power for the propelling of machinery in the water works, electric light plant, artificial or natural gas plant, or other similar public utility of the city, or acquire such power privileges by purchase or transfer from others owning such rights.<sup>15</sup>”

This section in the revised code essentially allows utility managers to contract directly for electric services; this would include energy efficiency services.

## **PACE**

Property Assessed Clean Energy Financing (PACE) has been an energy efficiency financing option in Ohio for just over 2 years. In that time, several communities in Ohio have experimented with PACE financing, with varying degrees of success. PACE presents the most significant and extensive legal questions of any of the considered financing and development options.

Ohio House Bill 1 (HB 1), which was driven by the city of Athens and passed on July 17, 2009, allowed municipalities and townships to finance solar power improvements made to properties; at the time of passage qualifying energy projects were limited to solar installations.<sup>16</sup> An energy special improvement district (SID) must be created within the municipality or township in order to facilitate the funding for property improvements.<sup>17</sup> Ohio Senate Bill 232 (SB 232) was passed on June 4, 2010 and expanded HB 1 beyond just solar power to include wind, geothermal, biomass, gasification, and any other energy efficiency technology that will “reduce energy consumption or support the production of clean, renewable energy;” i.e. energy efficiency measures.<sup>18</sup> Individual energy special improvement districts (ESIDs) can determine what qualifies as “alternative energy technologies” under that

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<sup>15</sup> ORC Sec. 735.08

<sup>16</sup> Energy SIDs and PACE Financing in Ohio, Bricker & Eckler

<sup>17</sup> *Id.*

<sup>18</sup> *Id.*



portion of the legislation.<sup>19</sup> SB 332 also authorizes utility companies to count energy improvements funded by SIDs toward the energy efficiency and peak demand reduction benchmarks they are required to meet due to other legislation.<sup>20</sup> HB 1 and SB 232 were modeled after Berkeley California’s “Financing Initiative for Renewable and Solar Technology” (FIRST) program.<sup>21</sup> Under Ohio law, municipality funded energy efficiency improvements are available for residential, commercial, industrial, non-profit and governmental properties.<sup>22</sup>

Ohio’s legislation has many of the characteristics typical of PACE programs. ESIDs are not required to be one contiguous area, but rather can include different parts of the city or township.<sup>23</sup> The program is completely voluntary, unlike traditional tax assessments designed to pay for neighborhood services.<sup>24</sup> Property owners must apply for funding by petitioning for an assessment, which is subject to the approval of the city or township.<sup>25</sup> Any improvements must comply with local zoning and environmental regulations.<sup>26</sup> These special assessments can be levied for up to 30 years.<sup>27</sup> The ESID and city or township will be responsible for administering the program, decide on criteria for eligibility, and pre-qualify installers.<sup>28</sup>

Improvements to properties could be eligible for a variety of incentives, and coupling these incentives can dramatically change a project’s cost profile. Communities would use bonding authority to provide initial funding for an ESID, thereafter revolving proceeds would theoretically sustain the fund. Proceeds from general obligation bonds or special obligation bonds can be used to fund energy efficient improvements and the assessment revenue will be used to pay the debt service on those bonds.<sup>29</sup> Special obligation revenue bonds would be issued by another entity other than the city or township, such as a Port Authority or the Ohio Air Quality Development Authority.<sup>30</sup> Five Ohio Port Authorities and the ODQDA are approved “development finance organizations” and are therefore eligible for DOE loan guarantees.<sup>31</sup> Determining what sources of financing to use is just one of several steps necessary to implement an Ohio SID, or any PACE program.

<sup>19</sup> *Id.*

<sup>20</sup> *Id.*; See O.R.C. Section 4928.66. Specifically, SB 232 allows investor owned utilities to count the electric energy savings produced by a special improvement district towards peak demand and energy efficiency benchmarks proscribed by law.

<sup>21</sup> *Bond Financing Mechanisms for Public & Private Energy Projects*, Bricker & Eckler, September 2010, at slide 13, available at: <http://www.bricker.com/documents/publications/2032.pdf>.

<sup>22</sup> *Id.* at slide 16.

<sup>23</sup> *Id.*; see ORC 1710.02(A).

<sup>24</sup> *Id.*; see ORC 1710.02(E), ORC 110.06(B)

<sup>25</sup> *Id.*; see ORC 1710.02(F).

<sup>26</sup> See ORC 1710.02(E).

<sup>27</sup> See ORC 1710.02 (F).

<sup>28</sup> *Property Assessed Clean Energy (PACE) Financing and Ohio’s Special Improvement District (SID) Law: The Impact of SB 232*, Bricker & Eckler, July 7 2010, at slide 21, available at: <http://www.bricker.com/documents/publications/1971.pdf>.

<sup>29</sup> *Id.* at slide 20; see ORC 1710.06(A)(5); ORC 1710.07(F); ORC 727.34.

<sup>30</sup> *Id.* at slide 21.

<sup>31</sup> *Id.*

The steps which a community would need to be take to establish an ESID are as follows:

- 1) Draft a petition to create a SID and outline the specific improvements desired<sup>32</sup>
- 2) Property owners sign the petition<sup>33</sup>
- 3) Developer creates a plan for the improvements to be made and drafts SID Articles of Incorporation<sup>34</sup>
- 4) The petition, plan, and Articles are review by City Council, which will take approximately 60 days<sup>35</sup>
- 5) City Council will ideally approve and pass legislation to create the SID and adopt the plan and Articles<sup>36</sup>
- 6) City Council must also approve a Resolution of Necessity, detailing the special assessment and estimating the amount of the assessment<sup>37</sup>
- 7) Notice of the City Council's Resolution of Necessity and the estimate of the assessment will be sent by certified mail to the SID property owners or published in a newspaper of general circulation within the SID for two weeks<sup>38</sup>
- 8) SID property owners will have an opportunity to file objections to the estimated assessment with the Clerk of Council<sup>39</sup>
- 9) City Council will then adopt the Assessment Ordinance, which finalizes the assessment estimates,<sup>40</sup> and certify the special assessments levied to the County Auditor to be put on the property tax list<sup>41</sup>
- 10) Approximately 60 days before the initial meeting of the SID, notice will be sent to SID property owners<sup>42</sup>
- 11) The initial meeting will take place and a Board of Directors will be elected<sup>43</sup>
- 12) The SID will receive the assessment amount through the County Auditor settlement process<sup>44</sup>

The Northeast Ohio Advanced Energy District in Cleveland was the first Ohio ESID to complete the implementation process.<sup>45</sup> It was created by the City of Cleveland and the

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<sup>32</sup> *Energy SID Formation Process*, Bricker & Eckler, available at:

<http://www.bricker.com/documents/resources/energysid.pdf> ; see ORC 1710.02(F).

<sup>33</sup> *Id.*; see ORC 1710.02(B), (F); ORC 1710.06(B).

<sup>34</sup> *Id.*

<sup>35</sup> *Id.*

<sup>36</sup> *Id.*

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*

<sup>40</sup> See ORC 1710.02(F); ORC 1720.06(C).

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> *Id.*

<sup>44</sup> *Id.*

<sup>45</sup> *About Us*, Northeast Ohio Advanced Energy District, available at:

<http://www.neoaed.org/view1.php?page=aboutus>.

surrounding municipalities of the First Suburbs Development Council.<sup>46</sup> It will only offer energy efficiency improvement funding for commercial and industrial property owners,<sup>47</sup> so FHFA's actions have not greatly affected the program. AED is currently accepting proposals for funding sources from financial consultants, but has plans to start the initial pilot round of financing as soon as possible.<sup>48</sup> Rather than following the previous sequence of steps, AED is using a process based of the DOE's commercial PACE program guidelines:

- 1) Review and Address Issues: Become familiar with issues related to PACE and factor their impact into program design and implementation
- 2) Establishment supporting framework: Lay a solid foundation for the program in the areas of team composition, goals, legislation, and assessment district formation
- 3) Choose capital sourcing approaches: Choose how the financing will be funded
- 4) Choose credit enhancement and apply for the American Recovery and Reinvestment Act of 2009 funds: Decide how to achieve the best interest rates for the program and how best to apply and leverage those funds to fit the program's design
- 5) Choose eligible property types: Select the commercial property types eligible for the program
- 6) Assemble eligible project measures: Draw up a list of project measures eligible for PACE financing
- 7) Choose energy audit requirements: Decide the types of energy audits applicants will be required to undergo to assess expected project energy/cost savings
- 8) Choose program eligibility criteria: Determine the program underwriting/eligibility criteria that applicants and their properties must meet
- 9) Leverage existing utility rebate/incentive programs: Investigate local utility rebate/incentive programs and how best to leverage them
- 10) Plan quality assurance/quality control: Decide how the program will ensure that project work meets program quality standards and how to guard against fraud
- 11) Design application processing procedures: Design the process for reviewing applications and either approving or rejecting them
- 12) Specify contractor requirements: Specify the requirements for energy auditors and contractors to participate in the program
- 13) Market and launch program: Decide what kind of outreach will be made to property owners and contractors and launch the program<sup>49</sup>

The Northeast Ohio Advanced Energy District is currently working on step three so it is still in the early stages of the process, but is looking to soon deploy programs.

<sup>46</sup> <http://www.neoaed.org/view1.php?page=aboutus>

<sup>47</sup> PACE, Northeast Ohio Advanced Energy District, *available at*: <http://www.neoaed.org/view.php?page=pac>.

<sup>48</sup> See generally *Request for Qualifications*, Northeast Ohio Advanced Energy District, *available at*: [http://www.neoaed.org/docs/Final%20AED%20RFQ\\_Financial%20Consultant\\_032511.pdf](http://www.neoaed.org/docs/Final%20AED%20RFQ_Financial%20Consultant_032511.pdf).

<sup>49</sup>The Department of Energy, *Clean Energy Finance Guide*, 3<sup>rd</sup> Ed., Ch. 13, at 4, *available at*: [http://www.neoaed.org/docs/Exhibit%20B\\_Clean%20Energy%20Finance%20Guide,%20Third%20Edition\\_Dec%20010.pdf](http://www.neoaed.org/docs/Exhibit%20B_Clean%20Energy%20Finance%20Guide,%20Third%20Edition_Dec%20010.pdf) p 4.

### **On Bill or “Pay As You Save” Programming**

As discussed in detail in other sections, a “Pay as You Save” or On-Bill program option utilizes utility Bill mechanisms to provide energy efficiency services and a viable pay back mechanism. Through this type of program, a large series of energy efficiency measures are offered to customers; if customers choose to participate in the program a specific line item appears in their utility bill. Through this line item, the customer over a set period of years pays back the costs of the installed measures. This is an attractive recovery mechanism for a variety of reasons. First, the installed measures follow the bill, not the customer; meaning that properties can change hands and renters can participate.

The same municipal authority for the delivery of power and the provision of basic energy efficiency services would allow a municipal utility to provide this type of program. For instance, under the extensive contracting authority granted to utility managers to procure services this type of program would be legally permissible under these contracting powers:

“In a city in which a water works, electric light plant, artificial or natural gas plant, or other similar public utility is owned by the city, the director of public service, with the consent of the legislative authority thereof, may enter into and contract with the owners of any power plant or of any hydraulic or other natural or artificial watercourse to furnish power for the propelling of machinery in the water works, electric light plant, artificial or natural gas plant, or other similar public utility of the city, or acquire such power privileges by purchase or transfer from others owning such rights.<sup>50</sup>”

This section in the revised code essentially allows utility managers to contract directly for electric services; these services could be outlined in a utility bill. Municipal utilities commonly separate a variety of charges on utility bills, reimbursing from customers the cost of generation, transmission, or other components of electricity service.

City Council authority would be necessary for the development of this type of program. If electric or gas efficiency measures will be paid back through a municipal electric bill, the very same authority by which a municipal authority provides power would be sufficient for the provision of services. If recovery will occur on the municipal bill, authority will extend through ordinances that allow the provision of a variety of city services.

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<sup>50</sup> ORC Sec. 735.08

On bill programming will require a specific ordinance that will allow the utility to borrow or procure financing for the overall program, contract for the individual energy efficiency services and individual measures, alter a bill to provide for payback, and provide for non-payment consequences.

Currently, municipal utility companies have the authority to shut of service for non-payment of bills. Right now failure to make payments for services can result in shut-off and the instigation of recovery through a collection service. As discussed in other materials, utility shut-off as a form of security is probably not an option for the city of Oberlin and OMLPS. Accordingly, Oberlin may instead look for another security option. This alternative security option is a loan loss reserve, and the legal justification for this option is outlined below.

### **Signature Loans**

Signature loans are the simplest program option from a legal standpoint. These loans would operate as follows; an entity would contract with the city or the utility to provide the energy efficiency financing and measures. An additional option would be that the local municipal utility or another municipally sponsored organization would issue the financing and contract to provide the measures to customers.

Essentially, a private or non-profit entity has the authority to provide a signature loan through a basic bi-lateral contractual arrangement between the private or non-profit entity and the homeowner. Security for the loan is outlined in the contract.

In order to deploy this type of program, the municipality would have to pass legislation authorizing the utility to contract for the efficiency services and the provision of financing services. This legislation would delegate contracting authority to the municipal utility or another entity.

### **On Bill Light**

As discussed above, a “Pay as You Save” or On-Bill program option utilizes utility Bill mechanisms to provide energy efficiency services and a viable pay back mechanism. Through this type of program, a large series of energy efficiency measures are offered to customers; if customers choose to participate in the program a specific line item appears in their utility bill. Through this line item, the customer over a set period of years pays back the costs of the installed measures.

In an “On Bill Light” scenario, a utility bill shut off is not the security for payment. Instead, security for financing is assured through a loan-loss reserve. A loan-loss reserve is a dedicated fund that covers potential losses from non-payment. From a program standpoint, this mechanism adds cost to the potential program, but it also provides assurance and comfort to the municipal utility and to the participating customers.

That noted, from a legal standpoint the rational, justification, and legal basis does not change. As noted above, the same municipal authority for the delivery of power and the provision of basic energy efficiency services would allow a municipal utility to provide this type of program. Under the extensive contracting authority granted to utility managers to procure services this type of program would be legally permissible under these contracting powers:

“In a city in which a water works, electric light plant, artificial or natural gas plant, or other similar public utility is owned by the city, the director of public service, with the consent of the legislative authority thereof, may enter into and contract with the owners of any power plant or of any hydraulic or other natural or artificial watercourse to furnish power for the propelling of machinery in the water works, electric light plant, artificial or natural gas plant, or other similar public utility of the city, or acquire such power privileges by purchase or transfer from others owning such rights.<sup>51</sup>”

This section in the revised code essentially allows utility managers to contract directly for electric services; these services could be outlined in a utility bill; regardless of the mechanisms provided for security for payment.

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<sup>51</sup> ORC Sec. 735.08

*Sample Resolutions (PACE):*

ORDINANCE NO. \_\_\_\_\_

An ordinance accepting the petition of the “Oberlin Energy Authority” to create an Energy Special Improvement District under Ohio Revised Code Chapter 1710; authorizing the Mayor and the President of Council to designate members to serve on the Board of Directors of the nonprofit corporation that will govern the Energy Special Improvement District; approving the Articles of Incorporation of the nonprofit corporation and the initial plan of operation for the District; and declaring an emergency.

## SUMMARY AND BACKGROUND

On \_\_\_\_\_ the Energy Policy Committee of the Oberlin Project recommended the adoption of a community energy efficiency program utilizing Property Assessed Clean Energy project financing.

The Energy Policy Committee of the Oberlin Project is a group of key stakeholders and experts across Oberlin who have worked diligently to develop clean energy strategies for the city through collaboration with outside advisors and a series of community engagement efforts.

In June of 2010, the State Legislature passed Senate Bill 223 which permits the establishment of Energy Special Improvement Districts or “ESIDs”. If a municipality or a township establishes an ESID, property owners within the district can pay for energy efficiency and renewable energy improvements to their properties by way of special assessments. The process is entirely voluntary and no property owner is required to participate.

This legislation authorizes the creation of an ESID with the \_\_\_\_\_ as the initial member. The municipality creating the ESID appoints two individuals to the nonprofit corporation that governs the ESID, one appointment by the Mayor and one by the Council. This legislation authorizes the Mayor to make such an appointment and authorizes the President of Council to make an appointment on behalf of the Council. This legislation also approves the Articles of Incorporation of the ESID, which will be known as the Oberlin Energy Authority and the Initial Plan for the Improvements, Services, and Operation of the Oberlin Energy Authority. Copies of these documents are on file with the Clerk of Council and available for public inspection.

This legislation is just the first step in the process of financing special energy improvement projects within the ESID. The \_\_\_\_\_ has identified its initial project as energy efficiency improvements to the \_\_\_\_\_, Oberlin, Ohio \_\_\_\_\_. The preliminary plan calls for the following energy efficiency elements:

1. (description of measure); (estimated annual savings); (installed costs); (simple payback).
2. (description of measure); (estimated annual savings); (installed costs); (simple payback).
3. (description of measure); (estimated annual savings); (installed costs); (simple payback).
4. (description of measure); (estimated annual savings); (installed costs); (simple payback).

Total estimated annual savings - \$ \_\_\_\_\_

Total Installed cost - \$ \_\_\_\_\_

Overall Simple payback – \_\_\_ years

Following the approval of this legislation, the (Petitioner Organization) will then develop the detailed plans and specifications for the project and determine the amount and length of the special assessments that will need to be levied to pay for the project. At that time, the (Petitioner Organization) will formally petition the City to levy the special assessments for the project.

The Administration recommends the passage of this Ordinance as an emergency measure.  
NOW, THEREFORE,

Be it ordained by the Council of the City of Oberlin:

Section 1. The Council hereby approves the petition of the (Petitioner Organization) for the creation of an Energy Special Improvement District (“ESID”) pursuant to Chapter 1710 of the Ohio Revised Code, as well as the Articles of Incorporation of the (Official Oberlin ESID Corporation), and the Initial Plan for the Improvements, Services and Operation of the (Official Oberlin ESID Corporation).

Section 2. It is hereby found and determined that all meetings respecting this Ordinance and all committee meetings were open meetings in accordance with law.

Section 3. This Ordinance shall become effective at the earliest time allowed by law.

\*Note: Cannot vote on emergency clause: [SEE R.C.1710.06(B)].

Passed: \_\_\_\_\_, 2011; yeas: \_\_\_\_\_; nays: \_\_\_\_\_

Attest: \_\_\_\_\_  
President of Council

Approved: \_\_\_\_\_, 2011. \_\_\_\_\_  
Mayor



**PETITION TO THE CITY OF OBERLIN FROM (PETITIONER ORGANIZATION) TO ESTABLISH AN ENERGY SPECIAL IMPROVEMENT DISTRICT**

**A PETITION TO THE CITY OF OBERLIN FOR THE ESTABLISHMENT OF AN ENERGY SPECIAL IMPROVEMENT DISTRICT UNDER CHAPTER 1710 OF THE OHIO REVISED CODE; PROPOSED ARTICLES OF INCORPORATION OF THE NONPROFIT CORPORATION TO GOVERN THE DISTRICT; INITIAL PLAN FOR THE DISTRICT AND PROPOSED INITIAL SPECIAL ENERGY IMPROVEMENT PROJECT FOR THE DISTRICT; AND PLAN FOR THE ASSESSMENT OF THE COSTS OF THE PROJECT AGAINST THE PETITIONING PROPERTY OWNER AND MEMBER OF THE DISTRICT SPECIALLY BENEFITTED BY THE SPECIAL ENERGY IMPROVEMENT PROJECT**

To the Mayor and Council of the City of Oberlin, Ohio:

The (Petitioner Organization), acting through its undersigned (Executive Director or Representative) and as duly authorized by all necessary action of the Board of Directors of the (Petitioner Organization), does hereby petition the City of Oberlin for the establishment of an Energy Special Improvement District (hereinafter "ESID") in accordance with Chapter 1710 of the Ohio Revised Code. In accordance with Chapter 1710, the purpose of the district is to develop and implement plans for public improvements and public services that benefit the district, but limited to special energy improvement projects as provided for in Chapter 1710, including but not limited to energy efficiency improvements and customer-generated energy projects.

The ESID shall be governed by the board of trustees of the nonprofit corporation to be formed known as (Official Oberlin ESID Corporation)(hereinafter "the Corporation"). The Articles of Incorporation of the Corporation are attached to this Petition as **Exhibit A**. There shall be at least five (5) but no more than fifteen (15) members of the board of directors of the Corporation, with the Mayor of Oberlin appointing one (1) director, the Council of the City of Oberlin appointing one (1) director, and the (Petitioner Organization), as the initial member of the Corporation appointing three (3) directors. At the time the Corporation adds additional territory and members, such members shall be entitled to participate in the selection of members of the board of directors in accordance with law and the provisions of the Corporation's Code of Regulations.

The ESID may be expanded to include any parcel of property located within the geographical boundaries of the City of Oberlin (as those boundaries now exist or may be hereafter amended) provided that the parcel of property is approved to be added to the ESID by the vote of a majority of the members of the board of directors, and so long as each such additional parcel includes a proposed special energy improvement project. The Initial Plan for the district is set forth on the attached **Exhibit B**, and includes one parcel of property owned by the sole Petitioner, the (Petitioner Organization). The description of the parcel of property is attached to this Petition as **Exhibit C**.

In accordance with Revised Coded Chapter 1710, the Council of the City of Oberlin shall, within sixty (60) days of submittal, approve or disapprove this Petition and the Articles of Incorporation of the Corporation. Upon such approval, a second petition will be submitted to the City seeking to commence the process of special assessments to pay the costs of the special energy improvement projects and the costs of the Plan for Improvements and Services for the ESID.

**IN WITNESS WHEREOF**, the (Petitioner Organization) has caused this Petition to be executed by \_\_\_\_\_, in her/his official capacity as (Representative), as of \_\_\_\_, \_\_\_\_, 2011.

**(PETITIONER ORGANIZATION)**

By: \_\_\_\_\_

(Representative)

STATE OF OHIO            )  
  ) SS:  
COUNTY OF LORAIN        )

On this \_\_\_\_ day of \_\_\_\_\_, 2011, before me, a Notary Public, in and for said County and State, personally appeared \_\_\_\_\_, \_\_\_\_\_, (Petitioner Organization), who affirmed that pursuant to due authorization he executed the within and foregoing instrument, and that the same is his free act and deed, and the free act and deed of said (Petitioner Organization).

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my official seal on the day and year aforesaid.

\_\_\_\_\_  
Notary Public

**ADDITIONAL PROVISIONS OF THE ARTICLES OF INCORPORATION OF OFFICIAL OBERLIN ESID CORPORATION**

**SIXTH:**

(A) The Corporation is organized as a district management corporation representing real property owners within a special improvement district which shall be located within the City of Oberlin as well as communities to be identified at a future time. The Corporation is established pursuant to Ohio Revised Code Chapters 1702 and 1710.

(B) The purpose of the Corporation shall be to develop and implement special energy improvement project as defined in Revised Code Chapter 1710, including energy efficiency and clean and renewable energy projects at the locations within the Energy Special Improvement District (“ESID”). The Corporation and the ESID will be conducive to and promote the public health, safety, peace, convenience and general welfare by creating projects that conserve energy and create a cleaner environment, lead to energy independence, create jobs and economic growth and development, especially jobs in the new energy economy, and promote the general welfare in the area of the ESID and the participating political subdivisions.

(C) Notwithstanding any other provision of these Articles of Incorporation, the Corporation shall not be operated or carry on any activities, and no part or portion of the assets or net earnings of the Corporation shall be used, for any purposes not permitted for an organization exempt from federal income taxation under Section 501(c)(3) of the Code or the corresponding provisions of any subsequent federal law.

(D) The Corporation is not organized for pecuniary profit and shall not be operated for the primary purpose of carrying on a trade or business for a profit. No part of the net earnings of the corporation shall inure to any member of the corporation not qualifying as exempt under Section 501(c)(3) of the Internal Revenue Code of 1986 as now enacted or hereafter amended, nor to any Director or officer of the Corporation, nor to any other private persons, excepting solely such reasonable compensation that the corporation shall pay for services actually rendered to the Corporation, or allowed by the Corporation as a reasonable allowance for authorized expenditures incurred on behalf of the Corporation.

**SEVENTH:** No substantial part of the activities of the Corporation shall constitute the carrying on or propaganda or otherwise attempting to influence legislation, or any initiative or referendum before the public, and the Corporation shall not participate in, or intervene in (including by publication or distribution of statements), any political campaign on behalf of, or in opposition to, any candidate for public office.

**EIGHTH:** Notwithstanding any other provision of these Articles, the Corporation shall not carry on any other activities not permitted to be carried on by a corporation exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Code of 1986, as now enacted or hereafter amended.

**NINTH:** The Corporation shall not lend any of its assets to any officer or director of this Corporation or guarantee to any person the payment of a loan by an officer or director of the Corporation.

**TENTH:** The ESID shall encompass the geographical boundaries of the city of Oberlin, Ohio; provided, however, that no parcel of property shall be included in the ESID except upon the owner’s voluntary agreement to be included. In accordance with Revised Code Chapter 1710, the owner of each parcel of property within the ESID for which a special energy improvement project is provided for in the ESID’s Plan for Improvements and Services shall be a member of the Corporation and possess all the rights of a member as provided under law. In accordance with Revised Code Chapter 1710, the Corporation shall be governed by its board of directors which shall consist of at least five (5) directors, and the initial organization of the Corporation shall provide for five (5) directors, and may be expanded to no more than fifteen (15) board members in accordance with the Corporation’s Code of Regulations. The board shall include a person appointed by the legislative authority of each participating political subdivision and the municipal executive of each municipal corporation with territory within the boundaries of the ESID. The remainder of the board’s members shall be members of the district.

**ELEVENTH:** The Articles of Incorporation of the Corporation may be amended by the action of two-thirds of the members of the board of directors; provided, however, that no such amendment shall divest any member of the Corporation of any rights granted under Revised Code Chapters 1702 and 1710, and provided further that all participating political subdivisions shall approve such amendment by resolution and the resolution and amendment shall be filed with the Secretary of State. The Corporation may be dissolved by action of its members in accordance with the provisions of Revised Code Chapter 1710.

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(Representative)

**INITIAL PLAN FOR THE IMPROVEMENTS, SERVICES AND OPERATION OF THE (OFFICIAL OBERLIN ENERGY SPECIAL IMPROVEMENT DISTRICT)**

**I. Overview.**

This Initial Plan for the Improvements, Services and Operation of the (Official Oberlin Energy Special Improvement District) (“the Initial Plan”) has been developed in accordance with the requirements of Revised Code Chapter 1710 of the Ohio Revised Code and is being submitted to the City of Oberlin for approval. The public improvements and public services to be provided hereunder will be in addition to, and not in lieu of, any public improvements or public services provided by any participating political subdivision. The geographical area of the District may extend to any parcel of property within the boundaries of the any participating municipality or township, provided that the parcel of property is approved to be added to the energy special improvement district (“ESID”) by the vote of a majority of the members of the Board of Directors, and so long as each such additional parcel includes a proposed special energy improvement project.

The District shall undertake such energy improvement projects and render such related services as its Board of Directors shall authorize and approve, and for the purpose of paying the costs of such projects and services, participate in the process of levying special assessments in accordance with the applicable provisions of Revised Code Chapters 1710 and 727.

The District shall offer energy efficiency programs and renewable energy programs to property owners within the District. These programs may include options such as energy audits, the installation of efficiency equipment, and retrofit of buildings with high-efficiency materials, renewable energy installations including wind, solar energy, biomass, or any other current or future technology contemplated by Revised Code Chapter 1710 or any other similar law. The District may enter into arrangements and contracts with businesses, municipal or investor owned utilities or other entities to provide energy efficiency and alternative and advanced energy services to businesses and individuals.

## **II. Operation of the District.**

The District is created by legislative action taken by participating political subdivisions (municipal corporations and townships) and is governed by a Board of Directors of a nonprofit corporation, the (Official Oberlin ESID Corporation) (“the Corporation”). The District shall initially operate through the donated services and facilities of its members. The Corporation, acting for the District, may hire employees, acquire professional services and occupy facilities upon the approval of the Board of Directors if the costs of such employees, services and facilities are specified in a subsequent amendment of this Plan. The Board of Directors shall seek contributions from its members to provide for necessary liability and other insurance until such time as the District has identified an ongoing source of funds for its operation.

Upon the first meeting of the members of the District, who shall be members of the Corporation, the members shall select members of the Board of Directors of the Corporation, in addition to the members of the Board of Directors selected by the mayor and council of the participating political subdivisions. The Board shall adopt a Code of Regulations which shall address all other matters of operation that are not otherwise dictated by the Articles of Incorporation or provided for as a matter of law. Each parcel in the District shall be represented by one owner, no matter if more than one person or entity has an ownership interest in the parcel. Similarly, if an owner owns more than one parcel in the District, the owner shall nevertheless be entitled to only one vote as a member of the District and member of the Corporation.

The members of the Board of Directors shall elect a Chairperson, Vice-Chairperson, Secretary, and Treasurer of the Board. These officers shall serve at the Board’s pleasure. A Director may be elected to more than one office, except that the Director elected as Treasurer shall not be elected to any other office of the Board.

By the first day of March of each year, the Treasurer shall submit to each member of the District and to the municipal executive, chief fiscal officer, and legislative authority of each municipal corporation with territory within the boundaries of the District and the board of township trustees of each township with territory within the boundaries of the District, a report of the District’s activities and financial condition for the previous year.

## **III. Adding Members to the District**

Upon approval by a majority of the members of the Board, parcels of property within the area of the participating political subdivisions may be added to the District and the owner of that parcel shall become a member of the District with all of the rights of members as provided under law. If a property owner not within the area of one of the District's participating political subdivisions submits an application to become a member, and a majority of the Board approves the application, the Corporation and the property owner shall jointly submit a petition to the political subdivision in question to bring the parcel into the District. In all cases, the parcel shall have a plan for a special energy improvement project on the parcel.

#### **IV. Plan for Public Improvements and Public Services**

This initial Plan calls for one specific special energy improvement project to be undertaken on a parcel of property owned by the (Petitioner Organization) which has acted as the petitioner in creating the District. The TLCPA's special energy improvement project consists of:

##### **NAME OF PROPERTY AND ADDRESS**

The initial project involves the property owned by the (Petitioner Organization) at the (Property Location). The legal description of the property is set forth on the attached Exhibit A-1. The property consists of a total of approximately \_\_\_ acres, including land, buildings and improvements. Although the property is exempt from taxation, it is subject to special assessments for energy improvements in accordance with Revised Code Chapter 1710. The Lucas County Auditor currently assesses the land at a fair market value of \$\_\_\_\_\_ and the buildings and improvements at \$\_\_\_\_\_ for a total of \$\_\_\_\_\_.

The facility is currently occupied by the following tenants: \_\_\_\_\_,  
\_\_\_\_\_, and \_\_\_\_\_.

The initial Project is expected to consist of the following energy efficiency elements:

1. (description of measure); (estimated annual savings); (installed costs); (simple payback).
2. (description of measure); (estimated annual savings); (installed costs); (simple payback).
3. (description of measure); (estimated annual savings); (installed costs); (simple payback).
4. (description of measure); (estimated annual savings); (installed costs); (simple payback).

Total estimated annual savings - \$\_\_\_\_\_

Total Installed cost - \$\_\_\_\_\_

Overall Simple payback – \_\_\_ years

In addition the initial Project may include certain renewable energy components. (Description of current renewable energy plans and initiatives, provisions for possible renewable energy improvements.)

This Initial Plan calls for funding the energy efficiency improvements, in whole or in part, through the special assessment process described in Chapter 1710 of the Revised Code. Assuming the overall costs are \$\_\_\_\_\_, and assuming further that one-half of the costs are paid through special assessments over the course of 10 years, the assessment schedule would call for 20 semi-annual payments of \$\_\_\_\_\_.

The District may undertake educational activities to advise property owners throughout the participating political subdivisions and in areas in which political subdivisions may elect to join the District about the benefits of participation in the District.

The District shall update its Plan as necessary to reflect the additional activities and additional energy special improvement projects it intends to undertake.

As owners of parcels desiring the assistance of the District in undertaking special energy improvement projects are identified, considered and approved by the Board, such parcels will be added to the District and the owners of the parcels will become members entitled to the rights of membership under law and the Articles of Incorporation.

As authorized pursuant to R.C. 1710.06, the District may enter into contracts with the participating political subdivisions for the sale, lease, lease with an option to purchase, conveyance of other interests in, or other contracts for the acquisition, construction, maintenance, repair, furnishing, equipping, operation, or improvement of any special energy improvement project by the special improvement district, between a participating political subdivision and the special improvement district, and between the special improvement district and any owner of real property in the special improvement district on which a special energy improvement project has been acquired, installed, equipped, or improved. Further, in accordance with the statute, the District may aggregate the renewable energy credits generated by one or more special energy improvement projects within District, upon the consent of the owners of the credits and for the purpose of negotiating and completing the sale of such credits.

## **EXHIBIT F**

### **TO ENERGY SERVICES AGREEMENT BETWEEN THE CITY OF OBERLIN AND THE (PETITIONER ORGANIZATION)**

This Exhibit F further defines and describes the roles and responsibilities of Oberlin and the (Petitioner Organization) during the Construction and Implementation Phase of the Energy Services Agreement.

During the Construction and Implementation Phase, the (Petitioner Organization) shall serve as the agent of Oberlin and enter into contracts on behalf of Oberlin for the delivery of ECMs. Oberlin shall retain the rights of an owner, with the authority to control and direct the actions of the (Petitioner Organization) during such Construction and Implementation Phase. The (Petitioner Organization) will confer and consult with Oberlin concerning the selection of contractors or subcontractors; however, unless Oberlin has provided the (Petitioner Organization) with prior written notice of its objection to the selection of any contractor or subcontractor, Oberlin waives any such objection to the (Petitioner Organization's) selection of the contractor or subcontractor.

As the agent for Oberlin, neither the (Petitioner Organization) nor its employees or officials shall be liable for the acts or omissions of the contractors or subcontractors performing the work on Oberlin's buildings to the extent not caused by the sole negligence of the (Petitioner Organization) in its role as contract administrator. The (Petitioner Organization) shall have no liability for the failure of contractors or subcontractors to meet construction schedules, for the quality of their work or for any defects in their work unless the failure or defect results directly from the (Petitioner Organization) breaching the standard of professional skill, care and diligence applicable to its supervision of the contractors or subcontractors. Oberlin agrees to provide the (Petitioner Organization) with prompt and timely responses on all matters referred to Oberlin concerning the work and concerning this Agreement.

Oberlin may at any time, upon reasonable (but not less than 10 days) written notice to the (Petitioner Organization), elect to assume any construction contract and directly manage the performance of the work; provided, however, that should Oberlin exercise that right, the (Petitioner Organization) shall have the option to require Oberlin to assume all such contracts for any of the work; and provided further, that Oberlin shall be obligated to fully reimburse the (Petitioner Organization) for all costs and expenses incurred by the (Petitioner Organization) incurred on the project.

The (Petitioner Organization) may at any time, upon reasonable (but not less than 10 days) written notice to Oberlin, elect to terminate its agency relationship with respect to any contracts and substitute Oberlin in place of the (Petitioner Organization) with respect to such contracts; provided, however that the (Petitioner Organization) shall cooperate fully with Oberlin to provide for a proper transition of responsibilities.

Oberlin authorizes (Petitioner Organization) to make any and all payments to contractors or subcontractors concerning the work, and make any and all other expenditures the (Petitioner Organization) determines to be necessary for the work from any funds then available to the (Petitioner Organization). Oberlin agrees to fully pay for and reimburse the (Petitioner Organization) for any and all such expenditures.

Oberlin agrees that the (Petitioner Organization) may act on behalf of Oberlin in any dispute involving a contractor or subcontractor and resolve any claims provided that such resolution of claims may not increase the overall amount that Oberlin has authorized for any given building project. Oberlin must approve any resolution that increases its financial obligation beyond that contained in any authorizing legislation. In the event of any litigation involving any claims concerning the work, Oberlin agrees that it will be solely responsible for any judgments or settlements, and the (Petitioner Organization) shall be relieved of any and all liability except for acts of gross negligence. The (Petitioner Organization) will cooperate with and support Oberlin in any litigation, mediation or arbitration involving contractor or subcontractor claims relating to work under the Energy Services Agreement.

Oberlin agrees to provide the (Petitioner Organization) with all reasonable assurances concerning the condition of its buildings upon which the (Petitioner Organization) may rely and convey to contractors or subcontractors as necessary for the performance of the work. Oberlin shall execute all other and further documents and instruments as the (Petitioner Organization) may reasonably request in order accomplish the work.



Both parties waive and release the other party from and agree that such party shall have no liability for any claims for indirect, special, incidental, consequential or punitive damages or payment of the other party's attorneys' fees.

*Sample Legislation (Pay as you Save):*

**City of Oberlin, Ohio**

ORDINANCE No. \_\_\_\_\_

**AN ORDINANCE AUTHORIZING OBERLIN MUNICIPAL LIGHT AND POWER SYSTEM TO DEVELOP AN ON-BILL ENERGY EFFICIENCY FINANCING PROGRAM**

WHEREAS, Oberlin Municipal Light and Power System desires to create whole-home energy efficiency solutions for all eligible customers; and,

WHEREAS, Oberlin Municipal Light and Power System has secured financing for an initial subscription of \_\_\_\_\_ customers through \_\_\_\_\_.

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Oberlin, County of Lorain, State of Ohio, five-sevenths (5/7ths) of all members elected thereto concurring:

SECTION 1. That the City Manager is hereby authorized and directed to issue a request for proposals for administration of an on-bill energy efficiency program, to select a program administrator upon receipt of proposals.

SECTION 2. That the Utility Manager is hereby authorized and directed develop billing materials for participating program customers that reflects the costs and anticipated payback of installed energy efficiency measures.

SECTION 3. That the selected program administration through the direction of the Utility Manager shall contract for and provide to participating customers a suite of energy efficiency measures and options that shall produce savings for customers.

SECTION 4. That participating customers shall be responsible for payback of the cost of measures plus the appropriate financing costs through a charge on their utility bill.

SECTION 5. That the Utility Manager is hereby authorized to deny or shut off electric service for non-payment of outstanding bills, including charges associated with energy efficiency measures, according to procedures already established and adopted for the non-payment of outstanding utility balances.

SECTION 6. That this ordinance is hereby declared an emergency measure necessary for the immediate preservation of the public peace, health and safety of the citizens of the City of Oberlin, Ohio, or to provide for the usual daily operation of a municipal department, to wit:

“To authorize services necessary to complete energy efficiency investments for participating customers of Oberlin Municipal Light and Power System”

and shall take effect immediately upon passage.

PASSED:           1st Reading –  
                          2nd Reading –

3rd Reading –

ATTEST:

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CLERK OF COUNCIL  
POSTED:

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PRESIDENT OF COUNCIL  
EFFECTIVE DATE:

*Sample Legislation (Signature Loan):*

**City of Oberlin, Ohio**

ORDINANCE No. \_\_\_\_\_

**AN ORDINANCE AUTHORIZING OBERLIN MUNICIPAL LIGHT AND POWER SYSTEM TO DEVELOP AN ENERGY EFFICIENCY FINANCING PROGRAM**

WHEREAS, Oberlin Municipal Light and Power System desires to create whole-home energy efficiency solutions for all eligible customers; and,

WHEREAS, Oberlin Municipal Light and Power System has secured financing for an initial subscription of \_\_\_\_\_ customers through \_\_\_\_\_.

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Oberlin, County of Lorain, State of Ohio, five-sevenths (5/7ths) of all members elected thereto concurring:

SECTION 1. That the City Manager is hereby authorized and directed to issue a request for proposals for administration of an on-bill energy efficiency program, to select a program administrator upon receipt of proposals.

SECTION 2. That the Utility Manager is hereby authorized and directed to allocate the secured financing referenced in Section 1 to the program administrator.

SECTION 3. That the selected program administration through the direction of the Utility Manager shall contract bi-laterally with Oberlin Municipal Light and Power System customers to provide energy efficiency measures and services.

SECTION 4. That this ordinance is hereby declared an emergency measure necessary for the immediate preservation of the public peace, health and safety of the citizens of the City of Oberlin, Ohio, or to provide for the usual daily operation of a municipal department, to wit:

“To authorize services necessary to complete energy efficiency investments for participating customers of Oberlin Municipal Light and Power System”

and shall take effect immediately upon passage.

PASSED:        1st Reading –  
                    2nd Reading –  
                    3rd Reading –

ATTEST:

\_\_\_\_\_

CLERK OF COUNCIL  
POSTED:

\_\_\_\_\_

PRESIDENT OF COUNCIL  
EFFECTIVE DATE:

*Sample Legislation (On-Bill Light):*

**City of Oberlin, Ohio**

ORDINANCE No. \_\_\_\_\_

**AN ORDINANCE AUTHORIZING OBERLIN MUNICIPAL LIGHT AND POWER SYSTEM TO DEVELOP AN ON-BILL ENERGY EFFICIENCY FINANCING PROGRAM**

WHEREAS, Oberlin Municipal Light and Power System desires to create whole-home energy efficiency solutions for all eligible customers; and,

WHEREAS, Oberlin Municipal Light and Power System has secured financing for an initial subscription of \_\_\_\_\_ customers through \_\_\_\_\_.

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Oberlin, County of Lorain, State of Ohio, five-sevenths (5/7ths) of all members elected thereto concurring:

SECTION 1. That the City Manager is hereby authorized and directed to issue a request for proposals for administration of an on-bill energy efficiency program, to select a program administrator upon receipt of proposals.

SECTION 2. That the Utility Manager is hereby authorized and directed develop billing materials for participating program customers that reflects the costs and anticipated payback of installed energy efficiency measures.

SECTION 3. That the selected program administration through the direction of the Utility Manager shall contract for and provide to participating customers a suite of energy efficiency measures and options that shall produce savings for customers.

SECTION 4. That participating customers shall be responsible for payback of the cost of measures plus the appropriate financing costs through a charge on their utility bill.

SECTION 5. That the Utility Manager is hereby denied authority to shut off electric service for non-payment of outstanding energy efficiency charges on the bills of participating customers; outstanding energy efficiency service balances shall be secured through a loan-loss reserve fund.

SECTION 6. That the Utility Manager is hereby authorized to establish a program loan-loss reserve fund to secure funds to cover non-payment of balances associated with energy efficiency measures installed through the on-bill energy efficiency program; the fund shall be no less than \_\_\_% of the program budget.

SECTION 7. That this ordinance is hereby declared an emergency measure necessary for the immediate preservation of the public peace, health and safety of the citizens of the City of Oberlin, Ohio, or to provide for the usual daily operation of a municipal department, to wit:

“To authorize services necessary to complete energy efficiency investments for participating customers of Oberlin Municipal Light and Power System”

and shall take effect immediately upon passage.

PASSED:      1st Reading –  
                  2nd Reading –  
                  3rd Reading –

ATTEST:

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CLERK OF COUNCIL  
POSTED:

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PRESIDENT OF COUNCIL  
EFFECTIVE DATE:

***Table 6: Regional Manufacturers of Energy Efficiency Products***

Regional - Manufacturers of Energy Efficiency Products

Company	Primary Product	City	County
<b>3M</b>	Protective window films	Medina	Medina
<b>Adams Manufacturing Company</b>	Furnaces	Cleveland	Cuyahoga
<b>AirTite Home Products</b>	Windows	North Royalton	Cuyahoga
<b>Bio-Gas Technologies, LTD</b>	Designer and operator of gas-to-energy cogeneration systems	Norwalk	Huron
<b>CGI/Silvercote Inc</b>	Insulation	Solon	Cuyahoga
<b>Dornback Furnace Division</b>	Furnaces	Garfield Heights	Cuyahoga
<b>Eaton</b>	Energy efficient drivers and motors	Cleveland	Cuyahoga
<b>Energy Industries of Ohio, Casting Development Center</b>	Develops, demonstrates and incubates technologies to improve energy efficiency	Cleveland	Cuyahoga
<b>Environmental Wall Systems, LTD</b>	Wall systems	Solon	Cuyahoga
<b>EXTOL of Ohio</b>	Insulation	Norwalk	Huron
<b>Gardiner Trane</b>	Heating and cooling systems	Solon	Cuyahoga
<b>GE Lumination</b>	Lighting	Valley View	Cuyahoga
<b>GMX Inc</b>	Roofing	Cleveland	Cuyahoga
<b>Green Source Products</b>	Wall and roof framing system	Cleveland	Cuyahoga
<b>Hinkley Lighting</b>	Lighting	Cleveland	Cuyahoga
<b>Hyload Inc</b>	Roofing	Wadsworth	Medina
<b>Joyce Manufacturing Company</b>	Windows	Berea	Cuyahoga
<b>Lumination Technologies LLC</b>	Lighting	Rocky River	Cuyahoga
<b>Monarch Electric Service Co</b>	Rewind, repair, and remanufacturing of motors and generators	Cleveland	Cuyahoga
<b>Republic Powdered Metals Inc</b>	Roofing, walls	Medina	Medina
<b>Sheffield Metals International</b>	Roofing	Sheffield Village	Lorain
<b>Soprema Inc</b>	Roofing	Wadsworth	Medina
<b>Stanek Vinyl Windows</b>	Windows	Cleveland	Cuyahoga
<b>ThorWorks Industries Inc</b>	Roofing	Sandusky	Erie
<b>Tremco Inc.</b>	Roofing and sealants	Cleveland	Cuyahoga
<b>Truco Inc.</b>	Fluid applied roofing materials	Cleveland	Cuyahoga
<b>Uniflex</b>	Roofing and sealants	Cleveland	Cuyahoga
<b>WP Hickman Systems</b>	Roofing	Solon	Cuyahoga