Exhibit No.:	
Issues:	Low-income solar subscription program, On-bill financing feasibility
Witness:	Philip Fracica
Sponsoring Party:	Renew Missouri Advocates
Type of Exhibit:	Direct Testimony
Case Nos.:	ER-2018-0145/ER-2018-0146
Date Testimony Prepared:	June 19, 2018

MISSOURI PUBLIC SERVICE COMMISSION

ER-2018-0145 / ER-2018-0146

DIRECT TESTIMONY

OF

PHILIP FRACICA

ON BEHALF OF

RENEW MISSOURI ADVOCATES

June 19, 2018

Renew mo Exhibit No. 403
Date 9-25-18 Reporter TM
File No. ER-2018-0145 & 0146

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Kansas City Power & Light Company's Request for Authority to Implement a General Rate Increase for Electric Service	))))	File No. ER-2018-0145
In the Matter of KCP&L Greater Missouri Operations Company's Request for Authority To Implement a General Rate Increase for Electric Service	))))	File No. ER-2018-0146

AFFIDAVIT OF PHILIP FRACICA

STATE OF MISSOURI)
) ss
COUNTY OF BOONE)

COMES NOW Philip Fracica, and on his oath states that he is of sound mind and lawful age; that he prepared the attached direct testimony; and that the same is true and correct to the best of his knowledge and belief.

Further the Affiant sayeth not.

Philip Fracica

Subscribed and sworn before me this 19th day of June 2018.

Notary Public

My commission expires: 1-19-20

MATTHEW PATTERSON
Notary Public, Notary Seal
State of Missouri
Boone County
Commission # 11274306
My Commission Expires 01-19-2020

TABLE OF CONTENTS

DIRECT TESTIMONY OF PHILIP A. FRACICA

Case No. ER-2018-0145/0146

I. INTRODUCTION

Q: Please state your name and business address.

A: My name is Philip A. Fracica. My business address is 409 Vandiver Drive Building 5 Suite 205, Columbia, Missouri, 65202.

Q: By whom and in what capacity are you employed?

A: I am employed by Renew Missouri Advocates (D/B/A Renew Missouri) as a Policy Organizer. In that role I focus on clean energy policy advocacy with municipal utility advisory boards and city councils, organizing communities around renewable energy and energy efficiency advocacy opportunities, researching utility clean energy programs, and advocating for the expansion of energy efficiency programs with a focus on low-income multifamily customers.

Q: Please describe your educational background.

A: My educational experience consists of a Bachelor of Science in Business Administration with an emphasis in Finance from the University of Missouri.

Q: Please summarize your experience in energy policy and advocacy.

A: I started working at Renew Missouri in May 2014 as an intern and began working full-time with the organization on May 30, 2015. In my time at Renew Missouri, I conduct research and analysis of energy programs and policies. I have analyzed solar subscription policies throughout the country and have reviewed all utility solar programs across the state of Missouri. I also helped to develop Renew Missouri's analysis and comments regarding Ameren Missouri's Solar Subscriber and Solar Partnership filings EA-2016-0207 and EA-2016-0208.

In addition to that work, I advocate for, and testify in favor of, clean energy policies in a variety of forums. This includes testifying in favor of legislation in General Assembly hearings and city council hearings. In Kansas City, Columbia, and Independence I have testified in support of clean energy financing considerations, net metering changes, and for the creation of climate action plans. In addition, I have participated in and organized clean energy conferences including the Advancing Renewables in the Midwest (ARM) and State Environmental Leader's Conference (SELP).

I participate in multiple coalitions to help low-income communities with their energy burden. My primary interaction with stakeholders working on low-income energy issues has been through the Committee to Keep Missourians Warm, which is a stakeholder group consisting of various community action agencies, Division of Energy, Spire, Office of the Public Counsel, PSC Staff, KCP&L, Ameren Missouri, and low-income energy advocates like myself. As part of these meetings, we have discussed the feasibility of using the weatherization assistance program (WAP) and low-income home energy assistance program (LIHEAP) dollars towards solar programs. In addition to my efforts here, I have been engaged with a national coalition of housing and energy advocates with a focus on helping low-income multifamily Americans save on energy, called Energy Efficiency For All (EEFA). With EEFA, I held policy meetings in 2015 and 2016 to discuss policy recommendations with many stakeholders from across Missouri to improve energy efficiency and solar access for low-income multifamily communities across the state. From these advocacy efforts I have been nominated and

elected to the Missouri Weatherization Policy Advisory Council (MWPAC) to help provide input on the state's administration of federal funding for WAP and LIHEAP.

Most recently, I have been appointed to Columbia Missouri's Integrated Electric Resource and Master Plan Task Force to help the City and our municipal utility, Columbia Water & Light (CW&L), draft the Integrated Resource Plan (IRP) for the city. I have also had the opportunity to provide input on and review the draft proposal of CW&L's pending community solar program.

Q: What is the purpose of your direct testimony in this proceeding?

A: The purpose of this testimony is to:

1) Explain the need for, and benefits of, a low-income component to Kansas City Power & Light's (KCPL) and Kansas City Power & Light – Greater Missouri Operations' (GMO) proposed Solar Subscription Program;

2) Recommend various low-income models to be evaluated by KCPL and GMO and for the most feasible model to be included in the Solar Subscription Program; and

3) Describe the benefits of an on-bill financing tariff for energy efficiency upgrades and to encourage KCPL and GMO to explore the on-bill financing compatibility with the CIS to further progress towards the goals of the Missouri Comprehensive State Energy Plan (CSEP).

II. Low-Income Solar Subscription Program

Q: Please describe why KCPL and GMO should offer a Solar Subscription Pilot Program with a low-income component.

A: KCPL and GMO should offer a Solar Subscription Program as a way for customers to access the benefits of solar energy when they are unable to build systems directly.

However, with the solar subscription models in Missouri, including the Solar Subscription Pilot Rider proposed by KCPL and GMO, the program is only available to customers who are willing and able to pay more to support the utility's investment in renewable energy. For low-income customers who already struggle to pay their bills it is not feasible or responsible for them to pay more for solar access under this kind of program.

Absent a low-income component to a solar subscription program, low-income customers attempting to access solar generation face two barriers; 1) inability to access to financing and 2) lack of property ownership.

While other states have solutions to financing for solar access, only a few options are available in Missouri. These options consist of residential Property Assessed Clean Energy (PACE) or a traditional loan. If these customers do not have good credit history, are behind on property tax payments, or do not have a suitable environment for solar installation, they are not able to participate in renewable energy. The other barrier low-income customers face is the lack of homeownership. Missouri has a large low-income multifamily housing sector with 104,000 multifamily rental units in KCPL and GMO's service territory. Of those, 69,000 are for affordable multifamily units (with affordable multifamily housing defined as households in buildings with five or more units occupied by people with household incomes at or below 80% of the area median income).[1] Utility customers in rental properties currently may not have the ability to install solar at their home, but a solar subscription program would allow these customers to gain access to solar.

[1] NHPD. "Data Sources." National Housing Preservation Database (NHPD), 29 Mar. 2018, preservationdatabase.org/documentation/data-sources/.

Q: Why should KCPL and GMO target low-income renters for a solar subscription program?

A: Low-income customers face significant barriers to reducing their energy burdens and may be unable to participate in programs such as net metering. Net metering allows utility-customers to "sell" energy credits to their utility when their solar panels or other designated "renewable sources of energy generation" produce energy to offset their utility bill. However, the cost of installing solar panels is significant especially for low-income households that are already "energy-burdened". Energy burdened households spend a disproportionate amount of their income on energy bills.[2] The poorest Missourians identified at 50% below the Federal Poverty Line spend, on average, 28% of their income on energy.[3] Even though the price of solar continues to decline, the average cost of a 5 kW residential solar array in 2018 is about $11,000 *after* federal tax credits.[4] With that in mind, low-income customers who are renting property are still unable to gain access to solar systems to help offset their energy costs. The costs of a solar system and the maintenance fees assessed by the utility notwithstanding, the most significant barrier low-income renters face is lack of home-ownership, which inhibits their participation in net metering. The advantages of community solar programs that offer subscription options to low-income utility customers can significantly reduce energy burdens. Subscription services allow renting and low-income customers flexibility to pursue renewable energy. Renters are often operating on monthly- or yearly leases and would

[2] http://aceee.org/research-report/u1602
[3] http://www.homeenergyaffordabilitygap.com/03a_affordabilityData.html. "Missouri 2017 Home Energy Affordability Gap Fact Sheet".
[4] Matasci, Sara. "How Much Does a 5kW Solar System Cost in 2018? | EnergySage." Solar News, EnergySage, 13 Feb. 2018, news.energysage.com/5kw-solar-systems-compare-prices-installers/.

benefit from finite or transferrable contracts with a solar subscription program in their area.

Additionally, a properly designed solar subscription program offers a tool to assist customers on a sustained basis. LIHEAP, WAP, and the Economic Relief Pilot Program are all useful programs, for addressing energy burdens faced by low-income customers. However, as they rely on funding cycles, and are limited in their applicability, these existing programs are less sustainable in the long-term than a fixed term program, such as a solar subscription. Therefore, KCPL and GMO should consider prioritizing solar subscription for low-income households as a means to reduce energy burdens and equitably transition to cleaner energy.

Q: Please describe how other Utility Solar Subscription Programs have included low-income customers.

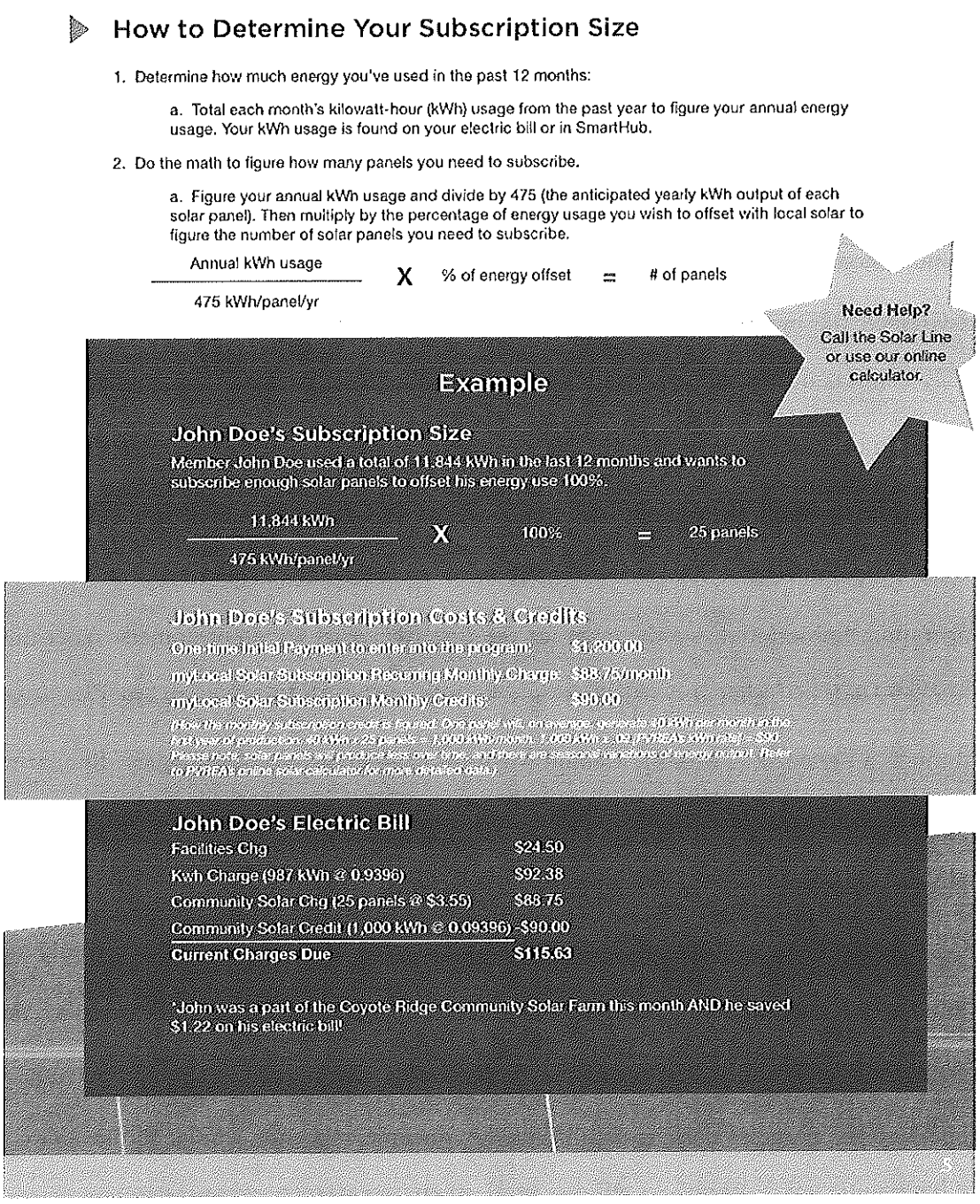
A: Various models have been adopted across the country that could work within a solar subscription program. For example, the Colorado Energy Office worked with participating utilities to offer community solar programs to various customer classes including low-income. One such utility, the Poudre Valley Rural Electric Association (PVREA), worked with various partners to offer a community solar subscription program to customers with a low-income component. The system is 1.95 MW with 500 kW allocated for non-profit subscribers, 700 kW allocated to low-income qualified residents, and the remaining 750 kW available to traditional customers. This project took advantage of the federal investment tax credits (ITC) for solar and utilized a Modified Accelerated Cost Recovery System (MACRS) for tax depreciation.[5]

[5] Colorado Energy Office, Insights from the Colorado Energy Office Low-Income Community Solar Demonstration Project, December 2017; Dobos et al., pp. 94.

This model has three different rate structures available to the aforementioned groups. The traditional subscribers were required to pay an initial fee of $48 per panel and an ongoing monthly subscription fee of $3.55 per subscribed panel in addition to the present residential retail rate of $.093996/kWh. Non-profit customers were required to pay an initial set up fee of $16 per panel and had the same subscription fee of $3.55. Those fees are used to cover the cost of the panels. The low-income portion of the facility was paid for through a $200,000 grant to the Colorado Energy Office and the remaining cost was covered through WAP dollars. PVREA's low-income portion established a 5kW limit. All participating low-income customers receive a solar credit at $.065772/kWh for their subscribed system output.[6] You can find a bill example for a traditional subscriber below at Figure 1.

[6] Colorado Energy Office, Insights from the Colorado Energy Office Low-Income Community Solar Demonstration Project, December 2017; Dobos et al., pp. 94–98.

Figure1: PVREA Community Solar Guidebook[7]



[7] https://www.pvrea.com/sites/pvrea/files/Documents/Guidebook_web.pdf. Accessed 6/19/18.

This example would be slightly different for low-income subscribers because they receive their credit at $.065772/kWh instead of the retail price listed above. Low-income subscribers were limited to a four-year term with an option to renew through a renewed application after the term expires. PVREA designed this program with the intent that four years of assistance would help low-income program participants have time to stabilize their financial situation so they no longer require bill assistance. However, recognizing some customers – such as customers retired and on fixed incomes – will continue to need assistance; this program still allows renewal for eligible customers.

While this is one effective way to implement a low-income component of a solar subscription program there are alternative models available. One of these alternatives is being pursued here in Missouri. Columbia Water & Light has a proposed community solar program with a low-income component available after the first five years of operation. Subscription will be open for the first five years for all customers. After this initial period the remaining panels, if any, will be offered to income eligible customers through a partnership with the Central Missouri Community Action Agency. Similar to the Colorado model at PVREA, the low-income participants will not have additional charges associated with the program.

Either one of these program designs, if adopted by KCPL and GMO, would aid low-income customers in gaining access to renewable energy and could help reduce the energy burden faced by that household. Additionally, KCPL and GMO could potentially combine the program designs and offer a low-income solar rate similar to the PVREA model while using additional funding from WAP or LIHEAP to subsidize low-income customers.

Q: Can LIHEAP and WAP dollars be used towards solar projects?

A: As of January 2017, weatherization dollars can be used towards PV systems under WAP Memo 024 from the Department of Energy if the systems show that a Savings to Investment Ratio (SIR) of 1.0 or greater can be achieved by the project.[8] LIHEAP funds can also be eligible for use in solar projects and would be even more effective than re-directing weatherization assistance program dollars.[9] I believe LIHEAP funds would be most appropriate for this kind of subsidy as LIHEAP is currently used to help eligible clients pay past-due bills or a portion of their current bill. WAP provides energy efficiency to clients and provides them with a permanent saving as opposed to the temporary relief from LIHEAP and could be combined with a low-income subscriber program. By utilizing weatherization energy efficiency and a solar offset, KCPL and GMO could make a profound difference in underserved communities by effectively reducing low-income customers' energy burden.

Q: Are there any other existing programs that could potentially be used to subsidize low-income customers' subscription cost as part of a solar subscription program?

A: Yes, we are not just limited to WAP and LIHEAP. KCPL and GMO also offer the Economic Relief Pilot Program (ERPP) that targets low-income customers who would also qualify for weatherization assistance. Participants in this program could also be targeted for a low-income solar subscription program and funding from this program

8 U.S. Government Department of Energy, Memo 024 to David Rinebolt, Weatherization Assistance Program Manager, Weatherization and Intergovernmental Program Office, January 2, 2017.
9 U.S. Department of Health and Human Services, "Low Income Housing Energy Assistance Program (LIHEAP)." Department of Energy, www.energy.gov/eere/solarpoweringamerica/low-income-housing-energy-assistance-program-liheap.

could be utilized to subsidize solar program costs to the extent that the subscription rate is higher than the retail rate.

Q: What would be the best approach for a solar subscription subsidy from existing programs?

A: The best approach to service low-income customers, as part of a subscription-based solar subscription program, in KCPL and GMO's service territory is to utilize LIHEAP or ERPP to subsidize low-income participation in solar subscription access programs if the customer has participated in weatherization, Kansas City's minor home repair program, or KCPL and GMO's low-income energy efficiency program. This would allow for current partners such as The Salvation Army and local Community Action Agencies, to use their existing income qualification practices to verify customers' eligibility and previous participation in an assistance program. LIHEAP and the ERPP are both great programs that help low-income Missourians stay current with their bill payments. However, these programs are ultimately supporting an unsustainable situation by not addressing the underlying issues. Meanwhile, weatherization, which receives only 10% of LIHEAP funding, KCPL and GMO's energy efficiency programs, and the city's minor home repair program, actually address underlying issues by making properties more energy efficient to permanently reduce the energy burden on low-income customers. Partnering support programs (LIHEAP, ERPP) with upgrade programs (WAP, Minor Home Repair, MEEIA programs) can incentivize energy efficiency even further by allowing program participants to receive energy savings from reduced usage and a low-income solar subscription program.

Q: Could KCPL and GMO utilize existing partners for this program?

A: Yes, if KCPL and GMO offer a low-income program as part of a subscription-based solar subscription program, community action agencies beyond the Community Action Agency of Greater Kansas City (CAAGKC) would have interest in a solar program. West Central Missouri Community Action Agency, Missouri Valley Community Action Agency, and Community Action Partnership of North Central Missouri, could use any leftover WAP funds from their upcoming $50,000 budget increase, to offset a solar program.

Q: Please describe the political and community interest in solar access across Kansas City.

A: With the adoption of Resolution 170586 by the Kansas City Council, committing to develop "an initiative to increase energy and water efficiency, solar, and electric vehicles (EV) in underserved communities by June 30, 2018", the City is in need of access to renewable programs that can service low-income communities.[10]

Under the current solar subscription program designs proposed by KCPL and GMO, there is not a clear opportunity for the city to achieve the goal of solar access for underserved communities. The Solar Subscription Pilot could address this goal for Kansas City by offering a low-income component of the proposed tariff. In the feasibility report presented to city council at its business session on May 3, 2018, Drew Robinson, Sustainability Products Manager for KCP&L, reported on the status of achieving the goals set out in the resolution, noting that "...Stage 2 is utilizing sites that are smaller in low-income neighborhoods and making sure that the installation and solar program itself is available to the customers who reside in those neighborhoods."[11]

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[10] Council of Kansas City. "Kansas City Resolution No. 170586."KCMO City Clerk , 10 Aug. 2017, http://cityclerk.kcmo.org/LiveWeb/Documents/Document.aspx?q=DfoUSXu7pUSJTU5A5Zt%2FoWqkjtNDkyUIaNl6mdOfwqYjGvJHb50FjMIZ0GCwrJvx.

11 http://kansascity.granicus.com/MediaPlayer.php?view_id=4&clip_id=10809

Mr. Robinson's proposed idea could be a future opportunity available to KCPL and GMO, but there are opportunities now to expand to a low-income component of this Tariff from the outset. As I understand, Westside Housing Organization has some initial interest in offering some of its vacant land for a solar subscription facility to offset the utility costs of tenants in their multifamily properties. As part of this conversation, the Community Action Agency of Greater Kansas City (CAAGKC) would be one partner able and willing to help KCPL and GMO identify eligible low-income customers that have participated in energy assistance programs to be eligible for a subsided rate from the solar subscription program.

III. ON-BILL FINANCING FEASIBILITY

Q: Please describe the on-bill financing tariff model.

A: All inclusive on-bill financing (OBF) allows for any utility customer to upgrade their home, rental unit, or small business with energy efficiency upgrades, when cost-effective. There are many benefits to this model and the most significant being the ability to service all customers, especially low-income renters. One advantage of OBF over other financing programs such as PACE is that OBF programs can be tied to the customer's meter and is not dependent on the customer's credit history. While energy efficiency rebate programs are sufficient to customers with access to capital to pay for the underlying energy efficiency upgrade, they are not feasible for customers' that lack access to capital or are debt averse. OBF can reach all customers that are eligible for cost-effective energy efficiency upgrades by covering the up-front cost of the upgrades. When administering OBF the most important aspect of the program is to ensure that the energy savings from any energy efficiency work completed will be greater than the monthly OBF charge owed

to the utility. The on-bill financing tariff model is often referred to as Pay As You Save (PAYS) and was created and patented by Harlan Lachman and Paul Cillo with the Energy Efficiency Institute, Inc. Under PAYS, the monthly tariff charge cannot be greater than 80% of the average monthly energy savings from the energy efficiency work completed and the payback period cannot last longer than 80% of the measures' effective useful life. If the upgrades will not be cost effective for the customer and do not create savings greater than the on-bill financing charge, then the program is not feasible. However, this program or any OBF program should be feasible throughout the state of Missouri. Empire District Electric Company (Empire) recently published their PAYS OBF Feasibility Study on May 31, 2018.

The Empire study concluded that a PAYS program is cost-effective for Empire under certain EE upgrade scenarios.[12] With this conclusion, it would be prudent for KCPL/GMO to evaluate the feasibility of an OBF model to be offered to their customers.

Q: Please describe how KCPL and GMO's new CIS system is well suited to evaluate this model.

A: The CIS model as proposed appears to be very capable of administering an OBF program to KCPL/GMO customers. The capability to interlink customer information for both the consumption and metering processes via the Meter Data Management (MDM) system including payments and collections should be sufficient to administer an on-bill financing tariff charge. KCPL/GMO is well positioned to evaluate the feasibility of an OBF program, as KCPL and GMO will have already borne the costs associated with updating the utility billing software and systems to administer such a program. This would make

[12] https://www.efis.psc.mo.gov/mpsc/ Case No. ER-2016-0023, Item No. 300, Empire District Electric Company PAYS Feasibility Study.

an OBF tariff even more cost effective than it otherwise would be because utility billing software upgrade costs should not need to be included in the TRC evaluation.

Furthermore, evaluating OBF would be a step towards achieving the goals contained in the Missouri Comprehensive State Energy Plan (CSEP). The CSEP final report included a goal for the "establishment of a 'bill neutral' on-bill financing program applicable to investor owned utilities to allow customers to receive upfront funding from utilities or third parties for energy efficiency improvements that is conveniently repaid to the lender on the customer's monthly utility bill."[13] The Company in this case should take steps to explore an OBF feasibility study.

Q: Does this conclude your testimony?

A: Yes.

[13] Missouri Department of Economic Development Division of Energy, *Missouri Comprehensive State Energy Plan*, October, 2015; Division of Energy, pp. 10.