MISSOURI

Exhibit 302

ENERGY EFFICIENCY FOR ALL

The Significant Potential for Energy Savings in Missouri's Affordable Multifamily Housing

Optimal Energy, an energy efficiency consultant, recently conducted a study to calculate the potential energy savings from the implementation of energy efficiency measures in Missouri's affordable multifamily sector. The study identifies the maximum achievable potential savings and benefits that can be captured over the 20-year period from 2015-2034 through the deployment of affordable multifamily energy efficiency programs.

The study found that there is significant as yet untapped energy savings potential in Missouri's affordable multifamily housing. Pursuing these savings by investing in affordable multifamily energy efficiency programs can help utilities meet their Missouri Energy Efficiency Investment Act (MEEIA) peak demand and energy sales reduction goals, while delivering many other public benefits. Improving the energy efficiency of affordable multifamily housing improves the lives of residents by reducing energy expenses, creating healthier, more comfortable homes, and contributing to the preservation of Missouri's affordable housing stock.

KEY FINDINGS FOR MISSOURI

Four critical findings for Missouri emerged from the study:

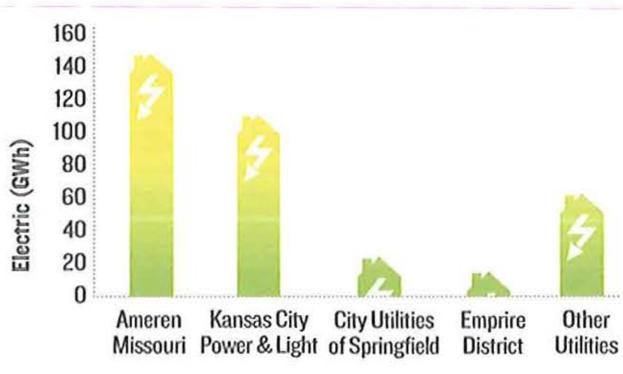
1 There is significant energy savings potential in Missouri's affordable multifamily sector.

Rather than a marginal strategy to reduce energy usage, improving the energy efficiency of the affordable multifamily housing stock represents a significant opportunity for Missouri utilities and other stakeholders. The study determined that relative to forecasted load, by the end of 2034 Missouri could cost-effectively:

-15%
Reduce electricity demand in affordable multifamily buildings by 358 GWh (15 percent).

-17%
Reduce gas demand in affordable multifamily buildings by 590 BBtu (17 percent).

CUMULATIVE MAXIMUM ACHIEVABLE ELECTRIC SAVINGS POTENTIAL BY UTILITY SERVICE TERRITORY, 2015-2034 (GWH)



CUMULATIVE MAXIMUM ACHIEVABLE GAS SAVINGS POTENTIAL BY UTILITY SERVICE TERRITORY, 2015-2034 (BBTU)

MISSOURI CUMULATIVE BASE CASE MAXIMUM ACHIEVABLE POTENTIAL BY UTILITY SERVICE TERRITORY, 2034

UTILITY	ELECTRIC (GWH)	NATURAL GAS (BBTU)
Ameren Missouri	147	239
Kansas City Power & Light	110	184
City Utilities of Springfield	24	40
Empire District	15	24
Other Utilities	62	102
TOTAL	**358**	**590**

2 Including non-energy benefits (NEBs) can have a significant impact on maximum achievable potential for Missouri's affordable multifamily sector.

The study examined the impact that including NEBs in cost-effectiveness calculations would have on the maximum achievable potential. NEBs that warrant quantification include improvements in residents' health, increased resident comfort and housing property values, and reduced bill arrearages, customer calls, collection activities, and safety-related emergency calls. The study provides both a low benefit and high benefit scenario for the inclusion of NEBs; both show significantly increased savings potential.

LOW NEB IMPACT SCENARIO

19%
Maximum achievable electric savings of 438 GWh (19 percent).

23%
Maximum achievable gas savings of 774 BBtu (23 percent).

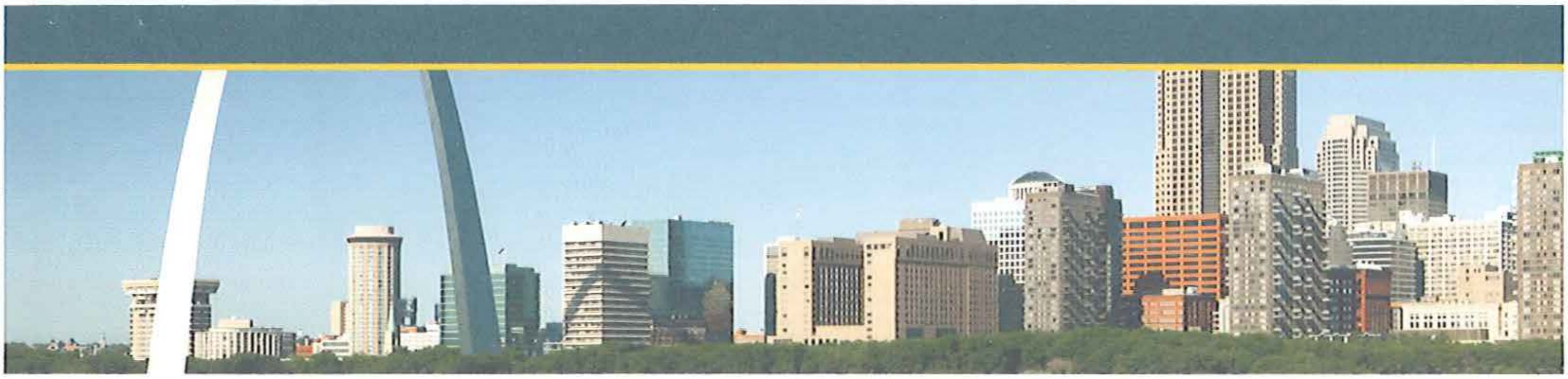
HIGH NEB IMPACT SCENARIO

20%
Maximum achievable electric savings of 459 GWh (20 percent).

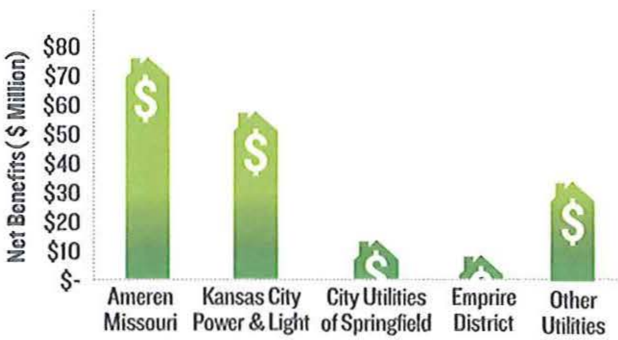
24%
Maximum achievable gas savings of 827 BBtu (24 percent).

3 The total benefits to society (as defined by the Total Resource Cost Test) from pursuing energy efficiency in affordable multifamily housing substantially exceed the costs.

- Missouri's benefit-to-cost ratio (BCR) for the base case maximum achievable saving potential is 1.9.
- For the Low NEBs scenario, total net benefits for Missouri increase by 168 percent from $189 million to $511 million with an increase in BCR from 1.9 to 2.5.
- For the High NEBs scenario, total net benefits increase by 370 percent from $189 million to $894 million with an overall BCR shift from 1.9 to 3.2.



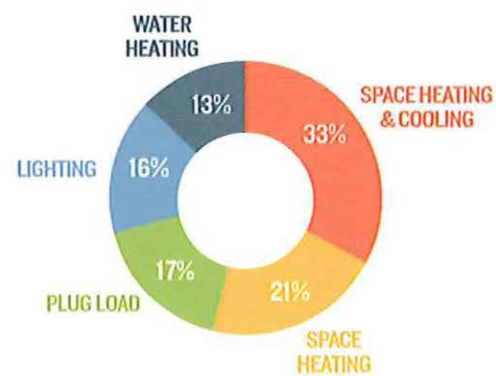
NET BENEFITS FROM INVESTMENT IN MAXIMUM ACHIEVABLE POTENTIAL SAVINGS ($MILLION)



Measures that reduce energy usage for space heating and cooling contribute the majority of potential energy savings.

- Measures that reduce energy usage for space heating and cooling contribute 54 percent of electric savings and 86 percent of gas savings. The savings are achieved primarily through the introduction of Wi-Fi thermostats, efficient in-unit and central furnaces and central boilers, new efficient windows, and air sealing.
- Equipment plugged directly into an outlet (plug load) — consumer electronics are a major part — contributes to 17 percent of the potential electric savings. Advanced power strips account for the bulk of these savings, reflecting their lower costs, accessibility, and relatively low current penetrations in the multifamily market segment.
- Energy efficiency measures for lighting contribute 16 percent to the potential electric savings. Standard LED general service lamps in both in-unit and common area applications represent 14 percent of the total electric potential.
- Finally, measures that improve water heating efficiency contribute 13 percent of potential electric savings and 14 percent of potential gas savings. Commercial clothes washers, water heater pipe wrap, and low-flow showerheads and faucet aerators are the principal measures contributing to water heating savings.

MISSOURI CUMULATIVE MAXIMUM ACHIEVABLE ELECTRIC ENERGY SAVINGS BY END USE, 2034



MISSOURI CUMULATIVE MAXIMUM ACHIEVABLE GAS ENERGY SAVINGS BY END USE, 2034

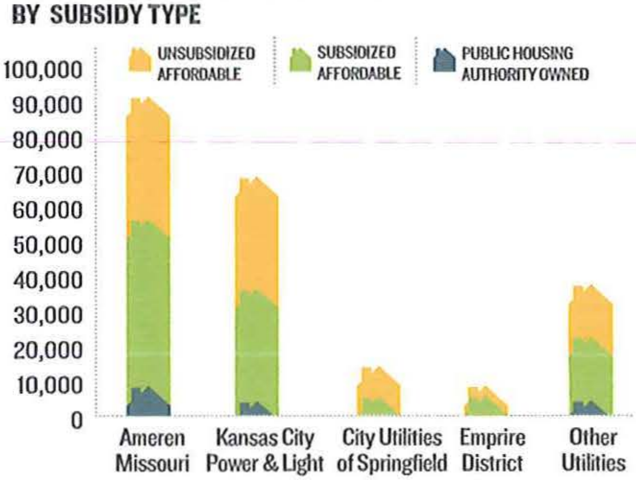
METHODOLOGY

In order to determine the Maximum Achievable Potential Savings in each state, Optimal Energy gathered data on multifamily affordable housing unit counts, baseline energy consumption, and location dependent parameters in each state. They also conducted a detailed characterization process on 182 efficiency measures that represent all of the major efficiency opportunities in affordable multifamily housing and developed cost-effectiveness tests to screen those measures. Finally, the researchers developed two scenarios for potential energy savings, one that identifies the economic potential, and another that is based on the economic potential scenario, but takes real-world market barriers into account and results in the Maximum Achievable Potential (MAP) savings numbers that are presented in the study.

Unit Counts

Elevate Energy and the National Housing Trust provided estimates of multifamily housing unit counts by state, electric utility service territory, building size, and subsidy type. The affordable multifamily housing market, defined as all buildings with five or more units occupied by people with household incomes at or below 80 percent of the area median income, was subdivided into properties with 5 - 49 units and those with 50 or more units. Properties were also characterized as unsubsidized affordable, subsidized, and public housing authority-owned. The chart below presents Missouri unit counts by utility and subsidy type.

AFFORDABLE MULTIFAMILY HOUSING UNIT COUNTS BY SUBSIDY TYPE



Baseline Energy Consumption

Optimal Energy developed annual energy consumption estimates for typical affordable multifamily housing units for both electric and gas for each state. Estimates were primarily based on data from the U.S. Energy Information Administration's (EIA) 2009 Residential Energy Consumption Survey (RECS). Given the limited sample size of the RECS data, isolating data for just the affordable housing sector was not possible. However, the multifamily data gathered was reasonably consistent with recent affordable housing energy studies.[1] Other adjustments made to the RECS numbers include:

- Adding 10 percent to account for common area usage that is not included in the RECS data, based on recent studies that specifically quantified common area characteristics and
- Accounting for the impact of the Energy Independence and Security Act of 2007 on lighting efficiency standards.

THIS ANALYSIS YIELDED THESE ESTIMATES:

2,338,392 MWH
MISSOURI BASELINE ELECTRIC CONSUMPTION

3,399,183 MMBTU
MISSOURI BASELINE GAS CONSUMPTION

Measure Characterization

Optimal Energy collaborated with NRDC to develop a comprehensive list of measures representing all major efficiency opportunities in affordable multifamily housing. The 182 measures on the list were then characterized in terms of costs, savings, useful lives, and baseline assumptions.

- Measures addressing each primary residential end use (e.g., space heating, cooling, and lighting) were represented. They included building envelope improvements, efficient lighting systems and controls, efficient appliances and consumer electronics, efficient heating and cooling systems and controls, and behavioral programs. Efficiency opportunities both in common areas and within individual housing units were considered.
- Measures were characterized on a per housing unit basis, allowing the per-unit impacts and costs to be adjusted based on significant factors such as climate, while still enabling estimation of potential by utility territory based on the number of affordable housing units within each territory. To preserve the per-housing-unit approach, central system efficiency measures were allocated proportionately at the unit level.
- Measures were characterized in the context of two markets, natural replacement and renovation/retrofit, because costs and savings vary depending on the context within which a measure is applied.
- Measure characterization included defining the following for each combination of measure, market, and, if necessary, building size:

SAVINGS
(relative to baseline equipment)

COST
(incremental or full installed depending on market)

LIFETIME
(both baseline and high efficiency options if different)

OPERATION AND MAINTENANCE
(O&M) impacts (relative to baseline equipment)

WATER IMPACTS
(relative to baseline equipment)

- Utility territory level adjustments were applied to account for variations in climate, equipment and labor costs, and lighting hours of use. Also included were adjustments for electric and natural gas avoided costs.

Measure savings estimates were developed from applicable secondary sources including technical reference manuals and other recent potential studies. As appropriate, the estimated savings were adjusted to reflect climate, equipment and labor costs, lighting hours of use, and avoided energy costs specific to Missouri. For more complex measures not addressed by these sources, engineering calculations were used based on the best available data about current baselines in Missouri and the performance impacts of high efficiency equipment or practices.

Cost-Effectiveness Analysis

The study applied the Total Resource Cost (TRC) Test, which considers the costs and benefits of efficiency measures from the perspective of society as a whole.

COSTS

For the natural replacement market, cost was measured as the difference between a standard baseline (non-efficient) piece of equipment or practice and the high efficiency measure. For the renovation/retrofit market, the full cost of equipment and labor was used because the base case assumes no action on the part of the building owner.

BENEFITS

These are primarily energy savings over the measure's lifetime, but other benefits such as water, and operation and maintenance savings were also included. NEBs were included in the specific sensitivity analyses.

The following table provides the costs and benefits considered in the TRC test.

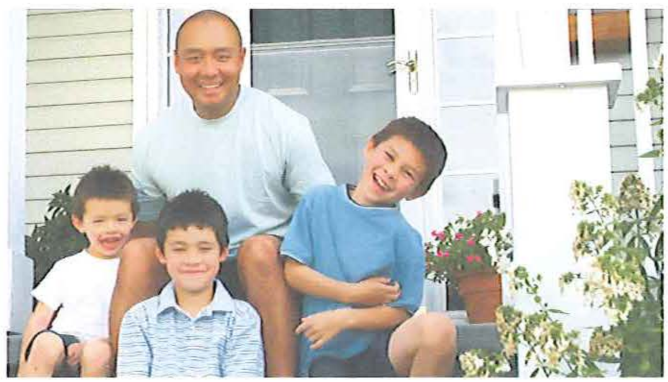
OVERVIEW OF THE TOTAL RESOURCE COST TEST[2]

MONETIZED BENEFITS / COSTS	TOTAL RESOURCE COST (TRC)
Measure cost (incremental over baseline)	Cost
Program Administrator incentives	Transfer/Excluded*
Program Administrator non-incentive program costs	Cost
Energy & electric demand savings	Benefit
Fossil fuel increased usage	Cost
Operations & Maintenance savings	Benefit
Water savings	Benefit
Deferred replacement credit**	Benefit

* Program Administrator incentives reflect a transfer payment from utilities to customers. Because incentives represent a cost to the program administrator and a benefit to participants, they effectively cancel each other out and are therefore excluded from the calculation of TRC.

** The Deferred Replacement Credit is available for early-retirement retrofit measures, measures that obviate or delay the need for the replacement of existing equipment.

Detailed estimation of avoided energy supply costs was outside the scope of the project, so a simplified approach was used to capture the impacts of regional variations in avoided costs. Optimal Energy did not include costs for externalities such as air quality or reduced greenhouse gas emissions, or avoided costs of price suppression or demand reduction induced price effects.



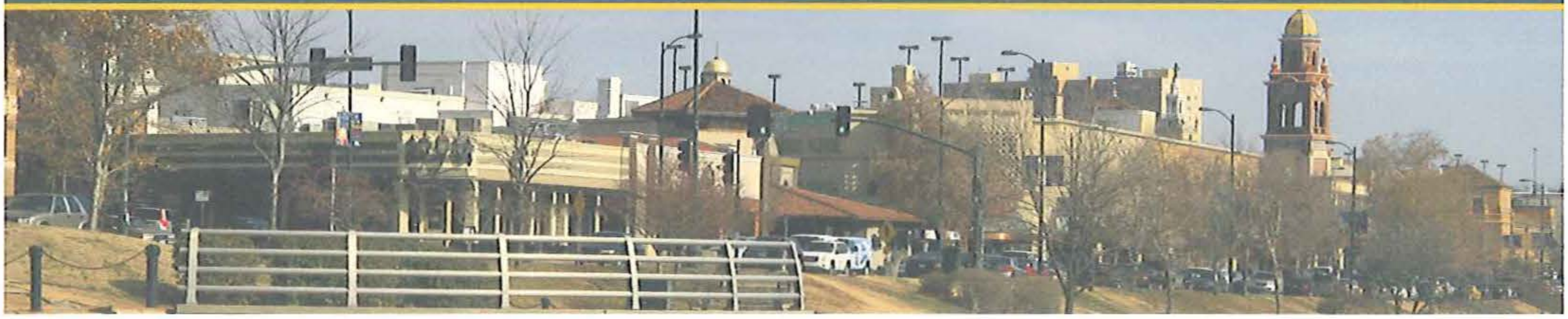
ELECTRIC

The electric benefits reported here reflect both electric energy savings (kWh) and peak demand reductions (kW) from efficiency measures. Optimal Energy developed average avoided costs per kWh that incorporate all energy costing periods. In order to reflect the differences between measures whose effect on peak demand varies, Optimal Energy further disaggregated the electric avoided costs into low coincidence and high coincidence categories. Electric avoided costs were assumed to escalate at 1% annually over the study period.

GAS

Optimal Energy developed both a high and low set of natural gas avoided costs, primarily informed by potential studies, specific avoided cost studies, and so-called "citygate" prices from the U.S. Energy Information Administration. As with electricity, natural gas avoided costs were assumed to escalate at 1% annually over the study period.

Future costs and benefits are discounted to the present using a real discount rate of 3 percent.



Potential Analysis

Optimal Energy then derived two potential energy savings scenarios:

ECONOMIC POTENTIAL (EP) SCENARIO

To estimate the economic potential, the researchers assumed 100 percent immediate installation of natural replacement and retrofit/renovation measures. For measures that are market-driven only, Optimal Energy assumed implementation at the rate of turnover.[3] The total number of housing units in a given utility territory eligible for a given efficiency measure was determined by applying five factors: applicability, space heating fuel shares, water heating fuel shares, cooling equipment saturations, and the estimated fraction of housing units that have not already implemented a given efficiency measure.

MAXIMUM ACHIEVABLE POTENTIAL (MAP) SCENARIO

The achievable potential was estimated by developing program budgets and penetration rates to apply to the economic potential results. For budgets, Optimal Energy estimated non-incentive costs using "overhead adders" expressed as a percentage of incentive costs, based on the experience of leading programs serving the low-income residential sector. Given the study's focus on affordable housing and estimating maximum achievable potential, Optimal Energy assumed that incentives cover 100 percent of measure costs.

Assumptions for penetration rates were based primarily on projections made in the Electric Power Research Institute's *Assessment of Achievable Potential from Energy Efficiency and Demand Response Programs in the U.S. (2010-2030)* study coupled with professional judgment to reflect the nuances of the affordable multifamily housing sector. Since the EPRI study was limited to electric measures, this required extrapolating the penetrations to gas measures by end use.

ABOUT THE ENERGY EFFICIENCY FOR ALL PROJECT

The mission of the Energy Efficiency for All (EEFA) project is to bring together the energy and housing sectors to tap the benefits of energy efficiency for millions of Americans living on limited incomes. We work with a range of partners in 12 states to promote effective utility energy efficiency programs for affordable building owners and healthy and affordable housing for residents. We blend expertise in affordable housing, energy efficiency, building ownership, and utility engagement. We work to support local groups by providing tools and resources that can help them increase energy efficiency opportunities for underserved tenants in their states.

Endnotes:

1 Fannie Mae's 2014 *Transforming Multifamily Housing: Fannie Mae's Green Initiative and Energy Star for Multifamily* and the 2014 *New York City Local Law 84 Benchmarking Report*.

2 Program Administrator incentives reflect a transfer payment from utilities to customers. Because incentives represent a cost to the program administrator and a benefit to participants, they effectively cancel each other out and are therefore excluded from the calculation of TRC. The Deferred Replacement Credit is available for early-retirement retrofit measures, those measures that obviate or delay the need for the replacement of existing equipment.

3 In general, turnover factors are assumed to be 1 divided by the baseline equipment measure life. For example, we assume that that 5% or 1/20th of existing equipment is replaced each year for a measure with a 20-year estimated life.

ENERGY EFFICIENCY FOR ALL

www.EE4A.org

ENERGY FOUNDATION

John Wilson
John@ef.org
(415) 561-6700

NATIONAL HOUSING TRUST

Annika Brink
abrink@nhtinc.org
(202) 333-8931 x141

NRDC NATURAL RESOURCES DEFENSE COUNCIL

Ariana Gonzalez
agonzalez@nrdc.org
(312) 651-7924