

2nd CANDID CONVERSATION

“Path to Successful Solar for Missouri Consumers”

Columbia Missouri

March 27, 2013

EVENT NOTES

Llona C. Weiss, Director of the Division of Energy, opened the second Candid Conversation held in Columbia, Missouri on March 27, 2013.

Following the opening remarks, Ginny Wallace, facilitator, gave an introduction and outlined the agenda.

Challenges to Solar Energy Implementation

Challenges to solar energy implementation were discussed.

A small solar producer identified access to the power market as a challenge. Generation expires at the end of the year and there is no mechanism to sell the excess power generated. A consumer agreed and commented that if a homeowner makes more than he or she uses, he or she does not receive any money for the excess. A cooperative customer then added that homeowners can sell back to the cooperative. Homeowners buy at ten cents/kilowatt-hour (kWh) and sell at two cents/kWh. The customer said that the interconnect agreement is helpful.

Representatives from Renew Missouri and Brightergy identified a policy challenge. Net metering bills are pending with a change from monthly to annual true-up in March instead of December.

An Ameren representative gave a brief analysis of the residential load. If a customer builds to serve 90% of their load, the value of their power is mostly at the retail rate.

A Boone Electric Cooperative representative commented on the cooperative's efforts to be reliable and affordable. Boone Electric tries to treat all classes of customers equally. A question about the fixed cost to cooperatives was raised, and the representative answered that it costs \$45/member to keep the grid operating. Members are charged a flat rate of \$20, and the rest comes from selling kWh. Members not installing solar are subsidizing net metered solar customers that do not buy enough electricity to make up the difference between the flat rate \$20 charge and the \$45 fixed costs. Boone Electric is not opposed to solar energy, but wants all classes of customers to pay their fair share. The representative also pointed out that there might be times during the summer peak when added value is more than avoided costs.

Non time-of-use pricing was identified as a challenge. Information related to tax credits that have been taken could help by providing state specific numbers on an annual basis. Other state studies are showing net benefits of net metering, and we should identify whether or not net metering is a net benefit in Missouri. We should also examine possible benefits of cross subsidization. In response to these comments, real time data was identified as a need. There is currently no renewable energy potential study in Missouri. We need a third party study, not an internal study.

A Boone Electric Cooperative representative commented about the variance between utilities (referring to the summer/winter peak).

A representative from the League of Women Voters identified misperceptions and the information gap regarding Missouri solar potential and the availability of federal/local tax credits as a challenge.

It was stated that there is a myth that solar is very dependent on subsidies. People do not realize how embedded the fossil fuel industry subsidies are, and they need to be aware of this.

A builder expressed concern over the marketability of solar energy, as they cannot get a payback on solar if it cannot be sold to homeowners. Solar is tough for builders to sell, and the rate of return is difficult to show.

A Columbia resident identified high installation costs as another challenge. If it were legal, a private entity could construct solar on a larger scale and net meter to individual homes.

The need for certainty around Performance Partnership Agreements (PPAs) was identified as a challenge.

A representative from SolSource Greenbuild said that economic barriers are embedded within policy barriers. Utility rate hikes are the friend of renewables, and to make renewables more viable, the rates should be based on kWh cost, not interconnection fees (kWh versus fixed charges).

A Public Service Commission (PSC) representative said that investor-owned utilities (IOUs) are in the \$9-\$12 range for their fixed charge. There has been pressure to increase these amounts in recent rate cases.

It was stated that there are externalities associated with burning coal. The scientific debate is over, but the political debate is ongoing. Personal choices to utilize solar energy lead to a real world environmental cost that everyone pays.

A representative from the Missouri Solar Energy Industry Association (MOSEIA) identified the need to implement Property Assessed Clean Energy (PACE) and create better energy storage as additional barriers.

A speaker for the Advancing Renewables in the Midwest Conference (and former Minnesota legislator) identified financing as a barrier. He said that credit vehicles (e.g. PACE, third party financing) need to be streamlined and easily accessible like car loans. They should be on the "front end."

It was stated that there are Qualified Energy Conservation Bond (QECB) funds worth approximately \$50 million still available for use in Missouri.

Questions were asked about the status of PACE, and it was noted that the Department of Natural Resources' Division of Energy (DE) should attempt to make this information more readily available.

After challenges to solar energy implementation were discussed, homeowners gave some of their own input.

One homeowner applied for a linked deposit, but it did not come through. The homeowner invested their inheritance, even though solar does not pay as much back in the short term. The homeowner reported that it felt nice to try and reduce fossil fuel usage.

Another homeowner stated that they moved away from the California Bay area because Missouri has more summer days. They used their inheritance to invest in solar and energy efficiency, and are very happy with their decision. Their decision was not motivated by financial reasons.

Homeowners expressed the sentiment that solar systems are "cool and work great." Another attendee commented that qualified solar installers are in short supply, and said that the installation process is much easier if you install solar when you first build a house; it is more challenging to do retrofits to an existing house. It is easier to make a new home energy efficient, and minimize the energy use/load.

Another individual described how he saw the price of solar panels drop to \$1/watt. For less than \$2,000, his use went to net zero. He is now installing analog meters so he can watch the savings.

A question was directed to the homeowners regarding how many of them knew that when the grid goes down, they will not have power unless they have a battery back-up.

It was pointed out that MOSEIA has a list of qualified installers on its [website](#).

One attendee is a homeowner in the process of installing solar. Her home was built as passive solar with low energy bills, so she had not done solar yet. However, she is still trying to do better to reduce her carbon footprint.

It was mentioned that inverters are grid tied, so if a battery is there, it provides uninterruptible power to the house. There are also hybrid systems available, though they cost about 20% more.

Another attendee discussed opportunities to build and use solar as a heat source (solar thermal and hot water). It is very practical, but information is not widely available.

A discussion then ensued regarding reporting on solar activities and programs (numbers and facts).

A representative from Columbia Water and Light asked what more DE could do with respect to reporting. He would like to see reporting in the Missouri Energy Bulletin that includes renewable energy. It should expand to include renewable energy as another viable energy source.

It was stated that Missouri still does not show up on national rankings because solar is not tracked easily. It is vastly under-reported by installer surveys.

Energy providers' reporting procedures was discussed. Ameren reports its information to the PSC. Kansas City Power and Light reports its information also to the PSC, but differently (not by zip code). Missouri's and Kansas' reporting is different from the National Renewable Energy Laboratory (NREL) reporting.

It was suggested that DE publish figures in the Energy Bulletin on how much solar comes online each month. That information may be difficult to find with the variety of reporting mechanisms or with categories that are not officially reported. NREL has a good tool, but concern was expressed that it may not be accurate.

A PSC representative asked if industry reporting would be the best source of reporting. A concern was expressed that this could lead to inconsistent and fragmented reporting. There are many small companies doing a few installations, and completing forms can be difficult.

An Ameren representative asked what value can be obtained beyond annual reporting, and acknowledged that real time data would be ideal but is not realistic.

A PSC representative identified the lack of Renewable Energy Credits (RECs) markets as a challenge, saying some states have aggregators who could do this. The obvious source of revenue is savings/generation, but selling RECs could be an additional source of revenue.

It was pointed out that Ameren has a standard market contract to buy RECs.

It was stated that the Renewable Energy Standard (RES) in Missouri is not currently working, and this is a challenge. An efficient RES could lead to a viable REC market.

An Ameren representative reported that viable developers are installing solar at costs of \$3/watt, and Ameren gives a \$2/watt rebate. Ameren will pay the residential solar owner \$600 in exchange for ten years of RECs. Of the \$30,000 cost of a residential solar installation, \$20,000 could be subsidized by Ameren's \$2/watt rebate in addition to being eligible for a 30% federal tax credit. Ameren's representative stated that Ameren paid \$17 million in rebates to 750 solar customers. Despite this, the renewable energy program is still not growing as quickly as hoped because of education challenges, which is a larger barrier than the cost. Ameren reported that 50% of its customers believe solar is backup generation.

A Brightergy representative pointed out that residential solar leasing could be very successful, and pointed to rapidly growing commercial solar leasing as evidence. A MOSEIA representative replied, "They are knocking on our door."

A SolSource Greenbuild representative added that large parts of the state are not eligible for Ameren incentives. 70% of the population are IOU customers, 18% are cooperative customers, and 12% are served by municipal utilities.

A Brightergy representative commented that the installed costs of small residential systems are \$4/watt.

A representative from Boone Electric Cooperative said he was supportive of the solar industry because of interconnect standards held by the Institute of Electrical and Electronics Engineers (IEEE) and MOSEIA's training of installers.

A builder asked when the cooperatives would begin providing solar rebates, and a Boone Electric Cooperative representative said they do not need to because the cooperatives' investments in renewable wind will be 15% of their total energy portfolio.

Public Educational Needs

Following the discussion of challenges to solar implementation, a discussion of public educational needs began.

Information about the rebates offered by Ameren (\$2/watt) and Kansas City Power and Light/Greater Missouri Operations (KCPL/GMO) should be more easily available to the public. Rather than focusing on the ten year payback, the focus should be on the return on investment.

There were specific financial questions—What are the financial implications of using PACE (financial model) and can a PACE tool be used with a chapter 353 tax? An attendee mentioned a representative from the Country Club Bank in Kansas City as a potential source of information. The speaker for the Renewable Energy Conference also addressed the issue of taxable municipal revenue bonds.

A representative from Washington University-St. Louis mentioned the lack of energy programming on Public Broadcasting Service (PBS) and National Public Radio (NPR). He noted that public schools are unlikely to have sufficient energy education materials. There must be a push from somewhere to bring more energy-related topics into the public education system, eventually feeding into technical and other colleges.

It was noted that the Missouri Energy Initiative (MEI) is working in inner cities (St. Louis) to give teachers information on education technologies.

A Brightergy representative mentioned the solar lease option for schools, referring to the Parkway School District, which offers an energy curriculum. She also spoke of the Obama administration's [Green Button initiative](#) as something that DNR could adopt. The initiative aims to standardize utility energy usage information. There is currently an application in development. At present, no utility in Missouri has stepped up and adopted the initiative.

Another public education need is energy disclosure. DE could advocate for cities to require sellers to disclose energy use and the cost of operating a building.

A Midwest Energy Efficiency Alliance (MEEA) representative spoke on benchmarking as an educational need. Ordinances in Minnesota require energy benchmarking, and other states have taken steps to facilitate energy benchmarking. Kentucky used federal grant money to fund energy managers for its school districts. The goal was to get five schools to net zero status, using the energy savings for school improvements such as textbooks. Lights for Learning (L4L) is a MEEA program funded by the Illinois Department of Commerce and Economic Opportunity. The program educates Illinois students on energy efficiency and could be modified to incorporate solar education. L4L students participate in traditional school fundraisers, but rather than selling candy bars and wrapping paper, they sell ENERGY STAR qualified compact fluorescent lamps (CFLs) and light-emitting diodes (LEDs). Similar statutes and programs could be implemented in Missouri. Home energy score programs might be a viable option also

A representative from Columbia Water and Light said he has been working for a long time with Columbia Public Schools to incorporate energy information into their curriculum. He would like to see DE partner with the Missouri Department of Elementary and Secondary Education (DESE) and work on instituting requirements for schools to teach energy education.

The discussion turned to promoting enthusiasm at the college level via grassroots strategies.

One suggestion was that teachers could invite solar businesses to talk to students. Movies that provide solar education for high school students could prove useful.

A representative from the Missouri Alternative and Renewable Energy Technology Center (MARET) at Crowder College raised the issue of the tornado in Joplin, Missouri. Rebuilding efforts are not incorporating sustainability. Green Town Joplin, a project launched by a Kansas nonprofit organization, is pushing for “green rebuilding,” but it is difficult to get builders, bankers and realtors to see the value of energy efficiency and renewable energy. He asked, “How do you get over the Missouri ‘show me’ idea?”

It was mentioned that everybody checks utility bills and rates. If bills and rates were higher, that would support energy efficiency and renewable energy, and even motivate people to invest in energy efficiency and renewable energy. Dynamic pricing encourages consumers to moderate their behavior.

Another need is a map of Missouri designed to show savings from solar systems. The size of the kilowatt (kW) system does not speak to what impact it will have on rates, but consumers would benefit from seeing things like, “1kW in this area returns \$X annually on an electric bill,” in a visual format.

A representative from Boone Electric Cooperative said that before focusing on renewable energy, people need to be as efficient as they can be, because the greenest energy is the energy never consumed. He said that higher rates are going to come regardless, and that DNR should push energy efficiency in the home so the consumer has the smallest carbon footprint possible.

An attendee questioned how high utility rates will get in the next five years. A Boone Electric Cooperative representative answered by saying that increases in rates will depend on the price of

natural gas. He explained that hydraulic fracturing has lowered utility costs, and Boone Electric utility bills contain graphs that show usage.

A homeowner and representative from the League of Women Voters mentioned that she participated in the Home Performance with Energy Star program and noticed a decrease in her usage.

A question was raised about how many kWhs could be obtained for an hour of unskilled labor. In reference to energy intensity, the comment was made that we are in a better position than our grandparents.

A MEEA representative commented that case studies of individuals like the homeowner who built her home with passive solar technology are the best forms of communication and education in order to connect with people and legislators. These real stories can be of assistance when requesting more budget authority for these programs. When looking at national averages, two noteworthy things were observed: new generation costs just under ten cents/kWh, and energy efficiency is approximately two cents/kWh.

Many low income individuals live in older, less efficient buildings, so efforts should be made to reach out to these landlords and convey the importance of energy efficiency.

Utility bills also present an opportunity to educate and inform the public. They could be used as a way to disseminate useful information about usage and efficiency. It is important to communicate to individuals how they use their electricity. Breaking the electric bill down into how much money was spent on the refrigerator, lights, etc., could be a good idea, and separate bills for water and electricity could be helpful as well.

An Ameren representative discussed the largest negative identified by its solar customers. Customers have found that their solar systems are not offsetting their electricity use as much as they originally believed. The representative said that one way to fix this is to educate solar energy developers about how energy is consumed in order to give homeowners more accurate expectations. Information from salespeople and new developers may be misleading them.

A MOSEIA representative responded by saying that training is provided, but not everyone who should attend actually attends. There is an accountability loop on MOSEIA's website, and DE could help by publicizing training and information related to the use of reputable installers.

The Renewable Energy Conference speaker said DE could serve as a "one stop shop" for all solar needs, including technical needs, concerns, lists of approved providers, and lists of "bad actors." This could come in the form of the Clearinghouse website. He said he gets frustrated with the private sector, and appreciates state government officials giving objective information. He thinks DE has a clear role of validating real consumer information.

A representative from Brightergy responded to the "one stop shop" idea by saying they have considered that, but that it will take careful consideration. There is a need to protect consumers, but she does not want to deter new companies. She mentioned that the Secretary of State's Office has information on all business licenses.

A representative from Regional Economic Development, Inc. (REDI) asked if there are any good model homes for true solar. He mentioned [Project Living Proof](#) in Kansas City, Missouri.

A SolSource Greenbuild representative returned to the idea of DE hosting a “one stop shop” website. This website could showcase the better solar homes and offer virtual tours of them.

Another idea mentioned was that DE could host a competition; the premise being to encourage the construction of solar homes that combine all energy efficiency elements.

State and Federal Policies & Incentives

A representative from the League of Women Voters asked if it was feasible for DE to expand low interest loan programs to individuals and commercial establishments. The DE Director stated that DE is expanding the loan program to hospitals and wastewater and drinking water treatment plants, and is looking at collateral opportunities for these areas so as to maintain our program record of no defaults.

A solar developer for Columbia Water and Light talked about solar on a commercial scale. He said that Missouri is being looked at by large players from the west who like to see long-term solutions and markets with a level playing field. In some states, individuals can sign up with no money down because there is competition in a local market on a level playing field with the utilities. For example, in Arizona it is possible to lease solar and save 10-30% with no money down. When outsiders look at Missouri, they see a lack of long term certainty. At the present, Missouri RES allows utilities to buy REC’s out of state and never use the power for Missourians. According to this solar developer, this does not create a level market—power generated in Missouri for Missourians. The REC market is created by the arrival of private businesses, and since financing is difficult for individual homeowners, it is best done on a large scale. In the southwest, there are more installations without subsidies, and installations are finished at less than the cost of those completed with rebates. This reinforces the need for a level playing field because competition cannot occur against an inexpensive REC that Missouri utilities can buy per current RES.

A Brightergy representative brought up MOSEIA advocacy days at the Capitol and stated that only 14 people attended. She said that Missouri’s RES is broken. She mentioned two pieces of legislation, HB 119 and SB 396, that are compromise bills between the solar industry and Ameren and Kansas City Power and Light on solar rebates, improvements in net-metering and size of net-metered systems. A solar developer added that he is not interested in rebates right now because the market will not grow until improvements are made with Missouri’s RFS.

Audience Recommendations

The conversation was then opened to the audience for any additional recommendations or comments.

Closing Remarks

During the closing remarks, all participants were thanked for attending and contributing to the discussion. All attendees will receive an online survey to collect feedback and electronic notes of the Candid Conversation will be available on DE’s website in the near future. Several handouts were distributed, including *Energy Savers* booklets and the recent *Missouri Energy Bulletin*.