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Fuel Poverty in America and Possible Solutions to Address it in the Texas Colonias

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Fuel Poverty in America and Possible Solutions to Address it in the Texas Colonias

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Dedication

This thesis is dedicated to my parents, Jim and Jill Hughes, who have supported my educational aspirations wholeheartedly and who have provided me with advice, an impartial ear, and an editor's pen throughout this journey.

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Abstract

Fuel Poverty in America and Possible Solutions to Address it in the Texas Colonias

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Communities across the United States have almost universal access to electricity services. However, there remains a large problem with fuel poverty, where households pay a significant and disproportionate amount of their gross income on energy bills. This is often a factor in those households' continued poverty. Fuel poverty is especially prevalent in the unincorporated and often overlooked colonias communities in South Texas, near the border with Mexico, which are characterized by a high level of poverty, a large unbanked population that don't have or are unapproved to have bank accounts, proportionally high energy costs, and substandard housing. There are government programs and charities that assist with bills, but the cycle of fuel poverty will continue without solutions that address the source of the disproportionately high bills: energy inefficiency. Public-private partnerships are needed to sustainably finance energy efficiency improvements and to break the cycle of poverty. One potential solution is the application of microfinance concepts geared solely at home efficiency improvements, where households can build credit while alleviating their home energy bill burden.

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Introduction

"If you could pick just one thing to lower the price of – to reduce poverty – by far you would pick energy." –Bill Gates, 2010 Ted Talk

Across the developing world, access to electricity remains a widespread problem that is defined as energy poverty. In the developed world, while there are still pockets that have intermittent access to electricity, there is almost universal electricity access. However, while access is not a problem, the cost of the service can be an issue for certain segments of the population. Low-income individuals and households are significantly more likely to experience difficulties in paying their energy bills, to the extent that they are considered fuel poor. Fuel poverty refers to limitations in receiving energy services because of constraints such as affordability rather than a complete lack of physical access to the service. The problem of low-income households paying a disproportionately high amount of their gross income on energy bills is often exacerbated by their substandard housing, low-efficiency appliances, and limited financing options that could assist them with solutions. Energy is effectively cheaper for people who least need it to be cheap.

Microfinance has been one solution that has been widely applied in the developing world as a tool to help the poor access financing to pull themselves out of poverty through small business enterprises. The concept has changed shape and expanded over time, and many microfinance institutions now include loans for home improvements. There are a handful of microfinance institutions that operate in the United States under the same premises: to help the poor help themselves by starting a small business, and some of them are also beginning to make micro home improvement loans.

This thesis will examine the problem of fuel poverty in the United States, with a particular focus on the Colonias communities found along the Texas-Mexico border. This area is characterized by high level of poverty, a large unbanked population that don't or are unapproved to have bank accounts, proportionally high energy costs, and substandard housing. Following the discussion on fuel poverty and the colonias, a variety of solutions, including microfinance, used in other areas of the world will be presented. The final part of this thesis will explain, examine, and critique one particular solution that is being developed as a business plan in Austin to specifically target the fuel poor of the colonias.

Chapter 1: Overview of the Problem

PART 1: THE ENERGY POOR

It costs money to generate and deliver electricity. In addition, people pay for electrical service. Yet the "right" cost of electricity is often hotly debated. With electricity being so essential to modern lives, the question occasionally arises whether energy access and energy affordability is a right. Those who argue that energy is a human right will point to the role of energy in meeting certain basic human needs, such as when energy is needed for health, medical facilities, climate and temperature control for at-risk populations, and sanitation. Regardless of whether access to electricity is a right, there are vast problems worldwide regarding electricity access, as well as issues surrounding the disproportionate burden placed on low-income individuals to obtain and maintain their electricity access.

Worldwide, the ability of the poor to access energy is recognized as a significant impediment to pulling these people out of poverty as well as to overall economic growth. The International Energy Agency (IEA) recognizes energy poverty as "a lack of access to modern energy services" which includes "access to electricity and clean cooking facilities."[1] There are still 1.3 billion people worldwide who do not have access to electricity, and 2.6 billion people without clean cooking facilities. Energy poverty is concentrated in the world's most poor countries, and is seen as a serious obstacle to economic and social development. This is an area of intense focus for groups such as the United Nations, developed nations that provide aid packages, and nonprofit aid organizations. World development goals point to the need of achieving universal energy

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[1] International Energy Agency, last modified 2014, accessed March 13, 2014, http://www.iea.org/topics/energypoverty/.

access,[2] and the United States launched an initiative in 2013 to doubling electricity access in Africa over a five-year period, a planned investment of $7 billion.[3] While the developed world is recognized as having almost universal access to electric service and does not have a widespread problem with energy poverty, there are many people and households that could be considered "fuel poor." The fuel poor are constrained in accessing energy rather than completely lacking access.

Fuel poverty is less visible than energy poverty, and thus is less well defined. The United Kingdom government has set out to define fuel poverty in order to design programs to address the problem, as the government recognizes that fuel poverty "is a problem that leaves many facing difficult choices about where to spend their limited income."[4] The UK decided to define and further study fuel poverty with government funding after recognizing the scope of the problem, but realizing that without a definition and a full understanding of the breadth and depth of the problem, they would be ill equipped to design solutions that go beyond bill assistance. The UK government announced that they would be investigating the extent of fuel poverty in the country in 2010, and released their findings in 2012. The study's author made a distinction that fuel poverty is a separate issue to poverty at large, and that it is not simply another facet of general poverty. They point out that households already living in or on the margin of poverty had energy costs that were higher than average and that were largely out of their control. A key element that was out of the households' control was the ability to make

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[2] "Modern Energy for All," World Energy Outlook, last modified 2013, accessed April 16, 2014, http://www.worldenergyoutlook.org/resources/energydevelopment/#d.en.8630.

[3] "Fact Sheet: Power Africa," The White House, last modified June 30, 2013, accessed April 16, 2014, http://www.whitehouse.gov/the-press-office/2013/06/30/fact-sheet-power-africa.

[4] "Fuel Poverty: A Framework for Future Action," Department of Energy and Climate Change, last modified July 2013, accessed April 18, 2014, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/211180/FuelPovFramework.pdf.

investments that would increase the efficiency of their home and their energy bills, tying low-income to home energy inefficiency.[5]

Since releasing the study on fuel poverty, the UK has defined fuel poverty for governmental purposes, and created a framework for an action plan to address the issues. In the UK, a household is considered to be fuel poor if:[6]

1) They have required fuel costs that are above the national median, meaning they have to spend 10% or more of its income to maintain a home temperature of 21 degrees Celsius in the main living area and 18 degrees Celsius in other rooms
2) If they spent all of those required fuel costs, they would be left with an income below the poverty line

They also consider a household to be fuel poor if it spends more than 10% of its annual income on fuel to maintain a predefined comfortable temperature inside the home. The government recognizes the key drivers of fuel poverty as the household's income, the cost of energy, and the efficiency of the home. The government has set aggressive goals to improve the efficiency of all housing in the UK, and fuel poverty puts those goals at risk and increases the risk of the poor being left behind.[7] As a result of their definition of fuel poverty, the UK has launched many programs to help increase energy efficiency as well as continuing to provide direct financial support to the most vulnerable households;

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[5] John Hills, "Getting the Measure of Fuel Poverty," last modified 2012, accessed April 18, 2014, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48298/4663-fuel-poverty-final-report-summary.pdf

[6] "Fuel Poverty Statistics," Department of Energy and Climate Change, last modified September 19, 2013, accessed April 18, 2014, https://www.gov.uk/government/collections/fuel-poverty-statistics.

[7] "Fuel Poverty: A Framework."

these programs include grants that at least partially cover the costs of efficiency improvements and smart meter initiatives.[8]

The United States does not have an official designation that is the equivalent of the United Kingdom's "fuel poor," although the United States Department of Housing and Urban Development (HUD) does recognize the relationship between housing and energy costs, saying on their homepage that "utility bills burden the poor and can cause homelessness."[9] High energy costs here are not the result of high energy rates or unequal pricing, but rather a function of inefficient usage such that the poor pay a higher proportion of their take-home pay on energy. While the United States does recognize that high energy costs are a disproportionate burden on low-income households, and there are programs through HUD and other US government agencies that work to address housing affordability and to assist certain households with energy costs, without a government definition of fuel poverty, it is more difficult to track and assist those who are overly burdened by their electricity costs. Instead, the burden is on the individual or the household to apply for government programs, which are outlined in further detail below. It is currently left to private or private-government partnerships to define the problem within their own parameters in order to begin designing more sustainable solutions than simply covering part of a household's energy bill.

In an attempt to quantify the higher energy burden faced by the poor in the United States, HUD cites a study by Fisher, Sheehan, and Colton, a law and economics research and consulting firm, which defines the "Home Energy Affordability Gap." The firm

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[8] "Helping Households to cut their Energy Bills," Department of Energy and Climate Change, last modified March 6, 2014, accessed April 18, 2014, https://www.gov.uk/government/policies/helping-households-to-cut-their-energy-bills#background.

[9] Office of Energy and Environment, last modified 2014, accessed April 18, 2014, http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/library/energy.

developed a countrywide model that shows the gap between actual home energy bills and affordable home energy bills on a county-by-county basis. The affordability threshold is set at 6% of gross household income, and the study estimates the amount that different segments of the population spend on home energy as a function of their income relative to the federal poverty level. The second edition of this study was released in May 2013, using data from 2012. At the time of the release of the study, the federal poverty level for an individual was $11,170 and $23,050 for a family of four.[10] As of February 2014, those levels have increased to $11,670 and $23,850, respectively.[11]

In order to calculate the burden, Fisher, Sheehan, and Colton first calculated actual home energy bills. Actual home energy bills are derived from energy-use intensities by fuel and end use, whether the household is owned or rented, house size, fuel mix, and heating or cooling degree days by county. Each energy usage is multiplied by a price per unit of energy by fuel type and end use by time of year; energy intensities come from Department of Energy data and the National Weather Service provides data on Heating Degree Days and Cooling Degree Days.[12]

According to their framework, if a household earns $10,000 per year gross, their affordable energy burden would be $600. Should they actually pay $1,000 per year in energy bills, their affordability gap would be $400, and their actual burden would be 10% versus the affordable burden of 6%. The study's authors published fact sheets on the affordability gap for each state that show the calculated home energy burden – where a

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[10] "2012 HHS Poverty Guidelines," U.S. Department of Health and Human Services, last modified February 9, 2012, accessed April 18, 2014, http://aspe.hhs.gov/poverty/12poverty.shtml.
[11] "Federal Poverty Guidelines," Families USA, last modified February 2014, accessed April 18, 2014, http://www.familiesusa.org/resources/tools-for-advocates/guides/federal-poverty-guidelines.html.
[12] Home Energy Affordability Gap, last modified 2013, accessed April 18, 2014, http://www.homeenergyaffordabilitygap.com/01_whatIsHEAG2.html.

household's income falls relative to the federal poverty level – as shown for Texas in Table 1.

Table 1: Home Energy Burden in Texas by Household's Income Relative to Federal Poverty Level

% of Federal Poverty Level	Home Energy Burden in Texas	Number of Households in Texas[13]
Below 50%	30%	602,407
50 – 100%	16%	850,684
100 – 125%	11%	474,075
125 – 150%	9%	464,423
150 – 185%	7%	624,223
185 – 200%	6%	241,772

The results from this study show that over 3.2 million people in Texas have energy bills that are at or exceed the affordability threshold. Those in the lowest category of households whose income falls below 50% of the federal poverty level are spending 5 times more than they can afford on energy under the definition that affordability is expenditures of 6% of gross income. In addition, the detailed data shows that there are many Texas counties where the home energy burden well exceeds the 30% average for the poorest citizens.

According to those results, households that are already struggling with low incomes are, on average, further burdened with spending a higher proportion of their

[13] Texas: The Home Energy Affordability Gap 2012," Affordability Gap Data, last modified May 2013, accessed April 18, 2014, http://www.homeenergyaffordabilitygap.com/03a_affordabilityData.html.

income on energy bills. While some may argue that this is unfortunate and it is not their problem. The opposite argument is that access to energy has been proven to drive up economic activity and personal well-being. Access to energy drives economies, and within developing economies, it has been demonstrated over and over that GDP growth is highly correlated with energy use per capita.[14] While this trend has been reversing recently as energy intensity decreases in the developed world, the fact still remains that most of our economic activity is tied to easy and affordable access to electricity. Disproportionately high energy bills exacerbate the poor's struggle to climb the proverbial economic ladder and restricts their contribution to overall economic activity. The United Kingdom's report on fuel poverty noted that addressing fuel poverty through energy efficiency-increasing policies could drive economic growth through saving resources, supporting jobs, and easing the trade-off that poor households face between energy bills and purchasing other goods.[15]

PART 2: GOVERNMENT SUPPORT FOR ENERGY COSTS

Energy costs for the average American are often an afterthought; many households pay the utility bill automatically without examining their detailed usage. However, any time a regulated utility approaches its state regulatory commission for a rate increase to cover increased costs or to maintain its rate of return, the fight over the proposed increase can become heated as the groups that represent the utility customers who are most effected, the poor and the elderly, battle with the utility. Any increase in prices can dramatically affect the amount the poor has left to spend for other necessities.

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[14] "Relationship between Per Capita Energy Consumption and GDP Growth," chart, World Economic Outlook, April 2011, accessed April 18, 2014, http://www.imf.org/external/pubs/ft/weo/2011/01/.
[15] "Fuel Poverty: A Framework."

The United States federal government and utilities address this concern by maintaining programs that partially subsidize costs for those groups that are most at risk.

The United States federal government program to provide assistance to low-income families to partially lower their energy costs is through the Low Income Home Energy Assistance Program (LIHEAP), a program of the Office of Community Services in the US Department of Health and Human Services.[16] Under LIHEAP, low-income individuals or households can receive financial assistance on their energy bills, or they can receive assistance in having their homes weatherized to increase efficiency. To receive assistance, the individual or household has to apply through their state office, and community action groups or non-profits often process these applications. The maximum income level that a household can have to be eligible for LIHEAP assistance is 150% of the poverty level, with some exceptions, although each state can adjust its threshold.

The request for funding by the White House in March 2014 was $2.8 billion, compared to the US government appropriation of $3.4 billion in the previous year. In February 2014, 19 major US cities' mayors requested that Congress increase 2014 funding to $4.7 billion due to an increased number of extreme weather events early in the year that were and are threatening to further strain the already limited funds.[17] During the fiscal year 2012, Texas received almost $130 million in federal funds to dole assistance for with energy bills, which dropped to $127 million in FY 2013.[18] Texas set its threshold for eligibility at 125% of the federal poverty level. In 2012, LIHEAP helped pay over

16 "Low Income Home Energy Assistance Program (LIHEAP)," Office of Community Services, last modified 2014, accessed April 18, 2014, http://www.acf.hhs.gov/programs/ocs/programs/liheap.

17 "LIHEAP: Fighting Poverty in Texas," LIHEAP Action Center, accessed April 18, 2014, http://liheap.org/?page_id=468.

18 "Texas Facts," Campaign for Home Energy Assistance, last modified 2014, accessed April 18, 2014, http://liheap.org/assets/fact_sheets/2014/Texas_Fact_Sheet_2014.pdf.

143,000 home energy heating and cooling bills in the state of Texas; the maximum heating and cooling assistance for a household was $1,000.[19,20]

The Texas government administers LIHEAP funding through a variety of programs. The Comprehensive Energy Assistance Program (CEAP) helps low-income households with immediate energy needs. This program requires the household to contact CEAP representatives. The other government program alternatives in Texas are Community Service Block Grants that support community action groups that assist in the delivery of services to very low income Texas residents, and the Weatherization Assistance Program, which uses Department of Energy Funding to help low income households decrease energy costs through weatherization methods.[21, 22] Although all federal programs require the state or administering authority to raise awareness about the program and eligibility requirements, it is still incumbent upon the households to know about the programs and be proactive in applying for assistance, especially as the availability of funds is limited.

Utilities usually have programs in place to provide assistance to low-income customers who are having trouble meeting their bill obligations, some of which is tied to LIHEAP funding. However, many utilities have some other funding sources that will help with emergency payments on a one-time basis, and they suggest that low-income customers participate in plans that manage the bills through a balanced payment

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19 "Texas Facts."
20 "Texas: The Home Energy," Affordability Gap Data.
21 "Community Services Block Grant (CSBG)," Texas Department of Housing and Community Affairs, last modified 2014, accessed April 18, 2014, http://www.tdhca.state.tx.us/community-affairs/csbg/index.htm.
22 "Weatherization Assistance Program (WAP)," Texas Department of Housing and Community Affairs, last modified 2014, accessed April 18, 2014, http://www.tdhca.state.tx.us/community-affairs/wap/index.htm.

method.[23] In addition to assistance from utilities and government funds, assistance can usually often be found from non-profit community action agencies that both help administer LIHEAP funding and will know of additional resources in their region.

In 2009, additional funding became available through the American Recovery and Reinvestment Act (ARRA), which was meant to stimulate the US economy during the recessionary period. The act released $840 billion dollars in total and part of that amount is focused on energy issues; the funds have been distributed between tax benefits, entitlements, and contracts, grants and loans. $10.9 billion of the tax benefits was allocated for energy incentives like tax credits for energy efficiency improvements, alternative energy, and electric vehicles. Energy-related programs run by utilities and government agencies received $21.5 billion as entitlement allocations. Finally, under contracts, grants, and loans, $40.2 billion was allocated towards energy and the environment that went directly to various government-run energy and environmental programs.[24] Many utilities applied and were approved for grants to assist them with the roll-out of smart metering technology, and a huge swath of people were able to upgrade to more efficient home appliances through tax credits and grants. While most of the funding has been spent at this point, there are still effects of that funding, such as the increased penetration of smart metering that should result in increased energy efficiency.

The alternative to subsidized services to improve affordability is to encourage poorer customers to reduce overall consumption. However, human behavior is difficult to permanently change without certain incentives, especially when the alterations are with regards to the comfort at home, or dictating when certain devices can be used. Thus, the

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23 "Need Help Paying Bills," accessed April 18, 2014, http://www.needhelppayingbills.com/html/need_help_with_electric_bills.html.

24 "The American Recovery and Reinvestment Act," last modified 2014, accessed April 18, 2014, http://www.recovery.gov/arra/Transparency/fundingoverview/Pages/fundingbreakdown.aspx.

best way that many see to reduce consumption is to reduce energy intensities through efficiency improvements. In recent years, there has been a greater push towards more efficient homes to reduce energy costs and for some, address climate change concerns, and updated governmental efficiency requirements on appliances, air conditioners, and insulation levels have served to push efficiency into more consumers' minds. However, most efficient products are more expensive than their more energy intensive alternatives. Many manufacturers of efficiency products or utilities make certain products more affordable by offering a rebate, and in an effort to increase adoption of energy efficiency products, the federal government has also offered rebates or tax credits on certain approved products.[25] However, rebates are often left unclaimed, maintaining the products' significantly higher price tags. Rebates require the consumer to fill out a paper application, copy their receipts, and mail the form and receipts back to the retailer, who then assesses whether to accept the rebate application. It is onerous for a consumer to apply, and it can take weeks for a consumer to receive a rebate. Data and anecdotes from retailers across the country have shown that 40% of rebates never get redeemed, either because the consumer fails to send in the rebate in the allotted time allowed, or their application for a rebate is denied.[26] Consumers must be prepared to take the time to jump through the hoops to submit the rebate application, but few consumers take that into account when purchasing a product with a rebate offering.

In addition to the difficulty of claiming a rebate, purchasing energy efficient home upgrades requires high upfront capital investments. The government tax credits on energy

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[25] "Federal Tax Credits for Consumer Energy Efficiency," Energy Star, last modified 2014, accessed April 18, 2014, https://www.energystar.gov/?c=tax_credits.tx_index.

[26] Brian Grow, "The Great Rebate Runaround," Bloomberg Businessweek, last modified November 22, 2005, accessed April 18, 2014, http://www.businessweek.com/stories/2005-11-22/the-great-rebate-runaround.

efficiency products only cover up to 10% of the cost up to $500.[27] Notwithstanding a potential rebate, the costs are still high up front; low-income households typically don't have the cash flow to cover these early costs despite how such investments could save them money in the long run. Should they want to take out a loan or finance an efficiency improvement, many low-income households run into problems because of low or no credit.[28] These issues have led to disproportionately more wealthy households investing in efficiency upgrades. Thus, people and households who can afford it can lower their homes' energy intensity with better insulation and appliances that draw less electricity from the grid, further accentuating the higher energy burden on the poor. The wealthier end up using and paying for less electricity, while the poor's usage remains the same and thus assuming more of the burden to pay the overall energy costs.

Low-income individuals and households around the United States suffer from a higher energy burden as a percentage of their income levels. There are certain federal programs in place that attempt to assist low-income individuals with their energy costs, but the government has thus far resisted any formal definition of fuel poverty that would define the scope of persons living within the United States that suffer from high energy costs. Instead, the government provides some funding to provide emergency assistance with bills, subject to eligibility requirements. This requires people to proactively search out assistance, and the federal funding does little to reduce the frequency of the problem. An effective solution to fuel poverty would be to begin addressing the tendency of low-income housing to be energy inefficient. While there are many counties across the United

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[27] "Federal Tax Credits for Consumer."

[28] Jorge Madrid and Adam James, "Power for the People: Overcoming Barriers to Energy Efficiency for Low-Income Families," Climate Progress, last modified February 15, 2012, accessed April 18, 2014, http://thinkprogress.org/climate/2012/02/15/426045/power-for-the-people-barriers-to-energy-efficiency-for-low-income-families/.

States that suffer from high energy burdens, an area of particular note for fuel poverty is in South Texas, along the border with Mexico, in unincorporated communities that are known collectively as the Colonias. There, incomes are exceptionally low, cooling needs are exceptionally high during hot Texas summers, and the nature of the unincorporated communities has led to housing that is built piecemeal, is not up to code, and is energy-inefficient.

PART 3: THE COLONIAS, TEXAS

In Spanish, the word *colonia* means a residential neighborhood. However, within the United States, a Colonia is a community along the US-Mexico border that fits specific criteria as defined by the U.S. National Affordable Housing Act of 1990. These communities have marginal housing and infrastructural conditions, as they are unincorporated settlements with no access to municipal water, sewer, and infrastructure systems. Historically, many of these areas were formed when "unscrupulous land owners inappropriately subdivided rural lands, offered plots via contract for deed, and made empty promises that utilities would soon be installed."[29] Homes within colonia settlements are usually either mobile home style or self built, and residents upgrade through do-it-yourself measures. These patterns have led to substandard conditions and homes that leak energy.[30]

There is a large number of colonias communities that have developed along Texas' 2,000-mile border with Mexico over the years.[31] The formation of colonias

[29] "State Community Development Block Grant: COLONIAS," U.S. Department of Housing and Urban Development, last modified 2014, accessed April 18, 2014, http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs/colonias.

[30] Peter M. Ward et al., *Sustainable Housing Design and Technology Adoption in Colonias, Informal Homestead Subdivisions, and the "Innerburbs"*, ed. Esther Sullivan (Austin, TX: n.p., 2010).

[31] Peter M. Ward, *Colonias and Public Policy in Texas and Mexico: Urbanization by Stealth* (Austin, TX: University of Texas Press, 1999).

communities can be traced to the 1950s and 1960s when migrant worker programs between the United States and Mexico were established. The first of these programs, the Bracero Program, was a policy put in place by the United States during World War II that allowed Mexican workers to temporarily come into the United States to address the US wartime labor force shortages and deficiencies. The program was renewed in 1947, specifically for agricultural workers, and remained in place until 1964 to address the chronic shortage of agricultural workers.[32] Over the course of the program, over 4 million Mexican workers crossed into the United States and those that stayed in the border region, both legally and illegally, began changing the landscape there. Following the termination of the Bracero Program, the Mexican government recognized the increasing poverty near the border, and worked to implement the Border Industrialization Program, informally known as the Maquiladora Program. This program established the border area as an industrialization zone where US firms could temporarily import raw materials into Mexico so that products could be assembled in Mexican factories. The program was not set up to address poverty along the border, but rather to take advantage of proximity to the United States industries. Finished products were exported back to the US, and firms only had to pay taxes on value added thus saving the firms enormous sums of money.[33] These maquiladoras drive the economy of the border region, where it is estimated that 4,000 maquiladoras still employ over 1 million workers; this number has increased since the advent of free trade agreements such as the North American Free Trade Agreement (NAFTA) that give foreign companies an incentive to establish

[32] Bracero History Archive, last modified 2014, accessed April 18, 2014, http://braceroarchive.org/about.
[33] "Maquiladoras: the Twin Plant Assembly Program," PBS, accessed April 18, 2014, http://www.pbs.org/kpbs/theborder/history/timeline/22.html.

manufacturing in the region. The program has led to an increase in ancillary, supporting industries, and many supporting workers choose to live on the US side of the border.[34]

Both of these programs led to an explosion in population near the border and a subsequent increase in demand for housing. At the time, rural landowners would sell agriculturally useless parcels of their land to immigrant populations. There was little legal oversight, and properties were sold with no promise of electric, water, waste, or road services. The landowners offered the buyers extremely high interest loans in lieu of down deposits, and the purchasers would not receive the deed to the land until the loan was 100% paid off. Under this scenario, they had no collateral to apply towards further loans for home improvement or other needs.[35] The original landowners sold their land without proper infrastructure, and the deals lack the paperwork seen throughout the rest of the United States. Transactions were structured as contract for deed, and the agreements were registered at the county level infrequently.[36] Thus, these real estate deals would lack the paperwork seen throughout the rest of the United States. The border states began focusing on the problem created by these unincorporated, underserved communities during the 1980s, and colonias were given a further spotlight by the federal government in 1990.

The National Affordable Housing Act of 1990, section 916 formally defined Colonias for the first time which remains the functional definition today. To be formally characterized as a colonia, a community must:

a) Be in the state of Arizona, California, New Mexico, or Texas;
b) Be in the United States-Mexico border region;

[34] "Maquiladoras: the Twin Plant."
[35] Ward, *Colonias and Public Policy*.
[36] Cecilia Giusti and Luis Estevez, "Microlending for housing in the United States. A case study in *colonias* in Texas," *Habitat International* 35 (2011)

c) Meet several objective criteria, including lack of potable water supply, lack of adequate sewage systems, and lack of decent, safe, and sanitary housing;

d) Have been established before November 28, 1990, the date of the enactment of the Cranstone-Gonzalez National Affordable Housing Act.

Texas has the longest border with Mexico of any state, and as a result, has by far the most Colonias communities in the United States.[37] The Office of the Texas Secretary of State and the Federal Reserve Bank of Dallas estimate that there are more than 400,000 people living in over 2,294 Texas colonias. The population living in colonias is overwhelmingly Hispanic.[38] Due to their origins as tenuously legal settlements on the edges of public infrastructure, the profile of those living in colonias tends to be low to very-low income.

The US Census Bureau tracks detailed statistics on every state and county in the nation. For the period from 2008 through 2012, the Census Bureau showed that the state of Texas had a median household income of $51,563, which is lower than the US median income of $53,046 for the same period.[39] The same report showed that 17.4% of Texas residents were living below the poverty line versus 14.9% of all US residents. Many of the Texas border counties that contain colonias have significantly lower median household income levels than the state average and higher percentages of residents living below the poverty line. Two such counties with high numbers of colonia communities are Starr County and Hidalgo County, which can be seen on the map below (Figure 1).[40] Table 2 shows the median income, per capita income, percent of population below the

[37] "State Community Development Block Grant: COLONIAS."

[38] "Colonias FAQ," Texas Secretary of State, accessed April 18, 2014, http://www.sos.state.tx.us/border/colonias/faqs.shtml.

[39] "State and County QuickFacts: Texas," United States Census Bureau, last modified March 27, 2014, accessed April 18, 2014, http://quickfacts.census.gov/qfd/states/48000.html.

[40] "Texas in Focus: South Texas - Infrastructure," Window on State Government, accessed April 21, 2014, http://www.window.state.tx.us/specialrpt/tif/southtexas/infrastructure.html.

poverty line, people per household, and percent of homeownership for the US, Texas, and the two Texas counties are shown for the sake of comparison.

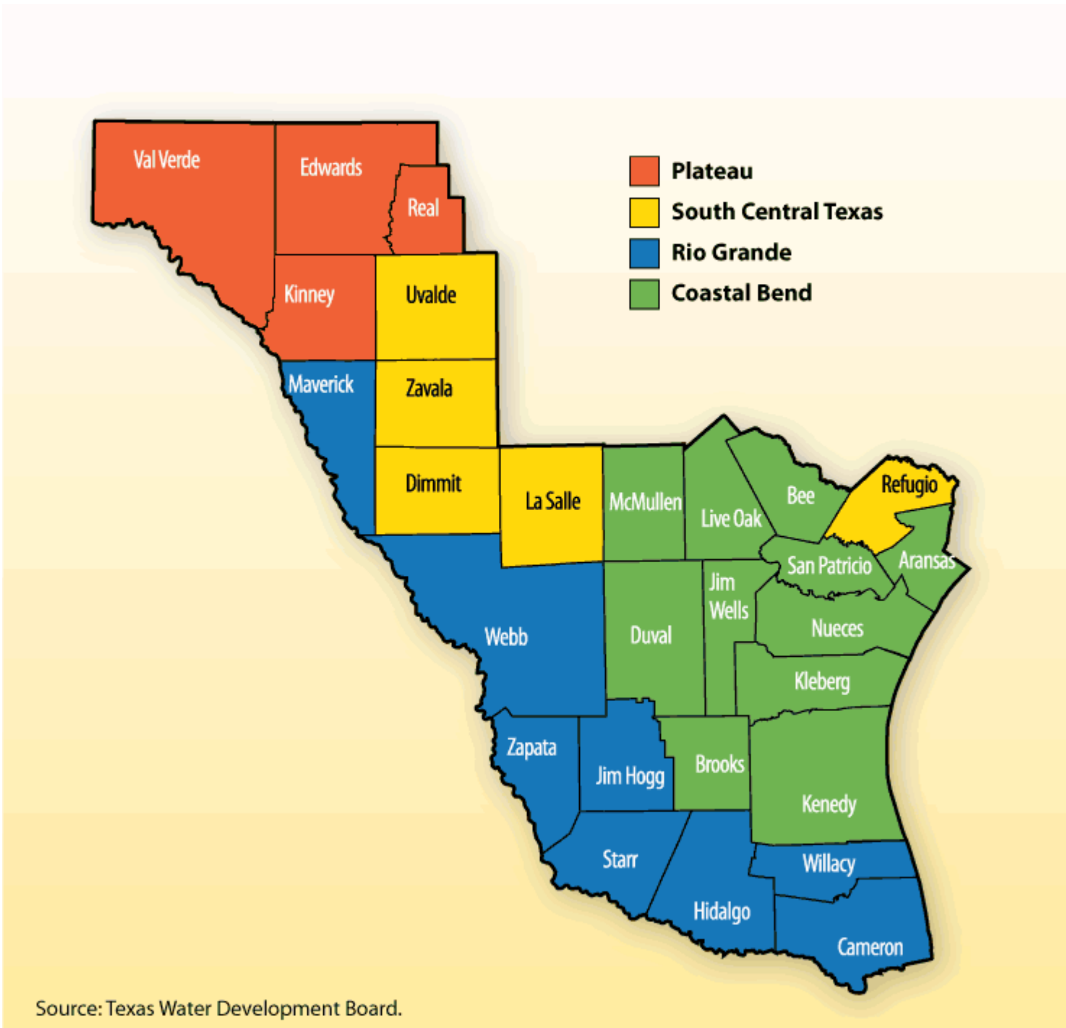

Figure 1: South Texas Counties

Table 2: Key Demographic Statistics, 2008-2012

	United States[41]	Texas	Starr County	Hidalgo County
Median Income	$53,046	$51,563	$24,653	$33,218
Per Capita Income	$28,051	$25,809	$11,537	$14,127
Percent of Population below Federal Poverty Line	14.9%	17.4%	39.9%	35.0%
People per Household	2.61	2.8	3.85	3.58
Homeownership Rate	65.5%	63.9%	79.1%	69%

The difference between the US and the state of Texas at large versus two of the border counties is stark. Median income and per capita incomes in those two counties are significantly lower, with a much higher proportion of residents are living below the federal poverty line. Each household is supporting more people. The higher rate of homeownership in colonias reflects the relatively poor quality of housing in these regions and the lack of available rental properties.

While the US Census Bureau tracks statistics at a county level, there are few hard data points for colonias communities. The University of Texas at Austin undertook a survey with funding from the Texas State Energy Conservation Office (SECO) in 2013 to better understand the electricity access and usage in South Texas. The study's authors administered a survey to 343 households in 24 different colonias and asked questions on

[41] "State and County QuickFacts," United States Census Bureau.

energy usage, energy expenditures, and housing conditions with various follow up questions. While the primary goal was to understand energy use, they also gathered data on the general characteristics of colonias communities and their residents.

The study found that 98% of the survey participants in the colonias were Hispanic and that the average household size was 4.37, significantly higher than the Texas level of 2.8 and even the Starr County average of 3.85 residents per house. More shocking was that, according to the survey, two thirds of the residents have a monthly household income of less than $1,600, and many residents count on retirement, disability, or other government programs as part of that income. With regard to housing, only about a quarter of those surveyed were renting either the land or both the land and the home.[42] The survey undertaken in 2013 also questioned colonias residents on their employment status and income. The survey found that many of the workers in those areas are faced with high unemployment, and are engaged in informal and seasonal work. Almost half of those surveyed did not have job or income security. Further, 48% of households have at least one person that has worked in construction, which contributes to the trend of do-it-yourself home improvement in the colonias.

PART 4: FUNDING TO IMPROVE THE COLONIAS

Since the enactment of the Cranston-Gonzalez National Affordable Housing Act in 1990, increased government intervention has been applied to improve conditions and reduce health risks faced by the population by targeting water and wastewater services.[43] Each state receives federal funding for assistance with low-income housing; the states with defined Colonias communities receive a percentage that is allocated to help meet the

[42] Carlos Olmedo, *Energy, Housing and Income: Constraints and Opportunities for Affordable Energy Solutions in Texas Colonias. Study Funded by the State Energy Conservation Office* (Austin, TX: University of Texas, 2013).
[43] Ward et al., *Sustainable Housing Design and Technology*

specific needs of those residents. The funding that each state receives is under the Community Development Block Grant Program (CDBG), which "works to ensure decent affordable housing, to provide services to the most vulnerable in our communities, and to create jobs through the expansion and retention of businesses."[44]

Every year, the CDBG funding is allocated between states and local jurisdictions; the size of each metropolitan area's or state's grant is determined by HUD through a formula that includes extent of poverty, population size and growth rate, and scale of the housing problem.[45] The states of Texas, Arizona, California, and New Mexico set aside up to 10% of their state CDBG funds for colonia community improvement.

In 1999 in Texas, then Governor George W. Bush signed legislation that was meant to improve the water and wastewater services available to colonias residents and created the Colonia Initiatives Program as a part of the Texas Border and Mexican Affairs Division in the Secretary of State's Office. Under the program, there are six ombudspersons assigned to work in the six Texas counties with the highest number of colonias communities: Hidalgo, El Paso, Starr, Webb, Cameron, and Maverick counties. This group has since been expanded to include Nueces County. These ombudspersons serve as a connection between the state government, utility companies, and the colonias to understand the communities and to ensure that residents are seeing the benefits of the

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[44]"Community Development Block Grant Program - CDBG," U.S. Department of Housing and Urban Development, last modified 2014, accessed April 21, 2014, http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs.

[45]"Community Development Block Grant."

government funding.[46] In addition, in 2001 the state approved $175 million to be used on roadway projects in colonias communities under the Border Colonia Access Program.[47]

PART 5: STATUS OF LOW-MIDDLE INCOME COMMUNITIES IN TEXAS

The Dallas branch of the US Federal Reserve Bank conducts a biannual online survey called the Community Outlook Survey to mark the changes and progress of community and economic development in Texas, northern Louisiana, and southern New Mexico. The survey covering January through June of 2013 identified concerns among low- and moderate-income communities around benefits, living wages, and affordable housing. The financial resources available to community action groups that focus on the lower income areas are scarce. In the survey, low- and moderate-income respondents are seeing an improvement in job availability, but are still struggling with affordable housing and access to credit.[48]

These finding are echoed in some of the University of Texas survey results that showed that only 17% of households had tried to obtain a loan in the last two years, and 43% of those were denied. Many of the residents seem to realize the low likelihood of getting a loan due to their lack of collateral and credit, as 76% would consider obtaining low interest loans to improve their dwellings and help reduce energy costs if they could access them.

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46 "Colonia Initiatives Program," Texas Secretary of State, last modified 2014, accessed April 21, 2014, http://www.sos.state.tx.us/border/colonias/program.shtml.
47 "Border Colonia Access Program," Texas Secretary of State, last modified 2014, accessed April 21, 2014, http://www.sos.state.tx.us/border/colonias/roads.shtml
48 "Community Outlook Survey," Dallas Fed, last modified 2013, accessed April 21, 2014, http://www.dallasfed.org/assets/documents/cd/cos/2013/1301.pdf.

PART 6: STATUS OF HOUSING IN THE COLONIAS

Due to a lack of access to credit and being part of an underserved community, most building on residences in the colonias follows an incremental process, where upgrades, fixes, and additions are done piecemeal. Homeowners tend to work on their homes when they have time in their work schedules, and when finances permit them to make a capital expenditure. It is normal for homeowners to work on their own homes with the help of neighbors or other community members, and for them to reciprocate the assistance, forming a sort of informal cooperative. This practice is rare elsewhere in the United States, and is most frequently observed in Latin America.[49]

The State of Texas recognizes that the "colonias present one of the most serious housing needs in the state."[50] The state knows that families have a tendency to build and upgrade their homes themselves. Because of this propensity, residences often have illegal or unsafe foundations and water/electrical hookups partly due to a lack of awareness of state building codes. The most recent state progress report on the colonias, submitted in December 2010, recognizes the three largest challenges to housing in the colonias as: 1) multiple dwellings on one lot, 2) substandard construction, and 3) lack of housing organizations.[51]

According to the findings from the University of Texas survey, almost all of the surveyed households have access to both electricity and water. Of the households that do not have access, they cite financial constraints as the main reason for remaining disconnected from the electricity grid. On average, study participants were paying $153 per month for electricity, with a mode of $200. Out of the 24 colonias surveyed, fourteen

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[49] Giusti and Estevez, "Microlending for housing in the United States."

[50] "Tracking the Progress of State Funded Projects that Benefit Colonias," The Colonias Initiatives Program, Office of the Texas Secretary of State, last modified December 1, 2010, accessed April 21, 2014, http://www.sos.state.tx.us/border/forms/reports-11/sb-99-progress.pdf.

[51] "Tracking the Progress of State."

of them reported a mean monthly bill exceeding $174 per month, and a further eight reported a mean monthly bill exceeding $190 per month.

The older homes sampled had statistically significant higher energy costs, and 58% of residents reported that their home or residence had a serious physical problem. The issues cited ranged from temperature control to insulation, ventilation, bad air quality, roof quality, water issues, and foundation problems. Approximately 59% complained that their homes were consistently too warm in the summer months and 44% that their homes were constantly too cold in the winter months. [52]

Based on the levels of income and utility bills from the sample, the survey found that households with monthly income under $1,600 spend between 11.6% and 28.4% of that income on electricity bills. In comparison, US households in the top quintile spend 5.8% of their income on energy and the bottom quintile spends 9.6%.[53] The study's authors point out the social problems derived from this disproportionately high burden, saying "These high monthly electricity payment-to-income ratios not only leave less income for other necessities like food and health, but is exacerbated by the fact that these lower income households are also more likely to have less job and income security."

In addition, the survey found that one third of the homes are either completely or partially self-built, which is expected based on prior studies in colonias communities.[54] In addition to being self- or community-built, 59% of households in the survey said that they have done some number of do-it-yourself home improvements. These houses have often been built in a modular fashion, and those who build themselves pay very little attention to code requirements.[55] To that end, according to the survey results, 46% of the

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[52] Olmedo, *Energy, Housing and Income*.
[53] Olmedo, *Energy, Housing and Income*.
[54] Ward, *Colonias and Public Policy*.
[55] Ward et al., *Sustainable Housing Design and Technology*

homes will require a major construction or upgrade, as 58% have at least one serious physical problem. Residents are more concerned with fixing the large issues, such as foundations, roofs, walls, and electrical systems, and the top problems reported by households are that homes are too warm in the summer and too cold in the winter, have windows and doors that don't close properly, and have poor insulation. 35% of homes have foundation problems and one third have unsafe electrical wiring.[56]

[56] Olmedo, *Energy, Housing and Income*.

Chapter 2: A Microfinance Solution

PART 1: MICROFINANCE

Muhammad Yunus, a social entrepreneur and banker from Bangladesh, first developed modern microfinance as a concept in 1976, and he subsequently created Grameen Bank, one of the first microlending institutions (MFI). The World Bank estimates that there are 2.5 billion adults in the world who are excluded from traditional banking and lending options, called the "unbanked," and it recognizes the important role of microfinance in improving access to financing, banks, and saving as a way to reduce income inequality.[57] There are still 9 million unbanked households in the United States, and another 21 million who are underbanked, meaning they rely on non-traditional forms of finance such as loan sharks, cash advances, and pawnshops. In Texas, 11.7% of households are unbanked, and an additional 24.1% are underbanked.[58] The county in the United States with the highest proportion of unbanked households is Starr County, Texas, where 32.7% are unbanked and another 28.2% are underbanked.[59]

Yunus' idea was to lend small amounts of money to the very poor entrepreneurs who could not otherwise secure a traditional bank loan. Traditional banks were and are uninterested in providing such small loans to risky customers, especially as banks can make significantly more money on a large loan.[60] Yunus studied poor entrepreneurs, and noted that their only option for financing was loan sharks, who would sometimes charge up to 500% interest rates. A business that could never dig itself out of debt was bound to

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57"Microfinance and Financial Inclusion," The World Bank, last modified 2013, accessed April 21, 2014, http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20433592~menuPK:34480~pagePK:64257043~piPK:437376~theSitePK:4607,00.html.

58 "The Most Unbanked Places in America," CFED, last modified 2014, accessed April 21, 2014, http://cfed.org/assets/pdfs/Most_Unbanked_Places_in_America.pdf.

59 "The Most Unbanked Places."

60 "About Microfinance," Kiva, last modified 2014, accessed April 21, 2014, http://www.kiva.org/about/microfinance.

fail. He first gave small loans to groups of women, and quickly observed that the small loans were being paid back on time and with interest and were serving to improve lives and local economies.[61] From that point, Yunus established Grameen Bank, and several other institutions were founded around or shortly thereafter, including ACCION in Venezuela. Each of these kept loans within localities and used a form of social peer pressure: the subsequent dispersal of loans to the community was dependent on the prior ones being paid back.

Microfinance is now a concept widely applied across the developing world, and occasionally in more developed countries. In recent years, the question around microfinance has centered on whether microfinance can be a moneymaking opportunity or whether it should operate more like non-profits seeking only monetary sustainability. One large microfinance firm, SKS Microfinance Ltd, went public with an IPO on the Bombay Stock Exchange in August 2010, and while the stock gained quickly during its first few months on the exchange, it has since lost five times that value.[62] In comparison to most microfinance endeavors, this IPO meant that SKS would rely on private sector money to help fund the microloans rather than look to donations, governments, and organizations like the World Bank; however, the move was controversial. Opponents, including Muhammed Yunus, argued that an IPO of a microfinance organization would essentially mean profiting off of the poor.[63] Some argue if microfinance pursues both profits and morals, there is a fine line to walk between charging a higher rate of interest

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[61] Bob Krieger, "The Evolution of Microfinance," PBS, accessed April 21, 2014, http://www.pbs.org/frontlineworld/stories/uganda601/history.html.

[62] "SKS Microfinance," last modified April 21, 2014, accessed April 21, 2014, http://www.moneycontrol.com/stock-charts/sksmicrofinance/charts/SM11#SM11.

[63] Nin-Hai Tseng, "Can microfinance be moral and profitable?," CNN Money, last modified August 19, 2010, accessed April 21, 2014, http://money.cnn.com/2010/08/19/news/international/SKS_microfinance_IPO.fortune/.

in the name of profits and keeping rates low to adhere to the mission of alleviating poverty worldwide. This new direction for microfinance adds to both the possibility of doing more good with more money and to the list of criticisms held by microfinance detractors.

Most microfinance institutions focus solely on loans to entrepreneurs who need money for their small businesses, rather than making loans to individuals. Individual loans have been seen as less important because they are not income generating, and it was harder to see their potential as a means of assisting the poor in their quest to escape poverty.[64] However, many institutions began to recognize that numerous people who had requested loans for their businesses were in fact using the money on home improvements.[65] As a result, microfinance in the developing world has expanded to include loans for homes and other uses beyond entrepreneurial endeavors. With the advent of these microloans for housing purposes, there are now two recognized types of housing microfinance. The first, microcredit to housing finance (MCHF), originated from microfinance institutions that recognized that their clients were using their business loans for home improvements. These MCHF programs now offer housing finance products, because there is "a strong connection between the home as both shelter and a place to house or support income-generating activities."[66] The second type is called shelter advocacy to housing finance (SAHF), which came from advocacy groups starting their own microlending programs to give the poor equitable access to shelter, adequate

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64 Giusti and Estevez, "Microlending for housing in the United States."

65 Alejandro Escobar and Sally Roe Merrill, "Housing Microfinance: The State of the Practice," in *Housing Microfinance: A Guide to Practice*, ed. Franck Daphnis and Bruce Ferguson (Bloomfield, CT: Kumarian Press, Inc., 2004).

66 "Housing Microfinance Initiatives," Harvard University Graduate School of Design, last modified May 2000, accessed April 21, 2014, http://www.microfinancegateway.org/gm/document-1.9.26533/1742_01742.pdf.

infrastructure, and services. These programs are based on the belief that basic human rights include the right to a shelter. SAHF programs often result in a community-based approach, as they focus more on the underlying structural causes of poverty; recipients of SAHF loans are usually required to participate in a savings scheme, while MCHF programs are more hands-off and seek to empower the poor just through access to credit.[67]

While microfinance lending has done a lot of good across the world by providing funding to the poor who are mostly overlooked by mainstream banking, there are still many critics of the concept. One main criticism is that microfinance still does not reach the poorest of poor, who don't qualify for microloans because they still pose too much risk for even microfinance institutions. In addition, it is difficult to force people to use loans for the stated purpose. Just as the original loans were solely for people looking to start or sustain a business, and the microfinance institutions found people using the funds for home improvements, there is continuing evidence today of the very poor using microfinance loans for basic needs such as food. In addition, the stress of repayment can be detrimental, and some observers are critical of microloans because people who relay on microloans never really dig themselves out of debt, as they continually return for more credit and become loan dependent.[68] Others question whether microfinance actually does help the poor, because even after taking out a loan, many households are still not able to meet their basic needs.[69] Some studies have shown no measurable increase in the

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[67] "Housing Microfinance Initiatives."
[68] Ylan Q. Mui, "Microsavings programs build wealth, pennies at a time," Washington Post, last modified March 15, 2013, accessed April 21, 2014, http://www.washingtonpost.com/business/economy/microsavings-programs-build-wealth-pennies-at-a-time/2013/03/15/4bad70fe-8740-11e2-98a3-b3db6b9ac586_story.html.
[69] "The Evolution of Microfinance."

consumption of microloan recipients or in the propensity for children of microloan recipients to be enrolled in school programs.[70]

There are some instances of microfinance or microlending programs for either housing improvements or for entrepreneurial endeavors in Western countries, including the United States, but they are not as common as in the developing world. The reason for this is that the relatively high incomes in developed countries is seen as contrary to the desperate needs in developing markets. The financial systems in the West are well developed, which should make microloan programs less necessary. However, there are still an estimated 45 million people in the United States who are not part of the developed financial markets.[71] The Dallas Federal Reserve Bank survey, described earlier, also touches on low- and middle-income households' access to credit. The survey found that access to credit is still a large problem, and the reasons for these households' struggle to receive credit are financial institutions' underwriting standards and credit ratings, lack of cash flow, lack of financial knowledge, interest rates and lending costs, and a lack of trust in banks.[72] However, there are some instances of microfinance approaches in the United States that are helping to reach those whose incomes hover around or under the federally designated poverty line.

Many non-profit organizations have trouble raising enough funding to fulfill their mission and work towards achieving their mission. Some microfinance firms have begun to experiment with other forms of fundraising beyond traditional donations and grants. In the United States, there has been a small movement towards social Initial Public

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[70] Jonathan Morduch, "Does Microfinance Really Help the Poor?," New York University, last modified June 27, 1998, accessed April 21, 2014, http://www.nyu.edu/projects/morduch/documents/microfinance/Does_Microfinance_Really_Help.pdf.
[71] Giusti and Estevez, "Microlending for housing in the United States."
[72] "Community Outlook Survey"

Offeringss for non-profits that operate differently than a traditional IPO. These social IPOS are instead called an Immediate Public Opportunity. In 2007, Warren Buffet bought the first share of Homeward Bound of Marin County, which is a non-profit that works with the homeless. Instead of calling it an initial public offering, they rebranded the IPO. It was an IPO, but an IPO for a non-profit organization, and it was not listed on any stock exchange. Non-profits have a difficult time with financing, given the scope of the problems they seek to solve, and there are only so many people that can be helped via grants alone. Grants only allow non-profit organizations to focus on the short-term, and the IPO is meant to allow them to have enough cash on hand to look towards the long term.[73] Under the non-profit IPO, the purchaser receives one "share" for each x number of dollars invested, and in return, they have a vote at the annual meeting and can access the quarterly reports. It mimics the initial public offering process, but investors don't get to make the same demands on profitability and returns. The investment is essentially a donation, but the argument is that people have a different feeling about purchasing a share than about donating the same amount, particularly if they have a say in how the organization is operated.[74] There are several microfinance companies in the United States now operating under this model, using the funds raised from the IPO to cover their costs of making loans until the interest rates on the loans make the process self-sustaining. The process acts more like a donation than an actual investment, as investors usually won't see a return.

[73] "Non-Profit Capitalism," The Economist, last modified September 11, 2008, accessed April 21, 2014, http://www.economist.com/node/12208564.
[74] Andy Posner and Mollie West, "The New Non-Profit IPO," Stanford Social Innovation Review, last modified January 29, 2014, accessed April 21, 2014, http://www.ssireview.org/blog/entry/the_new_nonprofit_ipo.

PART 2: MICROSAVINGS

During the development and proliferation of microfinance and microloan programs, one oft-cited reason for the need for such instruments was the fact that the very poor have no savings or property that can be used as collateral for a traditional loan. As a result, microsavings programs developed in tandem as a way to assist the very poor in building up their credit and removing them from the roster of the "unbanked". Microsavings is defined as:

> A branch of microfinance, consisting of small deposit account offered to lower income families or individuals as an incentive to store funds for future use. Microsavings accounts work similar to a normal savings account, however, are designed around smaller amounts of money. The minimum balance requirements are often waived, or very low, allowing users to save small amounts of money and not be charged for the service.[75]

These types of accounts are most frequently seen in developing countries and are offered and encouraged by the same organizations that provide microloans. The hope is that those with such microsavings accounts will better be able to help themselves with large unforeseen expenses that can otherwise lead to financial ruin. However, a 2009 survey by the Microfinance Information Exchange found that only 27% of 166 microfinance institutions offered a savings product, though interest in providing savings services was increasing.[76] The repercussions of the most recent financial crisis on microfinance have increased the impetus for microsavings. Prior to the financial crisis, microfinance had very high rates of repayment that kept these institutions operational these rates of repayment came down drastically in 2009. One survey found that delinquent

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75 "Microsavings," Investopedia, last modified 2014, accessed April 21, 2014, http://www.investopedia.com/terms/m/microsavings.asp.
76 "Non-Profit Capitalism"

microfinance loans averaged 2% in 2004, but rose to 10% in Morocco, 12% in Nicaragua, and 13% in Pakistan during the worldwide recession.[77] Microsavings has been touted as a way to go back to encouraging extremely low-income people and households to focus on personal finance as opposed to solely relying on the power of credit.[78] One big proponent of microsavings is the Bill and Melinda Gates Foundation, which has provided large grants to microfinance institutions to assist them in building out microsavings offerings.[79]

Microsavings is also becoming a trend in the United States, as the benefits of the concept extend far beyond those living on $2 a day in the developing world. One California non-profit, Opportunity Fund, runs a microsavings program that promises people $2 for every $1 saved if they leave don't withdraw money from the account for at least 6 months, complete a financial education course, and deposit at least $20/month.[80]

PART 3: IMPACT INVESTING

Impact investing is a recent alternative to microfinancing. Impact investments are defined as capital investments made into companies or organizations with the idea of generating measurable social and environmental impact in addition to a financial return. These types of investments are being offered in the United States and across the developed world, as well as in developing markets. While investors do invest with the expectation of a return, the returns range from below market rate to about even with market rates. Impact investing is recognized as a combination of non-profit and free-market concepts that, when combined, can help support solutions to some of the most

[77] "Too Much Microcredit? A Survey on the Evidence on Over-Indebtedness," CGAP, last modified September 2011, accessed April 21, 2014, http://www.cgap.org/sites/default/files/CGAP-Occasional-Paper-Too-Much-Microcredit-A-Survey-of-the-Evidence-on-Overindebtedness-Sep-2011.pdf.
[78] Mui, "Microsavings programs build wealth."
[79] "Non-Profit Capitalism"
[80] Mui, "Microsavings programs build wealth"

difficult-to-solve problems faced by the world, such as clean energy, affordable healthcare, housing, and hunger.

The Global Impact Investing Network, a non-profit dedicated to "increasing the scale and effectiveness of impact investing," has defined impact investments with four characteristics[81]:

1) Intentionality: "the intent of the investor to generate social and/or environmental impact through investments is an essential component of impact investing"
2) Invest with return expectations: "Impact investments are expected to generate a financial return on capital and, at a minimum, a return of capital"
3) Range of return expectations and asset classes: "Impact investments generate returns that range from below market to risk-adjusted market rate"
4) Impact measurement: "The commitment of the investor to measure and report the social and environmental performance and progress of underlying investments"

Impact investing is a growing trend as a complement to philanthropy, but with a focus on measurable results as it is tied to capital returns. The movement is nascent, and there is still confusion about its goals and the tradeoff between financial returns and greater societal good. As described by one JP Morgan banker, "Simply put, impact investing is the deployment of capital with an expectation of financial return, where the success of the

[81] "About Impact Investing," Global Impact Investing Network, accessed April 21, 2014, http://www.thegiin.org/cgi-bin/iowa/resources/about/index.html.

investment is also contingent upon achieving a stated social or environmental goal."[82] In 2007, JPMorgan Chase created a Social Finance department to invest in emerging funds that demonstrate competency in impact investing. While this ultimately is a small part of a bank's overall portfolio, many banks do recognize social investing as a viable part of their portfolio that both earns them a return and satisfies corporate social responsibility goals. The same banker also stated that, "At JPMorgan Chase…we have historically used philanthropy as the primary tool by which to promote social and environmental changes important to our firm and to the communities in which we operate. As with may other large corporations, we believe we have a responsibility to a wide scope of stakeholders…we feel uniquely positioned to deliver on this responsibility: to use our strength, global reach, expertise and access to capital to support our clients and communities and invest in them."[83]

Just as other countries are ahead of the United States in recognizing and defining fuel poverty, there are governments in other developed economies that are enabling social impact investing. The United Kingdom created an endeavor called Big Society Capital in April 2012 with £600 million, which is the equivalent of approximately $990 million US dollars under the conversion rate of 1.65 as of March 25, 2014.[84],[85] The money for Big Society Capital came from dormant bank and building society accounts, otherwise known as unclaimed assets that have been sitting untouched for 15 years or more. This endeavor was made possible by several laws freeing up the unclaimed assets, and signed into

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[82] Amy Bell, "Why Impact Investing Is An Emerging Paradigm Shift In Philanthropy," Forbes, last modified July 7, 2013, accessed April 21, 2014, http://www.forbes.com/sites/skollworldforum/2013/07/30/why-impact-investing-is-an-emerging-paradigm-shift-in-philanthropy/.

[83] Bell, "Why Impact Investing Is An Emerging."

[84] "About Us," Big Society Capital, accessed April 21, 2014, http://www.bigsocietycapital.com/about-us.

[85] Google Finance, accessed March 25, 2014, https://www.google.com/finance?q=GBPUSD.

existence by current Prime Minister, David Cameron. He spoke in June 2013 on the topic at the Social Impact Investment Forum, saying that social investing can "use the power of finance to tackle the most difficult social problems" that no government or country has been able to solve, such as drug abuse, homelessness, poverty.[86]

Big Society Capital has three operating arms: Big Society Trust, the holding company; Big Society Capital Ltd, the operating company of the group; and Big Society Foundation, which will receive donations and develop grant programs. There are many large banks that hold shares in Big Society Capital Ltd, including Barclays, HSBC, Lloyds Banking Group, and RBS. This movement towards impact investing opens the possibility of addressing some of the world's most pressing problems with a flexible solution that combines free market ideologies that can drive efficiencies with the reality of a situation that requires a massive infusion of capital to make a difference.

While microfinance and microsavings dominate the developing world as the vehicles to promote social betterment platforms, impact investing has started to gain traction as an alternative method for those looking to earn a return while promoting a cause in lieu of making a direct philanthropic donation. The combination of these concepts could come together to begin to address the rampant issue of fuel poverty in the South Texas colonias. The colonias communities impacted by high energy bills in proportion to their incomes need a solution that takes into account their low and irregular incomes, their lack of credit history, and their long, irregular time commitments with regards to home improvements. Financing that can help them must have a degree of flexibility that is tailored to their specific needs. [87]

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[86] "Prime Minister: 'social investment can be a great force for social change,'" Gov.uk, last modified July 15, 2013, accessed April 21, 2014, https://www.gov.uk/government/speeches/prime-ministers-speech-at-the-social-impact-investment-conference.
[87] Olmedo, *Energy, Housing and Income*.

Chapter 3: Using Microfinance in the Colonias

PART 1: MICROFINANCE FOR HOUSING

Because of the evidence that microloan recipients already had a tendency to use the loans to improve their dwellings, microfinance organizations began to expand their offerings to include loans specifically meant for home improvements. However, it has presented a different challenge than traditional microloans for small businesses. Loans for businesses have been small and for short periods to counter lack of collateral and income instability, but usual loans for homes or home improvements tend to be larger and for longer periods of time. However, housing loans for incremental home improvements can be done in succession, following the pattern that many low-income homeowners take of building and upgrading their homes one piece at a time. For homeowners, the home often represents their most important asset, and housing microfinance is one available vehicle to help homeowners retain and improve their home's value.[88] One proponent argues that, "Housing microfinance is a market-based, demand-driven solution that has made housing an affordable and economically viable option for low-income households…housing microfinance not only represents another appropriate and affordable financing option for low-income individuals to improve housing, it also increases a household's potential for creating sustainable wealth."[89]

The practice of microlending for homes has expanded internationally, but due to the more robust financial markets, there are fewer organizations offering the same microloan products in the United States. The economic stability of the US, including the

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[88] Robert P. Christen, "Foreword," in *Housing Microfinance: A Guide to Practice*, ed. Franck Daphnis and Bruce Ferguson (Bloomfield, CT: Kumarian Press, Inc., 2004)
[89] Kil Huh and Lopa Purohit Kolluri, "The Market for Housing Microfinance in the United States," in *Housing Microfinance: A Guide to Practice*, ed. Franck Daphnis and Bruce Ferguson (Bloomfield, CT: Kumarian Press, Inc., 2004)

stable interest and inflation rates, has led to mortgages being fairly affordable. However, many lower income people in the US who received mortgages partly as a result of looser credit requirements defaulted on their payments during the subprime mortgage bubble of 2008 and 2009, which dried up many sources of loan capital. On top of the lack of loan funds, most established banks do not offer small home improvement loans to unbanked or low-income consumers who want to overhaul their homes. These customers do not have the credit history that banks are looking for, and the size of loans that they request are not financially worthwhile for the banks.

Despite the robustness of the US housing sector and financial markets in comparison to those of developing countries, there are still segments of the population that can be helped by housing microfinance. Homeownership remains the primary way of building and retaining wealth throughout the world, and despite difficulty in finding capital; approximately 50% of low-income families own their own homes.[90] However, this number is lower than US averages, and many of the homes owned by low-income families are older and deteriorating. US federal programs have worked to increase homeownership rates, but there is still a need to assist families with maintaining their homes and the communities. Because of this, there is a market within low-income communities in the United States for microloans for home improvements.

PART 2: POWER ACROSS TEXAS AND THE ENERGY IMPACT FUND

One organization, Power Across Texas, has been working to develop a business plan to form an Energy Impact Fund that will assist residents in Texas colonias that are affected by fuel poverty. Power Across Texas is a non-profit organization based in Austin, Texas whose mission is “to promote policy perspectives and assertively

[90] Huh and Kolluri, "The Market for Housing Microfinance," in *Housing Microfinance: A Guide*

communicate the critical energy issues needed to ensure a reliable and affordable energy supply, a robust economy and a bright future for Texas."[91] The organization is nonpartisan, and works to bring together energy leaders, legislators, regulators, and other thought leaders several times per year to promote the discussion of power in Texas.

Aside from their work with Texas energy leaders, Power Across Texas also runs a biennial graduate student competition: The Texas Energy Innovation Challenge. Groups of graduate students from Texas universities are invited to compete for cash prizes and are asked to create solutions to a problem faced by the Texas electricity ecosystem. The second of these competitions took place in February 2013, when graduate student teams from the University of Texas, Texas A&M, and Texas Tech competed to propose a solution to the "continued lack of access to electricity among residents of the Colonias in South Texas."[92] As a part of the competition, each group had to present their solution to a panel of judges that are experts in their fields. After reviewing team proposals, Power Across recognized the potential to use microfinancing practices to help address access to electricity throughout the colonias. Following the competition, the judges and Power Across Texas felt strongly enough about the importance of the problem and the potential for a market based solution that they continued to meet to discuss a solution after the competition. While continued lack of access to electricity among colonias residents is a large problem, the focus has shifted to address the high electricity bill burden of the lowest income residents of the colonias. The group saw an opportunity to create an investment fund that would provide low interest energy efficiency upgrade loans to

[91] "About Us," Power Across Texas, last modified 2014, accessed April 21, 2014, http://www.poweracrosstexas.org/about-us-2/.

[92] "Texas Energy Challenge," Power Across Texas, last modified 2013, accessed April 21, 2014, http://www.pat.morphatic.com/projects-2/energy-primer-challenge/.

residents to help them escape the fuel poverty cycle while earning a respectable return for the Fund.

PART 3: ENERGY IMPACT FUND BUSINESS PLAN

The primary objective of the Energy Impact Fund (The Fund) is to create a measurable impact in decreasing energy bills and fuel poverty for the segment of the population that is encumbered with a high ratio of household expenditures for energy consumption to gross household income. To do so, The Fund will work with utilities, retail providers, contractors, and community agencies to effectively provide financing to very low and low-income customers for home improvements or appliances that will increase the energy efficiency of their homes. The Fund seeks to provide small, low cost grants and loans for energy efficient appliances, A/C units, weatherization, home improvement, new home construction projects, and small commercially available distributed electricity generation. The Fund has three core objectives as identified in its draft business plan:[93]

1) Provide measureable assistance to households in Texas who have high expenditures on home energy relative to income;
2) Gather together investors and philanthropists who are willing to provide capital that will earn them a small return relative to the market;
3) Encourage the deployment of energy efficiency products and services in underserved communities

Before establishing the structure of the Fund, it was necessary to fully understand the markets being targeted and the pains in those markets. While the issue of higher

93 *Energy Impact Fund: A New Kind of Investment Vehicle to Reduce Poverty in Texas - Draft Business Plan* (Austin, TX: Power Across Texas, 2013).

proportional energy costs in colonias communities has been previously covered, the Energy Impact Fund connects these colonias residents and investors to address a societal problem. The pain felt by colonias households is clear, but in addition, healthier and more economically robust communities have more to add to the greater economy than communities where shelter, food, and disproportionately high bills are the foremost worry.

There are an increasing number of investors who want to put some of their money into a societal impact fund. They can know that they'll earn a return, and that while that return will likely be smaller than had they invested elsewhere, their money is being put to use in helping to address a societal problem currently left under addressed by both the free market and government solutions. This is the same phenomenon that has encouraged investments in microfinance funds in the developing world, and in non-profit "IPOs". Further, the Energy Fund investors can see good done closer to home to help those left behind by rising income inequality and government budget cuts. The South Texas colonias communities are an area of particular interest for Texas investors given the depth of the problem and the high potential for solutions.

Operating Structure of The Energy Impact Fund

In its current iteration, the Energy Impact Fund will consist of a debt arm and an equity arm that sit under an umbrella organization. The parent organization will oversee the subsidiary that makes the microloans, the Investment Fund that invests in portfolio companies, the Management Company that will act as The Fund's manager, and the Investment Advisor, which will provide investment advisory services to The Fund.[94]

[94] *Energy Impact Fund: A New Kind*.

While the two arms of the Fund may share investors, each will be focused on different aspects of the overall mission. The debt side will work directly on distributing funds to colonias residents for efficiency improvements. While the goal is to focus on loans, the Fund is prepared to give out some money as grants to the absolute poorest of poor who would be unduly burdened by debt payments both to achieve fund sustainability and to help residents build credit and become part of the banked population. Because of the nature of the size of the loans and the need for a low interest rate to maintain affordability, the debt arm of the Fund will likely function as a non-profit organization. This will operate like microfinancing, and while it will be connected under the parent to the equity side, the debt has to be self-sustaining. The Board is looking to fund this piece of the organization through a mix of philanthropy, community reinvestment act government dollars, and foundations.

The microfinancing side will create a formula for lending, with criteria for loan type based on income levels. For those whose incomes are below a certain threshold, grants for energy efficiency home improvements may be given, depending on the impact of the proposed efficiency improvement. As a household's income increases, the household would move into loan territory, with varying interest rates. Only those with the very lowest income levels will qualify for grants. Residents interested in loans would have to submit some basic information about themselves, but the Fund plans to structure the application so that it does not become a deterrent or a burden. They would likely request the applicant's name, their address, their income, the proposed use for the loan money, and some form of identification although a social security number will not be required. The Fund will also request a copy of the applicant's most recent electric bills; the purpose of the Fund is to decrease the impact of high energy bills on colonias residents, and they must benchmark the bills prior to efficiency upgrades in order to demonstrate their impact. Data supporting the proof of concept will be critical in gaining further financial support and investments for the Fund. Accountability in payments will be an area that requires further thought, but there is potential for the Fund to work through employers of loan customers to ensure loan obligations.

Nested within the microlending side of the Fund will be a microsavings program; beneficiaries of loans would be required to participate in the microsavings program in order to assist with their bankability and credit rating. The Energy Impact Fund plans to find a partner in a bank or financial entity that will allow these people to open accounts at no cost and with no fees. They would then require the loan recipients to participate in some financial education training on a periodic basis and to make small deposits on a regular basis over the course of a six-month period. The deposits required will be small, and perhaps on the order of $2 to $5 per week, but even this will help build bank and credit history. The plan is to eventually tie interest rates to participation in the savings program by decreasing the interest rate by a small amount as bank history is built.

Power Across Texas is currently working to determine the most beneficial structure of the microfinancing fund, and is working on models to calculate the expected capital costs, the needed working capital, expected rates of default, average loan amounts, and the interest they need to charge to break even. The first loans will likely be of a smaller scale, as the program works out its operations and gathers data. As operational data becomes available, they will be able to adjust lending practices and amounts in order to meet the needs of more low-income households.

Farther down the road, the Fund's equity side will invest in upcoming technologies that when commercialized, can increase the efficiency of homes in the colonias. They will target technologies that can be widely applied and useful to low income communities with substandard buildings. The Fund will look to take an equity position in a company that targets low-income consumers and will function like a more patient venture capital fund, with the hopes of garnering a small but respectable return on capital. The investment arm will be structured as a closed-end investment vehicle with a 12-year term. The Fund will have a minimum total size and will require investor participants to make a minimum capital commitment. However, keeping in line with the Fund's mission, investors' return expectations will need to be lower than what would be expected from traditional venture capital. The Investment Fund will hire experienced investors that can identify potential technologies to assist low-income, fuel poor households.

Part of the early stages of funding both sides of the Energy Impact Fund will be a marketing push on the programmatic goals and a commitment to using free market solutions to solve a societal problem. The Fund's creators plan to make it a predominant selling point that an investment in the Fund will be a unique opportunity to put capital to work in a free market and provide a difference in the lives of low-income people residing in the nation's leading energy state. The Investment Fund is formed to spur technology to deploy in locations and in ways that may provide a promise of ubiquitous, affordable power to benefit economic development in Texas, and as a model for solutions in other areas of the nation and the world.[95] As mentioned above, there are an increasing number of investors looking to make a social impact, and the Fund has a particular niche in its location. Texas is the home of the energy industry in the United States, and yet still has this widespread problem of fuel poverty along its border with Mexico. Texans have a particular propensity for wanting to invest in their own community given the amount of state pride and to invest in a way that rests on the laurels of the free market. There is a

[95] *Energy Impact Fund: A New Kind.*

large amount of wealth in Texas and the Energy Impact Fund, with the right marketing message, has the potential to raise significant funds from this community.

The Energy Impact Fund will have to find investors that are willing to invest in a more non-traditional sense and that are aligned with social investing, which is why they are considering incorporating the parent organization as a Benefit, LLC. The Benefit, LLC designation will optimize tax treatment while signaling the Fund's commitment to create a general public benefit in the form of energy affordability. There are 20 states that have legislation allowing Benefit Corporations, and 18 others that have introduced legislation.[96] The laws vary, but they all mandate that if a company is to become a Benefit Corporation, the company and its board must "take into account public benefits that impact society and the environment when making decisions."[97] In addition to any other annual reports, Benefit Corporations also have to issue an annual report that has been audited and that states their progress in meeting set social and environmental goals. This type of corporation came into being so that companies that wanted to operate with goals and targets that went beyond their financial bottom line could do so with certain legal protections. The Energy Impact Fund is considering using the Maryland Benefit LLC as a business structure, which complements the Benefit Corporation Structure. Under a Maryland Benefit LLC, a company can be a Benefit Corporation, but can also register as a limited liability company, which prevents certain companies from having to convert to a corporate structure. Texas does not have Benefit Corporation legislation, and is there is not currently any planned legislation. For this reason, the Energy Impact Fund

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[96] "State by State Legislative Status," Benefit Corp Information Center, last modified 2014, accessed April 21, 2014, http://benefitcorp.net/state-by-state-legislative-status.

[97] Anne Field, "Benefit Corporations, L3Cs and All the Rest: Making Sense of Those Confusing Choices," Forbes, last modified May 25, 2012, accessed April 21, 2014, http://www.forbes.com/sites/annefield/2012/05/25/benefit-corporations-l3cs-and-all-the-rest-making-sense-of-those-confusing-choices/.

will have to incorporate elsewhere if it plans on becoming a Benefit Corporation or a Benefit, LLC.[98]

In order to be successful, the directors of the Fund recognize that the keys to success include a detailed understanding of the colonias residents as the market, an experienced management team, partnerships with energy efficiency product and service companies, and partnerships within the colonias communities for marketing purposes.

The proposed Energy Impact Fund is a new and innovative approach to addressing one of the pervasive problems that continues to perpetuate the poverty cycle in the South Texas colonias: high energy bills stemming from a lack of efficient technologies and sound residential structures. Through a dual approach of providing microloans for home improvements that will improve energy bills and encouraging microsavings accounts to build households' credit while simultaneously investing in early stage companies that address the same problems from a technology standpoint, the Fund may be able to make a material impact while maintaining financial sustainability on the loan side and gaining a return on the investment side. No microfinance, venture capital, or non-profit has attempted to put together a non-profit and an investment company under one roof that is driven both by free market principles and by a social impact goal.

PART 4: CONCERNS AFFECTING IMPLEMENTATION OF THE FUND AND POTENTIAL SOLUTIONS

While this potential solution as an Energy Impact Fund is innovative in its design, it is still in the planning phase, and there are many questions that remain that will ultimately affect its success.

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[98]"State by State Status," Benefit Corp Information Center, last modified 2014, accessed April 21, 2014, http://benefitcorp.net/.

The Energy Impact Fund recognizes that it will need to develop a network of partners within the colonias communities, including preexisting community leaders, non-profit organizations with aligned goals, and local utilities and contractors to assist with technology installation and home upgrades consistent with codes. At this stage, these partnerships have not been formed, but the leadership team of the Fund will plan to start developing these relationships early to ensure smooth operations upon launch.

One of the largest questions will be over the creditworthiness and bankability of the colonia residents. Many of them are extremely low-income, and many not be able to show any sort of dependable nor regular income. Community Resource Group has run a microloan program for the colonias in Starr County for the last decade. The details of the program are covered in the next section, but their experience with these loans has shown that the household spending level must be less than 40% of household income for them to be able to make loan payments.[99] The Fund anticipates that there will be clients who will have such low incomes that they will receive grants rather than loans for home improvements, and that those who can afford it will receive loans with varying interest rates. The Community Resource Group program did not experience high levels of default, which is a promising sign for The Fund. Ultimately, the Fund is expecting that some higher interest loans can help cover the cost of the lower to no interest ones, and that the microsavings program requirement will improve the creditworthiness of their clients.

While creditworthiness and default rates are an area of high concern, another issue that must be addressed is the potential for high transaction costs relative to the loans, which could ultimately make the microlending financially unsustainable. This is a problem faced by any organization providing microloans, as the interest generated from

[99] Giusti and Estevez, "Microlending for housing in the United States."

larger sized loans tends to cover these customer acquisition and due diligence costs. To counter this, the Fund plans to work closely with community leaders, local non-profits, and pro-bono partners to find the clients, sell the concept, and screen the applicants. With a larger pool of loans, there is the potential to reach an economy of scale that is sustainable by diversifying the risk of default of any single loan.

The Fund must find a way to track the use of the loans in order to make the argument that the concept is proving beneficial in reducing energy bills. As seen with microloans for small businesses in the developing world, there is always the possibility that someone will use the loan for something other than its intended project. For a Fund so focused on improving households' standard of living through decreasing energy costs and increasing their creditworthiness, this verification will be important to develop. This will require partnerships with local community groups to check on the uses of the loans in such a way that does not deter borrowers to apply for future loans or recommend to others.

Another potential issue is how to reach the people in these communities, as some of them do not want to be contacted and purposely live on the edges of society. They exist in a cash only society, where governments and creditors cannot track them. Power Across Texas has given thought to this obstacle, recognizing that the best way to get the word out is through community thought leaders. A benefit to their current business plan is the lack of connection to government, as government involvement increases the wariness of the residents, who often prefer to remain under the radar for various reasons including lack of citizenship. Instead, in many colonias, there are community leaders called promotoras who are the go-to-person for households when they are looking for knowledge on which resources are available to them. This has become such a widespread phenomenon in colonias that the promotoras have organized themselves across the different colonias, and third parties will approach them to publicize their offerings.[100] Thus, the key for Power Across Texas and the Energy MFI Fund is to work closely with these promotoras.

People living in colonias communities are used to a more informal style of self-government, rather than direct involvement and oversight from either the United States or the Texas officials, and as noted, often prefer to remain out of sight. The expectation is that they will shun any sort of requirement like a full-page application that includes their social security number. The Energy Fund will thus work to find local partners in the community to make the process as simple and transparent as possible.

The Fund will need to develop criteria for loans and to know when a home's current condition is such that a grant or loan would not lead to material improvement. For example, a home with absolutely no insulation and poorly sealed windows and doors will see little measurable impact from a new, efficient heating system. Some of the housing in the colonias was built in such a way that there is no amount of improvement that can make them efficient or code-compliant. Part of the loan process may include a precursory home inspection to ensure that the home can benefit from the proposed improvements. In addition, the Fund will need to determine how to legally deal with code violations. Many homes will not be up to code *after* the improvement projects, especially if they are self-built. A home improvement loan may have to come with the stipulation of a follow-up inspection in order for the Fund to legally operate, and this is an issue that deserves careful research.

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[100] Community Health Worker Research Materials, accessed April 21, 2014, http://www.dshs.state.tx.us/library/chw.shtm.

While there are many questions to ask beyond the initial business plan, The Energy Impact Fund has potential to succeed as a vehicle to help decrease fuel poverty in South Texas.

PART 5: EXISTING SIMILAR SOLUTIONS

As The Fund works to solve those issues and further develop the business plan, there are institutions that can serve as exemplars and bases for comparison throughout the process. There are quite a few organizations in the United States that have formed over the last decade that are working to reduce the prevalence of poverty and the effects of poverty through various applications of microfinance, microlending, and other innovative financing solutions that increase the poor's access to credit and helps them either through a small business loan or through housing and energy assistance. They target those who don't have a credit history, or who have damaged credit, or who are considered to be too risky by traditional loans administered by banks. The most applicable examples are explained below.

United States Department of the Treasury: Certified Community Development Financial Institution

The United States government recognizes that there is a wide swath of the population that remains unbanked or underserved by traditional banks. As a result, in 1994 as part of the Riegle Community Development and Regulatory Improvement Act, the Community Development Financial Institution (CDFI) Fund was created. The Fund could provide organizations an opportunity to receive CDFI accreditation, which allows those organizations to access financial and technical help from the CDFI Fund. To become accredited, an organization must be "a legal entity, have a primary mission of promoting community development, be a financing entity, primarily serve one or more target markets, provide development services in conjunction with its financing activities, maintain accountability to its defined target market, and be a non-government entity and not under control of any government entity."[101] The CDFI Fund can directly invest in and support and train accredited CDFIs, provide an allocation of tax credits that helps attract private-sector investments, provide incentives to banks to invest in CDFIs, and issue bonds to support CDFIs that make investments in certain community development projects. As of January 2013, the CDFI Fund had granted $1.7 billion to CDFI certified organizations as well as awarding tax credits that will result in private sector investments of $33 billion.[102] Many of the following non-profit or US microfinance institutions have successfully been approved as a designated CDFI organization.

Community Resources Group: Nuestra Casa Program

Nuestra Casa is a program run by the Community Resources Group to provide short-term loans to residents in South Texas, specifically to be used for home improvements. Community Resources Group is a non-profit organization that operates in the US South and Southwest. The group works with low-income people in rural communities on issues such as water, wastewater, and home safety.[103] Community Resource Group relies on investors, partners and funders, including several banks and multiple governmental organizations. They have received funding from the Department of the Treasury's CDFI program. [104]

The Nuestra Casa Program was started in 2000 with the goal of helping people along the Texas-Mexico border improve their housing conditions and their personal

[101] Community Development Financial Institutions Fund, last modified April 7, 2014, accessed April 21, 2014, http://www.cdfifund.gov/what_we_do/programs_id.asp?programID=9.

[102] Community Development Financial Institutions Fund.

[103] "About CRG," Community Resource Group, last modified 2014, accessed April 21, 2014, http://www.crg.org/about-us.

[104] "About CRG," Community Resource Group.

financial wherewithal. Through 2013, Nuestra Casa has awarded more than 1,300 loans.[105] On a basic level, Nuestra Casa is similar to Power Across Texas' vision for the Energy Fund, although Nuestra Casa's program is more limited in scope and financial wherewithal than the vision for the Energy Fund. However, their success story is a positive sign for other groups that seek to develop solutions to low-income housing problems in the United States.

The Community Resources Group has been involved with colonias communities since the late 1990s, specifically in Starr County, with work initially focused on assisting residents with their homeowner title issues, which in many cases dated back to Texas' independence from Mexico and before. They began the Nuestra Casa program after observing the lack of financial assistance available to residents.

The Nuestra Casa program was specifically designed to be simple. They make loans of $2500 at a 9% interest rate over a 24-month period that are specifically for home improvements. Under these rates, the monthly payments average out to $115 per month over the two-year period with a final payment of $95. The recipient can get a loan increase up to $3,500 if they make all of their loan repayments on time during the first year. To be eligible for the loans, an applicant must live within Starr County, report all household income and monthly expense obligations, prove ownership of the property, and show a plan explaining how the funds will be used. Community Resources Group will deny an application if their monthly household spending levels exceeds 40% of their income. The program is fully administered by Community Resources Group and is not linked to any governmental agency or program.[106]

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105 "Nuestra Casa Home Improvement Lending," Community Resource Group, last modified 2014, accessed April 21, 2014, http://www.crg.org/how-we-help/affordable-housing-programs/nuestra-casa-home-improvement-lending.
106 Giusti and Estevez, "Microlending for housing in the United States."

Approximately 70% of the recipients of Nuestra Casa loans have a household income below the poverty level, with annual incomes ranging between $9,864 and $15,768. With the loans they receive from CRG, homeowners report using the money for air conditioning, insulation, floor work, roofs, fences, cabinets, walls, and annexes. Most of these improvements cost more than the $2,500 loan amount, and CRG has noted it is common for a household to buy the equipment or materials with the first loan, diligently pay it off, and then work on construction after being approved for a second loan.[107]

The population served by the Nuestra Casa program are part of the unbanked. While they do have extremely low incomes, CRG has found that their lack of other financial obligations enables them to more easily pay their monthly loan obligations. The loans are small, of the microloan level, which results in low monthly payments within their payback capacity. CRG does not require any sort of collateral on behalf of their clients to back up the loans.[108]

Despite the low incomes of the population served by Nuestra Casa loans and their lack of collateral, the delinquency rates on the loans have been extremely low. In 2001, the first full year of the program, only 8% of recipients defaulted on the loans. By 2004, this rate had dropped to 4%, and it dropped down to 3% in 2005, which is the most recent year of published data. For clients that do miss a payment, Nuestra Casa staff will contact the client and see if they need to renegotiate the payment schedule. If the client does not respond and fails to make further payments, there are no legal ramifications. However, that person will be unable to get any further loans in the future; this serves as the enforcement measure. Lastly, the Nuestra Casa program did consider that migrant labor is often a common form of work for colonias residents, and so they make arrangements

[107] Giusti and Estevez, "Microlending for housing in the United States."
[108] Giusti and Estevez, "Microlending for housing in the United States."

with these borrowers to address their travel schedules. The migrant workers who are away from home for an extended period can pay in advance, arrange for someone else to turn in their payments, or work with the CRG staff to redefine a payment schedule.[109]

The Nuestra Casa program serves as an important data point for Power Across Texas as they work to develop the Energy Impact Fund, as there are many aspects of the Nuestra Casa program that will likely be incorporated into The Fund. They target similar markets with similar goals, and could be a competitor or a potential partner in the market. However, the population that remains underserved is large enough to accommodate multiple players. Nuestra Casa's program is ultimately more limited than The Energy Impact Fund's, but its experimentation with fixed loan amounts and interest rates and flexibility with payments are successful examples of how a fund of this nature can function.

EDCO Ventures: Innovación Investments

The Economic Development Catalyst Organization (EDCO) was formed in 2005 as a non-profit corporation, and became EDCO Ventures in 2007. EDCO Ventures is developing a capital fund focused on Texas that will invest equity in companies with positive social returns to benefit developing regions, low income communities, and under-served groups. It will operate like a venture capital fund, but will be designed to give the companies more time to develop than the normal commercial venture prior to the venture capital exit.[110] As of 2014, EDCO Ventures had made 4 seed investments, and works within the early stage, technology based companies. They are currently working to

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[109] Giusti and Estevez, "Microlending for housing in the United States."

[110] EDCO Ventures, last modified 2014, accessed April 21, 2014, http://edcoventures.org/initiatives/.

raise money for a fund entitled Innovación Investments that will be a community development venture capital fund.[111]

The equity investment arm of The Energy Impact Fund may have a similar tenor to Innovación Investments, as both aim to invest in companies that will benefit the societal good but still operate as a venture capital fund. However, EDCO Ventures is not focused solely on energy efficiency endeavors. EDCO Ventures has several years' experience, but there is no information on when they plan to launch Innovación Investments; if they launch sooner rather than later, they can also serve as a learning point for The Fund as it develops its investment arm.

ACCION

ACCION began in Venezuela in 1961, and since expanding out of the developing world and into the United States in 1991 it has become the largest and only nation-wide source of microfinance in the country. Accion was concerned about rising income inequality in the United States, and started its US based program in Brooklyn, New York, and quickly expanded to San Antonio, Albuquerque, Chicago, and San Diego.[112] It now covers the nation, and has given out over 48,000 loans, lending over $394 million. The average loan is $10,000, and 41% are disbursed to women; there were over 5,800 active loans as of end of September, 2013 totaling $60.9 million, and Accion only considered 5% of loans to be at risk.[113]

Accion has a Texas office in San Antonio, entitled Accion Texas Inc. Its mission is the same as the broad Accion network, focuses on the Texas and Southeastern United

[111] "Impact Investors," EDCO Ventures, last modified 2014, accessed April 21, 2014, http://edcoventures.org/impactinvestors/.
[112] "Our History," ACCION, last modified 2013, accessed April 21, 2014, http://www.accion.org/about-us/history/1990s.
[113] "Our History," ACCION.

States markets, and makes loans to small business, microenterprises, nonprofit organizations, real estate, and affordable housing.[114] Accion is a CDFI accredited organization, allowing it to receive tax credits and funding from the US Department of Treasury.

Due to its size and experience, Accion has been able to form partnerships that extend its scope and presence. They have a partnership with Kiva, which is a service that allows individual donors to lend small amounts of money to borrowers around the world. Kiva works with microfinance institutions around the world, but also leverages the power of the internet to bring in individual lenders. In its partnership with Accion and Accion Texas, individual lenders can search for people or small businesses who are connected with the Accion network. Under this relationship, the small business borrower pays installments to Kiva, and Accion will then repay Kiva for the loan principle.

In order to sustain its business, Accion relies on donations and social investors. They have a program for socially responsible investing that allows investors interested in their own communities' development to invest a minimum of $1,000 under a one to three year term, with an interest rate of 0%, 1%, or 2%. At the end of the loan term, the investor will be repaid in full with the interest.[115]

Accion has been a pioneer in microfinance for several decades, alongside Grameen Bank, and has recognized the potential for microfinance to address certain pervasive societal problems in the United States as well as in the developing world. With so many years of experience, there is much in Accion's business model that can serve as

[114] "Mission," ACCION, last modified 2013, accessed April 22, 2014, http://www.acciontexas.org/about/mission/.
[115] "Why Invest," ACCION, last modified 2013, accessed April 22, 2014, http://www.acciontexas.org/support-accion/why-invest/.

a guide for The Energy Impact Fund as it starts to set up its microfinancing arm, including the various methods it has chosen to use for funding.

HomeBase Texas

HomeBase is an organization focused on affordable housing in Texas. They sell homes to low-income buyers at sub-market prices under the stipulation that the homeowners must proportionally share any profit with HomeBase when they sell the home. A household's income must be between 60% to 80% of the published median household income for that area. In order to help these people afford a home, they operate under a shared equity approach, where an organization like HomeBase partners with the new homebuyer to bring the market value down to an affordable sales price. The homeowner has to qualify for and get a first lien mortgage, and HomeBase or another partner will own the second lien that makes up the difference between the purchase price and the market price. So, when the home is sold and if the value increases, they share any gains in home price appreciation with the investor.[116] HomeBase is working to help low-income people afford their own homes, although there is a limit to how low a household's income can be to qualify for their help. The current partners listed by HomeBase are the Mueller Development and the WestGate Grove Development in Austin; both neighborhoods have a focus on green building design and will be certified as green buildings by the city of Austin. This serves to keep additional home expenses low for the new homeowners as they commit to their mortgage payments, and helps keep homeownership affordable. HomeBase is using an innovative form of dual financing that is shared between HomeBase and the homeowner, which could be a learning reference point for other organizations working on affordability for low-income communities.

[116] "About Us," HomeBase Texas, accessed April 21, 2014, http://homebasetexas.org/about-us/.

Grameen America

Grameen America replicates Muhammed Yunus's Grameen Bank model in the United States, focusing on the 46 million people in the United States that still live in poverty.[117] It is registered as a 501(c)(3) non-profit organization. Grameen America focuses on women; a woman can pair up with four others to form a Grameen Group that then must partake in a week of financial training that culminates in each woman opening a savings account. Each woman will then receive a $1,500 loan to build a small business; the groups will continue to meet with Grameen America to further their education, build their networks, and make loan repayments and savings account deposits. Grameen America reports that 99% of the loans are repaid in full. After repayment, the borrowers have the opportunity to receive larger loans.[118]

Grameen America began its work within the United States in 2008, starting in Union City, New Jersey. It has since expanded to include New York City, Boston, Charlotte, Indianapolis, Omaha, Austin, San Francisco, San Jose, and Los Angeles. Through 2013, Grameen America has loaned around $130 million to over 21,000 women in the US.[119] Grameen America has convened pro-bono partners that provide advisory services, and a wide array of financial partners, including Bank of America, Chevron, JP Morgan Chase, Morgan Stanley Wells Fargo, Whole Planet Foundation, and Whole Foods Market, who donate capital.[120] Grameen America also accepts individual donations. They charge a 15% interest rate with no additional fees on the micro-loans, and each locational branch is meant to reach the point where interest income covers branch expenses within 4 to 5 years once it has 4,500 active borrowers.[121]

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117 Grameen America, last modified 2014, accessed April 21, 2014, http://grameenamerica.org/.
118 Grameen America.
119 Grameen America.
120 Grameen America.
121 Grameen America.

Grameen America is one of the largest microfinance institution in the United States, which makes it an important model to study in the development of a fund with similarities to microfinance. They manage to reach sustainability on their various US branches by charging a flat 15% interest rate; while this may not be directly applicable to the clients that the Fund is attempting to reach, as Grameen targets entrepreneurs, it is useful to examine the pluses and minuses of such a simple system.

Capital Good Fund

Founded in 2008 in a social entrepreneurship class at Brown University, Capital Good Fund works to help the poor Providence and Woonsocket, Rhode Island, and Hartford, Connecticut work their way out of poverty. Capital Good Fund is financed through a mix of grants, government funds through CDFI, individual donations, and funds raised from their non-profit IPO (immediate public offering) where one share costs $25. Part of Capital Good Fund's mission to incorporate environmentalism through the organization, as they believe that the development of the green economy is "one of the most powerful ways to combat poverty." [122]

Capital Good Fund offers individualized low cost financial coaching, and allows graduates of that program to apply for a variety of loans. The consumer loans range from $500 to $2,000 and come with a fixed two-year period and an interest rate of 20%. To qualify, the customer has to have a bank account, some form of income, spend less than 50% of their income on housing, and be current on other payments (auto loan, child support, etc).[123] The small business loans are generally intended to support green businesses.

[122] "Our Green Focus". Capital Good Fund, last modified 2014, accessed April 21, 2014, http://www.capitalgoodfund.org/ourimpact/ourgreenfocus.
[123] "Consumer Loans". Capital Good Fund, last modified 2014, accessed April 21, 2014, http://www.capitalgoodfund.org/ourservices/consumerloans

Capital Good Fund also offers a DoubleGreen Home Loan, that is one of the few energy efficiency related loan programs for low income customers in the United States. These are offered in partnership with National Grid, the local electricity and gas provider, and provides $500 to $5,000 loans to customers for insulation, light bulb replacements, duct sealing, wiring, and more. The loan is offered interest free with low, affordable installments over two to four years.[124] Capital Good Fund's Double Green Program is similar to the loan program envisioned by the Energy Impact Fund; they are focused on energy efficiency, and the loans are made to low-income customers with little to no interest. The program relies more on donations than on self-sustainability, but the model presents applicable parallels.

[124] "Our Green Focus."

Conclusion

While the United States does not have a severe problem with energy poverty, meaning that the overwhelming majority have access to energy services, there is still a problem with fuel poverty, where households pay a significant and disproportionate amount of their gross income on energy bills which often is a factor in those households' continued poverty. While there are some government programs that work to assist with energy bill support, and other minor approaches that assist with home weatherization, there are still more solutions that are "bandaids" which inefficiently allocate funds by solely covering bills rather than by addressing the source of the problem: highly inefficient homes that leak energy. Private market initiatives and NGOs are needed to supplement the aid provided by the government, utilities and charities and more particularly, to bring long term solutions, rather than just emergency aid, to address fuel poverty.

Microfinance has increased the poor's access to credit worldwide, as the very poor often are unbanked, have low credit, or simply request loan amounts that are too insignificant for banks to process economically at a profit. The model of providing microloans was pioneered in the developing world, but has since gained a foothold in the United States and other developed nations as a means to help those who live below the poverty line. Microfinance has traditionally been used as a tool for small entrepreneurs to finance the start of their business, but the concept has grown to small personal loans that can be used for housing improvements and other purposes. The market for microloans for home improvements clearly exists in low-income communities across the United States.

The colonias communities, along the US-Mexico border, have high levels of fuel poverty, a large unbanked population, and a high potential for microloaning practices as a solution. The Energy Impact Fund proposes to use many of the concepts of microfinance to help the households of the colonias access funds that will directly be used to improve their home efficiency and thus their home energy bill burden. The Fund's microfinance arm will be complemented by an investment company that will target investments into companies developing technologies that have the potential to decrease energy use and can be applied across every income level. While the Fund has many questions to address as it develops and eventually launches, it serves as the most innovative solution to the current situation in the colonias by pulling together microfinance, equity investments, and learns from prior examples to diminish fuel poverty.

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