

# Company Overview



## Powered by the American Spirit

Founded with the same “can do” spirit that built our great nation, Energy Pioneer Solutions™ was established in 2009 with one purpose in mind—to reverse more than three decades of rising energy costs in the residential and commercial property sectors.

**Our philosophy is simple.** All of us can—and should—do more to resolve America’s growing energy crisis and help get the country back on track. At Energy Pioneer Solutions, we challenged ourselves to do just that. To find a better, more inclusive and affordable way to turn thirty years of conservation science, engineering and technology into a sustainable energy-saving model for families and communities across the land—and we have.

**Community-based solution.** This first-of-its-kind, fully integrated system begins at home—and it pays for itself with cost savings from proven, easy-to-install energy-efficient upgrades and retrofits. By collaborating with utility companies, community banks and local contractors, we’re able to mobilize local resources around a powerful energy-saving solution that strengthens the entire community. Everyone benefits—the homeowner, the energy provider, the local contractor, the community and, ultimately, the country.

**Leading expertise.** Headquartered in Hastings, Nebraska, Energy Pioneer Solutions employs a leading team of industry experts with more than 34 years of experience in demand side energy efficiency systems and construction management. In every community, we train, certify and employ local project teams to do the work. Our local project teams are the best of the best, with direct access to proprietary software developed by Energy Pioneer Solutions to streamline and enhance every step in the process—and deliver superior outcomes and savings.

## What We Do

With Energy Pioneer’s unique energy-saving model and procedures, we make it easy and more affordable for you to recover the expensive, wasted energy in your home or property with proven energy-efficient upgrades. We do all the work—and because the energy-saving upgrades cost less than the money you save on your energy bill on an annual basis, they don’t cost you a penny more. In fact, cost savings for the average home energy bill are typically in the 20-30% range.

**Getting started.** To start the process and with your permission, we obtain the energy usage history for your home/property from your local energy provider. That’s all we need to conduct a free no-obligation energy audit of your property to calculate your potential energy savings. Typical energy-efficient upgrades and retrofits are

*continue on back* ►

usually completed in one day or less by the local project team—and then are inspected and verified afterward for actual energy savings.

**No other program quite like it.** Unlike other programs on the market, we combine our industry-leading expertise and proprietary software with local community resources. We also pay for all of the labor and materials—everything—up front. You simply repay those costs over time as a line item on your monthly utility bill. And again, because the energy-saving upgrades we make to your property are designed to save you more money on your energy bill than they cost to install on an annual basis, they don't cost you a penny more. That means a more streamlined and effective auditing and installation process—and better, completely affordable results all around.

**Typical cost-saving upgrades and retrofits.** From start to finish, energy-efficient upgrades and retrofits are usually completed in one day or less. Of course, every property is different. But our energy audit tells us precisely where your energy is being used, how much is being lost, and how much you can save with each recommended upgrade/retrofit. Some of the more common program upgrades/retrofits are listed below.

Programmable Thermostats	Smart Strips
Infiltration Leaks	Appliances
Switch & Outlet Gaskets	Fans & Ventilation
Ductwork Improvements	Hot Water Improvements
Distribution Improvements	Furnace Improvements
Wall & Attic Insulation	A/C Improvements
Lighting Replacements	EMS/Software

**Preferred service providers.** For upgrades that can sometimes exceed the scope of the Energy Pioneer program, we have partnered with a number of select, highly qualified preferred service providers in your area. As an Energy Pioneer, you'll be pleased to know that you are eligible for special discount pricing from our preferred service providers.

**Making a difference.** We invite you to become an Energy Pioneer—and to share your experience with others. With just a few simple steps, you can do your part to significantly reduce energy demand in your home—and help us strengthen your community and the nation.

# Investing in AnyTown

Energy Efficiency and Economic Development



PionEER© Energy Efficiency Report Addendum  
AnyTown, USA



AnyTown Municipal Utilities  
14.November.2011

## Energy Pioneer Solutions, Inc. —An Innovative Energy Company

**Energy Pioneer Solutions, Inc. (EPS)** was founded in 2009, with the mission of building a sustainable energy model that explores conservation and untapped resources, saving families money, *shaving peak usage* for utilities, and leaving a stronger community for future generations.

Energy Pioneer is among the nation's first energy service companies focused on the residential and small commercial sector with the unique capability of collecting payment via a customer's regular utility billing. This enables us to deliver efficiency services farther, faster, cheaper, and more effectively than any other company and/or agency currently operating.

In addition, we are also one of the few, if not only, companies to fully-integrate comparative pre-work energy baselines with post-improvement monitoring of delivered efficiency gains. Currently, this enables us to have remarkably effective quality assurance for our customers.

We are proud of our ability to save hundreds of families hundreds of thousands of dollars in "lost" energy. Capturing these savings in a highly effective and efficient manner enables us to not only do well by our customers but also improves our national and environmental security.

*“EPS is among the nation’s first energy service companies focused on the residential and small commercial sector”*

**What we do:** Energy Pioneer has built software to streamline the residential energy assessment process. The program enables the company to pre-determine both the range of efficiency that can be achieved and a matching budget for realizing a minimum of 20-25% savings on a given property and collectively throughout an entire community. This proprietary software, the first of its kind, dramatically shortens the company's assessment time from an industry average of 5 hours to about 1 hour. The next stage, involving construction and/or installation work required to achieve targeted savings, not only saves on costs but requires a homeowner to commit only 6-8 hours on a single day to improve their property, begin saving money and achieve all related benefits immediately.



This assessment and upgrading process will typically create energy savings of approximately 20-50% of projected energy costs. This cost savings is then shared with Energy Pioneer (EPS 50-80%, customer 50-20%) to pay for the service. These payments are collected by the AnyTown Utilities as part of their normal billing cycle and remitted to Energy Pioneer, with a maximum amortization of five years.

Additionally, collecting post-upgrade utility data, corrected for weather, allows us to monitor savings and report back to the customer and community alike thus ensuring a powerful and accurate quality assurance measurement as well as enabling full documentation of all associated economic impacts of the work.

## **Macro Energy Profile**

*Page 4*

### **STEP 1: Identify Citywide Energy Issues in our Macro Analysis**

*Page 5*

Your **PionEER**© has isolated *Two Energy Findings* and what we believe to be significant areas of opportunity.

### **STEP 2: Evaluation of the Individual Homes in Your Town**

*Page 6*

Your **PionEER**© has taken the AnyTown homes with the greatest opportunity for savings, matched them with our two Energy Findings above and put together a program that will help direct the city to which homes to upgrade, how much to spend on each home and which upgrades to perform.

### **STEP 3: Identifying the Key Upgrade Work Types**

*Page 8*

Your **PionEER**© has ranked and rated all 1400 homes for potential efficiency gains and has also provided an estimated budget to facilitate this change.

### **STEP 4: Evaluate Which Upgrades Will Save the Most Energy**

*Page 9*

Your **PionEER**© has shown that as a consequence of the high use of electricity for both heating and hot water in AnyTown, there will be significantly more electrical savings than one might expect elsewhere from these improvements.

### **STEP 5: Project Management and Implementation**

*Page 11*

Your **PionEER**© has enabled us to develop lists of specific properties that should be targeted for rapid, high-value investments. Upgrading 500 AnyTown homes will yield \$8.75mm economic benefit by 2016.

### **STEP 6: Financing Options**

*Page 14*

Your **PionEER**© discusses both costs and savings for upgrading 500 homes. Employing one or more of the financial mechanisms discussed should significantly lower your costs and increase AnyTown's Return on Investment while at the same time help improve additional homes.



## **Conclusion**

*Page 15*

## **Summary Demographics and Energy Efficiency Numbers**

*Page 17*

## **Glossary**

*Page 18*



**Energy Efficiency Profile  
MACRO ENERGY PROFILE**

**78%**  
Over 3 of 4 homes can benefit from energy efficiency improvements.

**1399 Homes AnyTown:**

**Energy Pioneer Solutions, Inc. (EPS)** has analyzed the electricity usage data provided by AnyTown Utilities and applied proprietary housing and weather data algorithms to establish baseline usage and energy intensity per square foot for comparison to local, regional, and national norms.

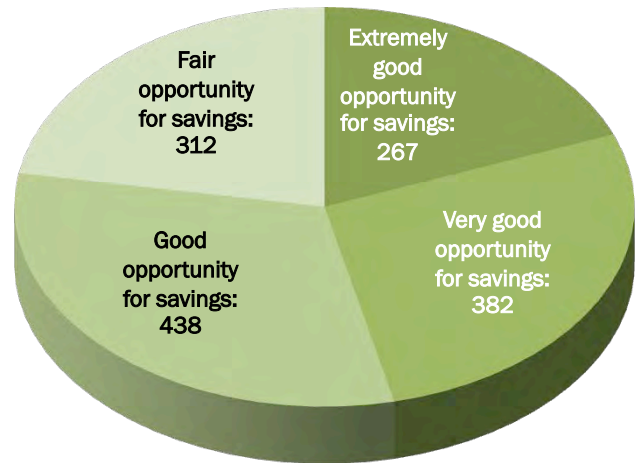


Chart 1

The Energy Information Administration (EIA) provides national and regional energy efficiency standards or averages on an annual basis. We have built on our experience in thousands of buildings across the country in order to deliver precision and consistency across multiple comparative analyses. And, when analyzing the residential energy consumption in homes within AnyTown, that comparison indicates approximately **1,100 or 78% of the homes in AnyTown lose significant amounts of energy and represent terrific opportunities for substantial energy efficiency improvements** given that the average energy usage numbers in AnyTown are approximately 25% higher than EIA’s regional averages. If we upgraded all 1,100 of these homes, we would potentially achieve 29% overall energy savings (\$610,000 per year) for AnyTown.

What this also indicates is that AnyTown and its residents have lost over \$3 million in the last 5 years in energy dollars—money that is seeping out through poorly sealed and insulated roofs or wasted on inefficient lighting; money that could instead be invested back in AnyTown, making homes more comfortable, healthier, and more efficient. Without immediate action, the trend will continue and with increasing utility costs, could lead to additional waste in excess of \$3 million in the next five years.

*“The energy usage numbers in AnyTown average about **25% higher than EIA’s regional averages**”*

The following is an analysis of program parameters, specific energy tasks, and budgets needed to achieve the goal of upgrading the first 500 homes in AnyTown within the next 3 years. By focusing on these first 500 homes with poor efficiency ratings, the city can realize real economic benefit in dollars saved and a substantial return on investment, all at no cost to the city itself. This staged approach of upgrading 100 homes the first year, 150 the second, and 250 in the third, is an achievable and impactful way to realize the economic impact outlined here.

## STEP 1: Identify Citywide Energy Issues in our Macro Analysis

Your PionEER© has isolated *Two Energy Findings* and what we believe to be significant areas of opportunity.

### Energy Finding #1:

#### Relatively High Number of Older Homes

- A relatively high number homes (449) built prior to 1940
- The bulk of rest built between 1940 & 1980
- Almost one fourth of homes built in 1970's
- All of these are larger users of both electricity and natural gas/propane/oil/etc., per square foot of floor space
- They are almost all wood-framed (92%)\*

*\*Significant because substantial energy savings will be possible from both added insulation and envelope sealing.*

### Age of Homes

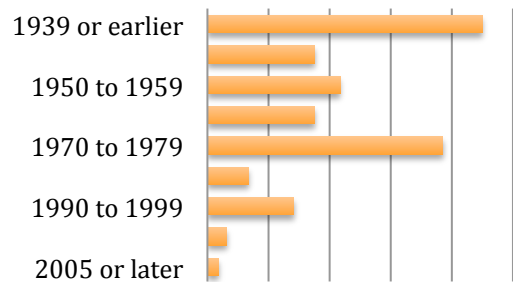


Chart 2

### Energy Finding #2:

#### January (Winter) Electricity Peak Usage

January, February, and December have higher electricity consumption than July. This is indicative of significant use of electrical resistance and radiant heat (e.g. space heaters) that, in turn, means envelope improvements—such as insulation and air sealing—will save a fuel-balanced amount of electricity and natural gas/propane/oil/etc.

The proposed energy upgrade project numbers are described in the next section and summarized in the spreadsheet 'Summary Demographics and Energy Efficiency Numbers' (Addendum B).

### Annual Electricity Usage kWh

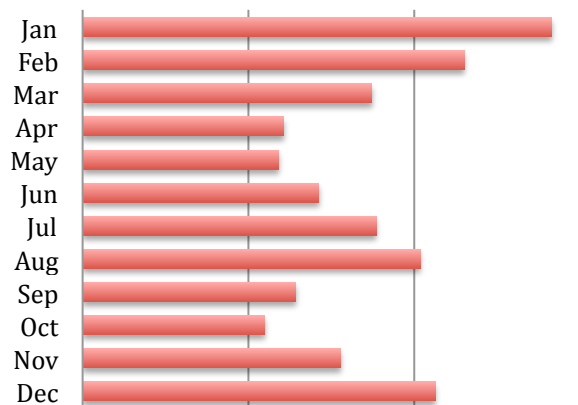


Chart 3

## STEP 2: Evaluation of the Individual Homes in Your Town

Your PionEER© has taken the AnyTown homes with the greatest opportunity for savings, matched them with our two Energy Findings above and put together a program that will help direct the city to which homes to upgrade, how much to spend on each home and which upgrades to perform.

### Energy Analysis Results MICRO ENERGY ANALYSIS

*In this PionEER© Energy Efficiency Report, our analytics have helped rank and rate every building in your AnyTown database for energy efficiency—and quantified likely savings for each level of efficiency achieved.*

#### The 3-YEAR PLAN

Estimated Budget: \$1,245,000...Total Program Cost  
Estimated Savings: \$252,000...**ANNUALLY**  
Paid Back in Savings: 5 years...ROI: >20%

## AnyTown500

*Five hundred homes upgraded over three years*

The AnyTown500 provides a specific target and a simple program design. In some cases, these homes are using as much as three times the average electricity and/or natural gas, and can be brought in line with relative norms through simple investments with very rapid paybacks.

SUMMARY	Total Homes	Homes Upgraded	% Retro	kWh	CCF	Tons of CO2	BUDGET	Energy Savings	Pay Back	ROI
Extremely Good Saving Opportunity	267	160	60%	1,523,947	15,953	1,475	\$480,000	\$91,680	5.24	19%
Very Good Saving Opportunity	382	200	52%	2,200,832	29,645	1,273	\$500,000	\$105,986	4.72	21%
Good Saving Opportunity	438	110	25%	193,019	172,506	455	\$919,800	\$182,983	4.79	20%
Fair Saving Opportunity	312	30	10%	29,067	85,243	79	\$561,600	\$85,016	5.50	15%
<b>3 YEAR TOTAL</b>	1399	500	36%	2,946,865	97,118	3,283	\$1,245,000	\$251,796	4.94	20%

We have estimated a budget of over **\$1,245,000** to improve the efficiency of 500 homes where there is an identified opportunity for saving energy. Doing so will result in approximately **2.9 million kWh's** saved each year—much of it in AnyTown's peak winter months. In addition, we can estimate a reduction of equivalent natural gas consumption of approximately **97,118 CCF**. Furthermore, we can calculate that a total of **3,283 tons** of carbon dioxide will be kept out of the atmosphere as a result of this economic development project.

#### THREE - YEAR GOAL:

**\$252,000 saved ANNUALLY**



## Economic Impact AnyTown500

In the AnyTown500 Project, the city will quickly realize tangible economic impact that will sustain itself beyond this first tranche. Following is a simple breakdown of the impact:

### What this means for a homeowner/resident

- \$500 in energy savings every year for the life of their home!
- More comfortable home (less drafty; warmer in winter, cooler in summer)
- Added health benefits through improved air quality
- Increased home value and structural integrity

### What this means for AnyTown

- Avg. one-time cost per home - \$2000
- Avg. **annual** savings per home - \$500
- Avg. **annual** savings for 500 homes = \$250,000

**\$250,000**  
Average **annual** savings  
for 500 AnyTown homes

*Additionally, to completely upgrade these 500 homes, Energy Pioneer will spend:*

- Avg. \$150,000 - \$200,000 at local businesses (hardware store, gas stations, eateries, etc).
- At a 5% sale tax rate = \$7,500 - \$10,000 of tax revenue.
- Energy Pioneer will also make referrals when necessary to local HVAC contractors, plumbers, and other contractors for additional measures not covered by our program.

## Return on Investment for AnyTown — 20%

**Investment of \$1,245,000 by Energy Pioneer working with homeowners to upgrade 500 homes saving approximately \$250,000 in energy costs per year**



**This relatively conservative PionEER© addresses only the residential sector. Energy Pioneer is also able to provide similar service and related direct economic impact within the city's commercial sector as well.**

**For area businesses, what this means is they can:**

- Decrease energy cost
- Increase net operating income
- Manage risk
- Increase sustainability

## STEP 3: Identifying the Key Retrofit Work Types

Your PionEER© has ranked and rated 1400 homes to retrofit and has also provided an estimated budget to facilitate this change. Now we will explain the basis of the budget and the expected retrofits.

The 267 homes that represent the greatest opportunity for savings will likely need envelope improvements—especially air sealing in attics, basements, chases, and crawl spaces—all based on blower-door testing. A blower door is an industry tool allowing the energy assessors and upgrade crews to quickly and accurately identify and fix leaks in the home. In addition, most, if not all of these homes, will need improved higher-quality insulation in either attics and/or walls. This will not only create more **comfortable homes** but will likely also address many related issues of **health and safety**. Injected wall foam insulation for these older wood-framed houses is ideal because it both seals and insulates. There are substantial and real economies in bundling such jobs, for both cost and rapid deployment. As part of this analysis, we have stratified and grouped the properties with the goal to shorten lead times, drive down costs, enhance direct messaging/marketing outreach, as well as better coordinate installation of energy efficiency measures (such as for wall insulation).

Your PionEER© has established a budget based on expected measures, however this is just an estimate and each of the chosen homes would **require a whole house energy audit** to ensure best results as well as address health and safety issues.

HOMES	KEY ENERGY EFFICIENCY UPGRADE MEASURES for AnyTown500 Project
<b>Extremely good savings opportunity: 160 Homes</b>	System rebuild or replacements, attic and/or wall insulation, envelope sealing, duct improvements, storm windows, lighting, whole house energy audit, programmable thermostats.
<b>Very good savings opportunity: 200 Homes</b>	Attic and/or wall insulation, envelope sealing, duct improvements, storm windows, lighting, whole house energy audit, programmable thermostats.
<b>Good savings opportunity: 110 Homes</b>	Attic insulation, envelope sealing, HVAC and duct improvements, lighting, whole house energy audit, programmable thermostats.
<b>Fair savings opportunity: 30 Homes</b>	Whole house, targeted energy audit based on usage metrics. Health and safety needs. Lighting. Basic envelope sealing and mechanical ventilation, additional attic insulation, duct sealing, modern t-stats. Repair or replacement of HVAC equipment. Appliances. Solar.

These second and third tier houses will have similar envelope requirements but will likely require more measures to improve the efficiency of the heat and air conditioning systems, especially sealing ductwork and insulating pipes in unconditioned spaces. Again, a complete whole house energy assessment of all homes in this sampling is imperative to determine more precise recommendations for energy savings, comfort, and health and safety considerations.



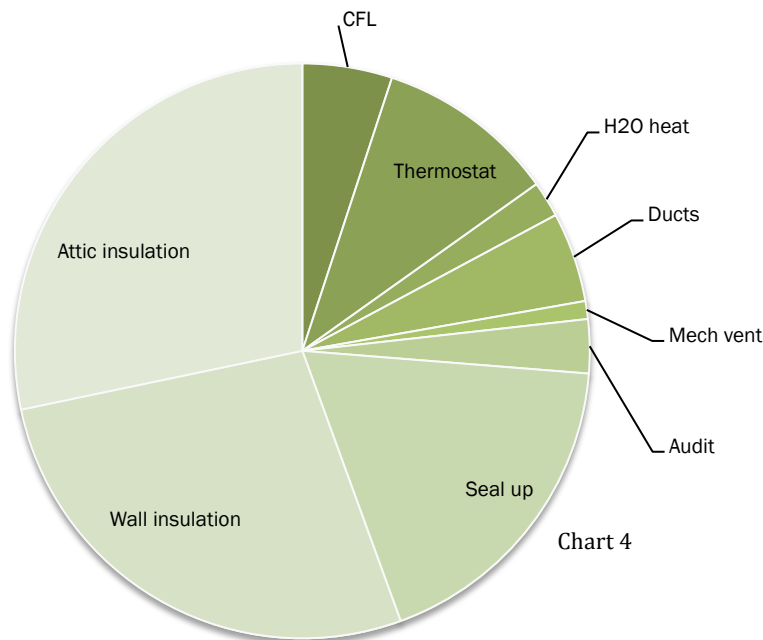
## STEP 4: Evaluate Which Upgrades Will Save the Most Energy

Your PionEER© has shown that as a consequence of the high use electricity for both heating and hot water in AnyTown, there will be significantly more electrical savings than one might expect elsewhere from these improvements.

### Breakdown of Energy Savings MICRO ENERGY ANALYSIS



These upgrades would break out into the following percentages of total budget for the AnyTown500:



Based on our PionEER© analysis, the following two graphics would be the expected breakout of energy savings by fuel type, as well as the savings for each upgrade measure:

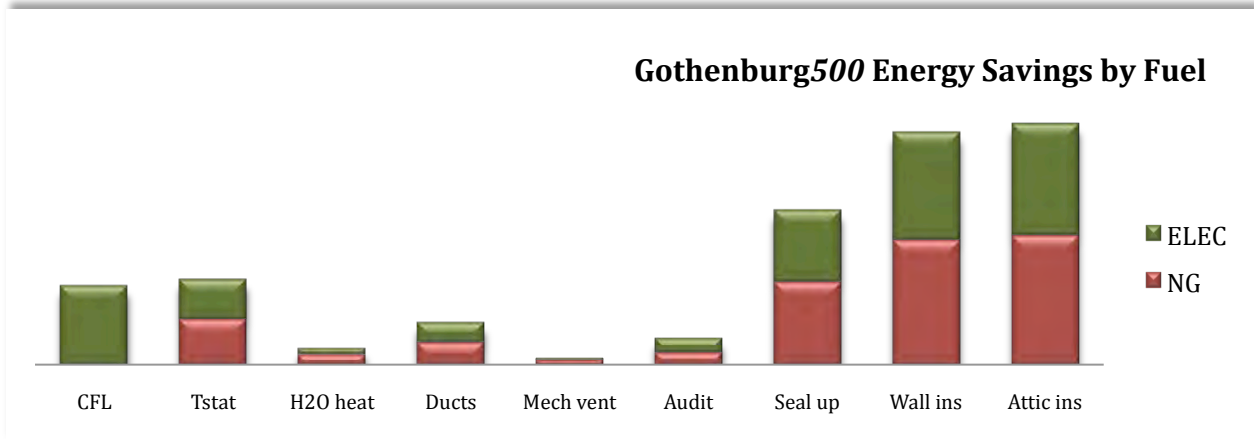


Chart 5

As indicated earlier, the bulk of energy savings will come from attic and wall insulation, with significant additional savings from envelope sealing as per blower-door testing.

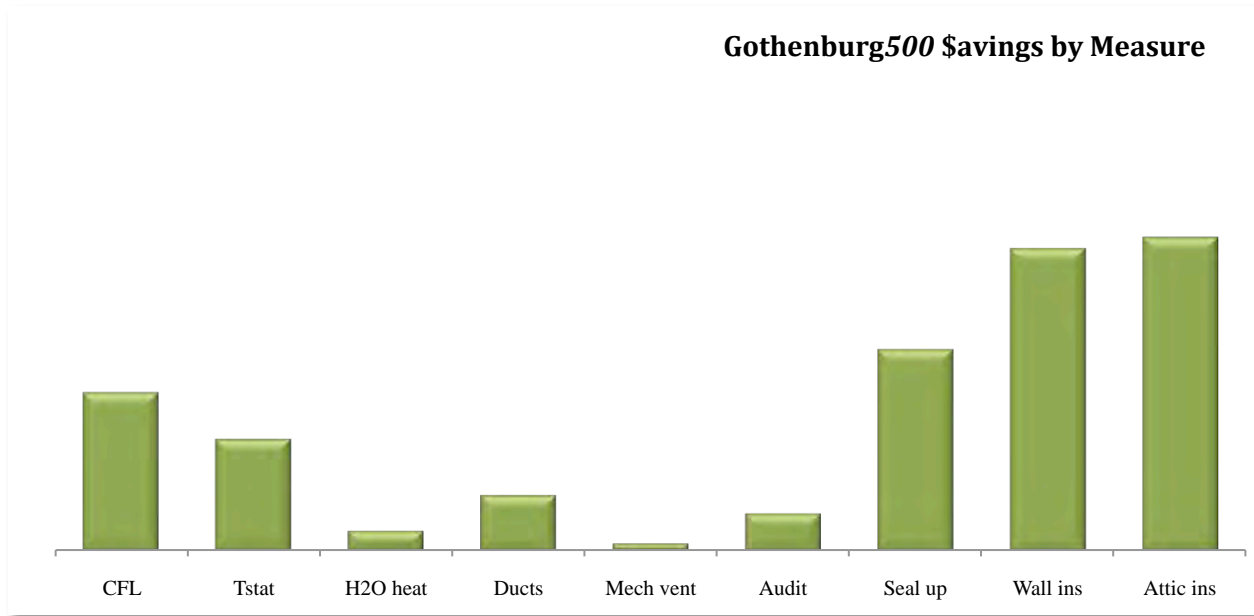


Chart 6

*Note: These estimates are reflective of installed costs and do not include possible marketing and administration costs.*

## **STEP 5: Project Management and Implementation**

Your PionEER© has enabled us to develop lists of specific properties that should be targeted for rapid, high-value investments. Upgrading 500 AnyTown homes will yield \$8.75mm economic benefit by 2016.

### **Project Implementation & Operational Recommendations AnyTown500**

**Professional responsibility demands that we also note the importance and necessity of providing proper and measured installation of each recommended energy improvement. Achieving an ideal R-Value with attic and/or wall insulation, in conjunction with finding and sealing leaks, as well as providing the other needed improvements, requires a proper energy analysis pre- and post-installation. Not only does this ensure accurate savings, it also simultaneously evaluates proper ventilation and additional health and safety considerations including, but not limited to, the presence of carbon monoxide, sufficient air exchange, proper exhausting of all combustion appliances, etc.**

Setting up and building the necessary infrastructure for this project will pay long-term economic dividends by positioning this program for ongoing sustainability. If built and managed properly, it will have a substantial community impact, including the creation of up to **10 jobs** at no cost to your city. Additionally by 2016 AnyTown will have realized \$8.7mm in economic activity (our estimated budget of \$1.25mm budget with a standard 7x multiplier).

This PionEER© provides the means by which all people, organizations, businesses, and programs may collectively contribute to make the “AnyTown500” project a success. Even greater success will result from updating this report at certain milestones with new usage numbers—or at least every 6 months, once retrofits are underway—in order to re-assess, re-evaluate, and ensure greater quality control within the project.

- **Energy assessors:** One BPI-certified, lead-safe weatherization certified, OSHA-trained, Energy Star Partner, etc., including all necessary equipment such as blower door, IR cameras, combustion appliance zone diagnostic testing equipment, noxious gas readers, etc. Increase to three by Year-3.
- **Insulation contractors:** All licensed and trained contractors are eligible, must adopt program best practices. One wall foam insulation crew and one cellulose crew to start, and grow to 3 to 4 crews by Year-3. Individual contractors and/or firms may provide multiple insulation and weatherization services.
- **Upgrade contractors:** Licensed and trained contractors are eligible, must provide proof of blower-door envelope sealing knowledge and ability, and must adopt program best practices. One 2-person crew to start, 2 or more crews by Year-3.
- **Materials suppliers:** Bulk purchasing, coordinated with contractors.



The best way to achieve significant economic impact through energy efficiency is to target those homes in the “extremely good” or “best opportunity” to “moderately inefficient” or “great opportunity” categories as indicated in this report.

This can be completed in a staged approach over three years by upgrading 100 homes the first year, 150 the second, and the remaining 250 in the third and final year. **Initially that amounts to approximately 8 homes per month or 2 per week.** *Importantly, the first year is critical.*

With a strong, coordinated effort in the community, and by the community leaders committed to improving the first hundred homes, the program will gain the momentum to carry it through Years Two and Three.

The following outlines the requirements for effective program implementation. Thanks to the on-utility bill payment agreement with AnyTown Utilities, Energy Pioneer is poised to begin the operational component of this project.

<p><b>Workforce</b> Energy Assessors and upgrade crews professionally trained and follow industry best practices. The following is a partial list of industry standards.</p> <ul style="list-style-type: none"> <li>▪ Building Performance Institute (BPI) Energy Analyst, Envelope Specialist</li> <li>▪ OSHA certification</li> <li>▪ Wall foam and two-part foam training</li> <li>▪ Lead-Safe Weatherization certified</li> <li>▪ Energy Star v3 trained</li> <li>▪ Radon measurement and mitigation certified</li> <li>▪ Home Energy Rater (HERS)</li> </ul>	<p><b>Equipment/Materials</b></p> <ul style="list-style-type: none"> <li>▪ Infrared camera</li> <li>▪ Blower door</li> <li>▪ DOE approved energy audit software</li> <li>▪ Combustion appliance zone diagnostic equipment</li> <li>▪ Noxious gas monitors</li> <li>▪ Duct blaster</li> <li>▪ Respirators and other PPE, etc.</li> </ul>	<p><b>Other Requirements</b></p> <ul style="list-style-type: none"> <li>▪ Ensure crews have compliance with State Historical Preservation Office</li> <li>▪ Adequate liability insurance (\$2mm)</li> <li>▪ Follow proper waste reduction and disposal strategies, etc.</li> <li>▪ Follow OSHA and LSW requirements</li> </ul>
<div style="background-color: #4F7942; color: white; padding: 10px; border-radius: 15px; display: inline-block; font-size: 1.2em; font-weight: bold;">Two Homes Per Week</div>		



### Community Engagement Recommendations and Best Practices

Engaging 100 homes the first year will enable project success. Broken down, this is approximately **8 HOMES PER MONTH OR 2 PER WEEK**. Based on this report’s energy ranking of homes, a pool of high usage homes can be targeted first.

The following lists best practices for engaging participants that have been effective throughout the country and in other USA communities—the Lawrence Berkley National Laboratory, in their report *Driving Demand for Home Energy Improvements*, completed this research.

# Case Studies

## Six Kansas towns involved in “Take Charge Kansas” program

- Community Leaders lead efforts
- Community Party to engage support, then gatherings to celebrate success

## New London, WI (pop 6,750)

- Community Advisory Board
- Energy fair

## Baltimore, MD

- Door to door canvassing
- Energy Pledge Kits

## Babylon, NY - a small city on Long Island

- Testimonials from leaders helped promote the program
- Leaders were trained to make presentations on behalf of the program

## Marshfield, MA

- Community meetings and planning workshops
- Community leaders led by example in upgrading their homes and business
- Leaders served as the eyes and ears, provided feedback to program managers

## Small Neighborhoods in Houston

- Focus on engaging church leaders
- Church leaders also helped fill out applications and signature cards

## Broken Bow, Central City, Hastings

- Information in utility bills
- Sustainability coalition
- Neighbor to neighbor marketing
- On-bill utility payment option

Choose the practice that works best for AnyTown. **Energy Pioneer can help** by providing each and every homeowner with a “pre-assessment” that shows the “miles per gallon” of their home. The pre-assessment reports have proven to be a helpful tool in educating homeowners in new areas of operation thus increasing the number of homes that undergo and complete a full energy upgrade. In addition, Energy Pioneer’s monitoring reports completed at various program milestones (6 months, 1 year, etc.) will identify program strengths or weaknesses and allow for adjustment as necessary.

By aligning all interests—homeowners, community and business leaders, government and civic groups—to the benefits of energy efficiency as economic development, we can together implement the least cost, most effective, turnkey approach to realizing multiple gains:

- Improved health, safety and quality of life
- Increased property value for residents
- Improved housing stock for city
- Greater economic development for the city and county
- Stronger national and environmental security for the US

Operationally speaking, with Energy Pioneer, once the homes are identified, the process is simple, straightforward and accountable:

- Access utility history from utility company with customer release
- Certified energy professionals schedule and perform assessment
- Trained and qualified crews complete upgrade based on recommendations
- Finance upgrades on utility bill tying improvements energy savings
- Provide follow-up results and reinforce benefits with regular monitoring reports

## STEP 6: Financing Options

Your PionEER© discusses both costs and savings for upgrading 500 homes. By employing one or more of the financial mechanisms discussed below, your city can significantly lower your costs and increase AnyTown’s Return on Investment while at the same time helping improve more homes.

As indicated earlier, the anticipated costs of implementing the “AnyTown500” 3-year program is approximately \$1,245,000. Importantly, however, as a result of the tremendous opportunity for savings (as high as **29% overall**), AnyTown will enjoy an estimated 20% rate of return on dollars invested with payback in excess of \$250,000 per year in energy cost savings. While the property value and financial impact is substantial, the *improved comfort and health of the residents*, given the age of the housing stock, will be even more impressive. Any other financial incentives and programs—such as those outlined below—may substantially increase the associated return on investment (ROI), thus creating an even more immediate impact for the community. This list of options is not meant to be comprehensive, and it should be further developed in order to achieve even greater program success.

Funding Option	Benefits	Possible Disadvantages
<b>On-Utility Bill Financing</b>	<ul style="list-style-type: none"> <li>▪ No pre-qualification or income guidelines</li> <li>▪ No cost to city</li> <li>▪ Turnkey</li> <li>▪ No out of pocket costs</li> <li>▪ Monitors savings</li> </ul>	<ul style="list-style-type: none"> <li>▪ Budget billing customers will have short increase in costs until reset</li> <li>▪ Entire energy cost savings may not be realized during time of repayment</li> </ul>
<b>Low-Income Weatherization Assistance Program (WAP)</b>	<ul style="list-style-type: none"> <li>▪ Provides weatherization for low income homes up to \$6500</li> <li>▪ No cost to resident (some cost to landlord in rental units)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Must be income qualified and go through application process</li> <li>▪ Waiting list</li> <li>▪ Lack of buy-in by resident may not reduce energy usage as much as planned</li> </ul>
<b>USDA Grants Rural Home Repair Loans and Grants</b>	<ul style="list-style-type: none"> <li>▪ Provides funding to pay for home improvements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Must be at least 62, income-qualified, and live in eligible community</li> <li>▪ Lacks direction for specific energy upgrades, contractors, and savings monitoring</li> </ul>
<b>Utility Rebates</b>	<ul style="list-style-type: none"> <li>▪ Helps off-set the cost of upgrades</li> </ul>	<ul style="list-style-type: none"> <li>▪ Some restrictions apply (i.e. NPPD requires electricity as primary heat source)</li> </ul>
<b>Tax Rebates</b>	<ul style="list-style-type: none"> <li>▪ Helps off-set the cost of upgrades</li> </ul>	<ul style="list-style-type: none"> <li>▪ Good only until 12-31-11</li> </ul>
<b>Municipal Funds (Public-financing Pool, Energy Efficiency Tax Credit or Efficiency Fees)</b>	<ul style="list-style-type: none"> <li>▪ May provide for full funding of the project</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cumbersome process</li> <li>▪ Higher management costs</li> <li>▪ Upfront funding required</li> </ul>
<b>Foundation Funds</b>	<ul style="list-style-type: none"> <li>▪ May pay for a portion or all of some upgrades</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not guaranteed</li> <li>▪ Must be a non-profit with a related mission</li> </ul>

More information about various financing options can be provided as a supplement to this report.



## Conclusion

As indicated in this PionEER© Energy Efficiency Report, the City of AnyTown has an incredible opportunity to realize a notable 20% annual return on investment by increasing the energy efficiency of its housing stock. By targeting only 500 homes over the next 3 years, the city can grow a completely sustainable program well into the next decade. This process can start by simply committing to improving only 2 homes per week during the first year. Some key metrics include:



- \$1.25mm investment by Energy Pioneer Solutions
- Nets \$250,000 annual energy savings for residents
- Enabling AnyTown to realize \$8.7mm in economic benefit by 2016

This turnkey approach will realize multiple gains:

- Improved comfort and quality of life for residents
- Improved health and safety for residents
- Increased property value for residents
- Improved housing stock for the city
- Greater economic development for the city and county
- Stronger national and environmental security for the United States

While this report provides a solid starting point, Energy Pioneer Solutions can build upon this tool further, in whatever way is deemed most helpful by city administrative staff and/or elected officials so as to inform the program on such specifics as marketing, management and training, operations, quality control reports, and providing additional information on financial mechanisms.

It should be noted, however, that the most important aspect of this program has already been completed: town leaders' decision to invest in the people of AnyTown—their homes, their comfort, their pocketbooks, and our increased energy security as a nation. This focused project carries a \$1,245,000 budget yet carries a return of over 20% annually, while simultaneously improving AnyTown's housing stock, reducing carbon emissions, shaving peak usage, improving the local economy, and strengthening our country. Few programs carry such combined weight, and AnyTown can already stand proud as being one of the few cities with leaders willing to make this investment in its people, its town, and our country.

### ESTIMATED SAVINGS



### R.O.I.



*(1.) EPS has generated likely natural gas and propane savings using our data from nearby communities as well as the long-term data available from the national Energy Information Administration (EIA).*

*NOTE: EPS, Inc.'s energy assessing, modeling, and calculation methodologies are consistent with the Department of Energy and the Environmental Protection Agency's home energy rating and labeling procedures, Energy Information Administration's sampling and calculation strategies, and the useful components of ASHRAE fundamentals, national and international building codes, and other best practices guidelines, especially from Lawrence Berkeley National Laboratory.*

*ECONOMICS NOTE: Economic impact estimates are based on extrapolations of pro forma energy savings and the compounding (ripple) effects as those savings dollars are re-invested in the local economy.*

PionEER Energy Efficiency Report										
SUMMARY DEMOGRAPHICS AND ENERGY EFFICIENCY NUMBERS										
UTILITY COMPANY 1:	A Utility Company			DATE:	9/30/2011					
UTILITY COMPANY 2:	SourceGas			AIRPORT:	Your Airport		NE			
CITY/TOWN:	Your Town		ZIP:	12345		KLXN				
COUNTY:	Your County			HDD 5-YR:	6579					
REGION:	Midwest			CDD 5-YR:	1066					
EIA SUB-REGION:	North Central Midwest			Annual Rain:	22 (Inches)					
LAT/LONG:	40.9274		N	AVG. TEMPS:	25 (Jan)		74 (Aug)			
	100.1610		W	ELEVATION:	2567					
AREA:	2.54		Square Miles	RADON:	2-4 pCi		moderate			
POPULATION:	3,703		%	HOUSING:						
HOUSING (#):	3,399		100%	Total	1,399		(\$FD)			
Owners	1,081		77%	Pre-1940	380		27%			
Tenants	370		26%	1940 - 1980	802		57%			
Vacancies	UNK			1980 -	217		15%			
METERS (Elec.):	1,399		AVG. FT*	EI. FT*	VI. FT*	I. FT*	M.E. FT*	MMBTU AVG		
METERS (NO):	1,231		1378	1223	1362	1447	1434	124		
ENERGY PROFILE:	# Houses	kWh	kWh \$	CCF	CCF \$	TOTAL	\$/kWh	\$/CCF		
Average (SFD) House	1,399	13,806	\$979	750	\$563	\$1,541	\$0.070	\$0.75		
Extremely inefficient	267	23,949	\$1,497	750	\$499	\$1,996				
Very inefficient	382	19,702	\$1,298	750	\$556	\$1,854				
Inefficient	438	11,365	\$864	750	\$591	\$1,455				
Moderately Efficient	312	5,383	\$495	750	\$585	\$1,081				
SAVINGS METRICS:	MMBTU	BTU/FT*	TARGET	% OVER	% Savings	kWh	CCF	\$	CO2 Ton	
Average (SFD) House	124	90,249	65,000	42%	29%	3,948	214	\$436	9894	
Extremely inefficient	159	122,982	65,000	63%	40%	9,525	100	\$573	28442	
Very inefficient	144	105,434	65,000	57%	30%	6,004	148	\$530	12734	
Inefficient	17	159,966	60,000	32%	15%	1,755	394	\$428	8279	
Moderately Efficient	96	82,857	50,000	0%	0%	969	273	\$272	5296	
TOTAL SAVINGS	# Houses	% Retro	kWh	CCF	CO2 Ton	BUDGET	\$SAVINGS	PB		
Average (SFD) House	1,399	100%	5,522,912	300,027	6,921	\$3,167,695	\$620,215	5.19		
Extremely inefficient	267	100%	2,543,087	26,621	2,462	\$747,600	\$152,991	4.89		
Very inefficient	382	100%	2,293,589	56,623	2,432	\$955,000	\$202,433	4.72		
Inefficient	438	100%	768,565	172,506	1,813	\$919,800	\$182,983	5.03		
Moderately Efficient	312	100%	302,294	85,243	826	\$561,600	\$85,016	6.61		
PROJECT SUMMARY	# Houses	kWh	CCF	\$SAVINGS	CO2 Ton	BUDGET	PB	% Retro		
All Houses	1,399	5,522,912	300,027	\$610,215	6,921	\$3,167,695	5.19	100%		
Extremely inefficient	160	1,523,947	15,953	\$93,680	1,475	\$480,000	5.24	60%		
Very inefficient	200	1,200,832	29,645	\$105,986	1,273	\$500,000	4.72	52%		
Inefficient	110	193,019	43,323	\$45,955	455	\$220,000	4.79	25%		
Moderately efficient	30	29,067	8,196	\$8,175	79	\$45,000	5.50	10%		
Total Project	500	2,946,865	97,128	\$251,796	3,283	\$1,246,000	4.94	36%		
Cost per nWatt	\$0.025		Cost per nTherm	\$0.34		% Saved	12%		ROI	20%

## Glossary

**Chart 1** – This chart breaks down all homes by the level of efficiency based on the usage analytics, housing stock information, and weather data.

**Chart 2** – The Age of Homes chart illustrates the year homes were built in this community. Older homes typically indicate opportunities for energy efficiency savings.

**Chart 3** – The Annual Electricity Usage chart indicates the aggregate electricity usage as measured in Kilowatt Hours (kWh).

**Chart 4** – This chart indicates the percent of upgrade budget needed per improvement for the typical upgrades expected to achieve substantial energy savings in this project.

**Chart 5** – Energy Savings by Fuel illustrates the amount and type of fuel each upgrade will likely save in the project.

**Chart 6** – Savings by Measure indicates the dollar amount saved by improvement.

**Baseline usage** – The current amount of energy used as a starting point for comparisons.

**Blower-door** – diagnostic tool designed to measure the airtightness of buildings which aids in locating air leakage sites. A blower door consists of a calibrated fan for measuring an airflow rate and a pressure-sensing device used to measure differential air pressure created by the fan flow. The combination of pressure and fan-flow measurements are used to determine the building airtightness. This is useful in making energy efficiency improvements and understanding the air flow in a building to ensure healthy indoor air quality.

**Building Performance Institute (BPI)** – is a developer of technical standards for home performance and weatherization work from which an individual may receive training and accreditations. This is an industry standard.

**Centum Cubic Feet (CCF)** – is a typical unit in which consumption of natural gas is measured. Each CCF is 100 cubic-feet.

**Energy Star v3** – The certification offered by the Environmental Protection Agency setting guidelines for rating the efficiency of new homes. Version 3 is the latest certification available.

**Envelope improvements** – Indicates improvements in the exterior walls of the home. This includes wall insulation, storm windows, sealing air leaks to the exterior, etc.

**Home Energy Rater (HERS)** – This certification is a recognized industry standard that trains energy assessors to rate the efficiency of a home.

**Lead Safe Weatherization (LSW)** – This refers to precautions that must be taken when weatherizing homes that may contain lead based paint. This is typically found in pre-1978 homes.

**Older homes** – Homes built prior to 1980.

**Radon** – A colorless, odorless, radioactive gas that, when present at elevated levels, may contribute to lung cancer and other health issues.

**ROI** – Return on Investment.

**R-Value** – A measure of the capacity of insulation to impede heat flow. A higher value indicates greater levels of insulation.

# Investing in AnyTown

## Energy Efficiency and Economic Development



### WHO WE ARE – WHAT WE DO

EPS IS AN ENERGY COMPANY WITH 30+ YEARS EXPERIENCE IN DEMAND SIDE ENERGY MANAGEMENT AND A PROVEN TRACK RECORD IN REALIZING EFFICIENCY GOALS AND DELIVERING ENERGY AND DOLLAR SAVINGS.

WE'VE DEVELOPED A STREAMLINED PROCESS TO CAPTURE WASTED ENERGY DOLLARS FOR INDIVIDUAL HOMES AND FOR ENTIRE COMMUNITIES TURNING THESE INTO A TANGIBLE QUANTIFIABLE ECONOMIC IMPACT.



**Energy Pioneer Solutions, Inc. (EPS)** is pleased to present you with this Energy Efficiency and Economic Development Report for AnyTown, USA.

Through analysis of housing stock, utility usage, and local weather, and in combination with our experience in your neighboring towns, we have developed a streamlined action plan to filter up to \$480,000 in first year budgeted upgrades into AnyTown which will at the same time provide increased comfort, measureable health benefits, and increased property values to your residents.

### IDENTIFYING THE PROBLEM

In the past five years, the residents of AnyTown have **spent over \$3 million** in electricity and natural gas that was unnecessary, lost money that could have leveraged substantial economic growth in AnyTown. In the next five years with anticipated utility rate increases, over **\$3 million more** will be lost.

Without immediate action as proposed in the attached plan, the trend will continue.

### SOLUTION

Energy Pioneer can “mine” these lost energy dollars, turning them into tangible economic development for your town.

### **AnyTown PionEER<sup>®</sup> Report**

Analysis of individual utility, housing, and weather data for all 1400 residential units has been completed to help the community design and implement a detailed energy plan. This includes associated costs and savings estimates, as well as an expected return on investment for AnyTown. It can be accomplished at little or no cost to the city and/or its residents.

After collecting and analyzing thousands of bits of data and making tens of thousands of calculations, the breakdown of AnyTown is summarized in the table on the right.

The full PionEER<sup>®</sup> Energy Report further details AnyTown's current energy profile and baseline for citywide usage. This information is processed to create a strategy for achieving an estimated 25% overall savings for residents.

### AnyTown Homes Breakdown

Efficiency Level	Homes
Extremely Inefficient	267
Very Inefficient	382
Moderately Inefficient	438
Fairly Efficient	312
<b>Total</b>	<b>1399</b>

**Our analysis shows** that by targeting only 500 inefficient homes, the city can realize compounding economic benefits in dollars saved and a substantial return on investment.

- \$1.25mm invested by Energy Pioneer Solutions
- Nets \$250,000 annual energy savings for residents
- By 2016 AnyTown will have realized \$8.75mm in economic benefits

Few investments yield such high returns at little to no cost to the city while at the same time providing greater comfort, improved indoor air quality, and increased property value for its homeowners and all ratepayers.



Heat can escape your house in a number of different ways including through windows, seals and doors.

“100 homes the first year, 150 the second, and in the third and final year, the remaining 250.”

**The best way to achieve significant economic impact** through energy savings is to target those homes in the “extremely” to “moderately inefficient” categories listed above.

This can be completed in a staged approach over three years by upgrading 100 homes the first year, 150 the second, and the remaining 250 in the third and final year. *But, the first year is critical.*

With a strong coordinated effort in the community and by community leaders committed to improving the first hundred homes, the program will gain the momentum to carry it through years two and three.

**Energy Pioneer** will document the savings, through regular monitoring reports shared individually with homeowners and in aggregate to the city. This ensures transparency and accountability for all involved while reinforcing program goals and continued growth.

**When all interests** (city, homeowners, community and business leaders, civic groups) are aligned to the benefits of energy efficiency as economic development, together we can implement the least cost, most effective, turnkey approach to realizing multiple gains:

- Improved comfort and quality of life for residents
- Improved health and safety for residents
- Increased property value for residents
- Improved housing stock for the city
- Greater economic development for the city and county
- Stronger national and environmental security for the United States

**The following addendum includes a more detailed analysis of these recommendations.**

*Thank you for being a part of the American renewal.*



[Facebook.com/EnergyPioneerSolutions](https://www.facebook.com/EnergyPioneerSolutions)



[Twitter.com/EnergyPioneer](https://twitter.com/EnergyPioneer)



1.855.YES.WITH.EPS · [EnergyPioneerSolutions.com](http://EnergyPioneerSolutions.com)

