

Community Solar Program Business Model

With the goal of increasing access to renewable energy, Water & Light staff proposes to initiate a one megawatt Community Solar program. In the model proposed, Columbia Water & Light will establish the program utilizing the 267 Kilowatt (kW) Tiger Field located at the West Ash Pumping Station and 733 kW from Truman Field located east of Columbia. Community solar will allow Water & Light to deliver a real world solar experience for customers interested in encouraging renewable energy usage but unprepared to pursue their own home solar installation. Community solar is a low cost and low risk means for direct access to using renewable energy.

Background

In 2008 the Solar One program was launched in Columbia. Solar One was Columbia's first renewable energy program and allowed customers to support solar production by purchasing one 100 kWh block of electricity. Solar One ended in 2017. Based on past demand for solar programming, Columbia's Solar One customers will be given first priority to register for the Community Solar program.

In 2015, Azimuth Energy was awarded the bid to design, procure materials, and provide consultation to Water and Light staff for a solar field at the West Ash Pump Station. At that time, the 267 kW field was the largest and first project of its kind undertaken by Water & Light staff. As such, Water & Light utilized that opportunity to educate and train staff on solar integration into our portfolio. Due to the increased expense elected by the utility for education, Water & Light will retain 20% of the personnel costs, which has been factored into the capital cost to subscribers.

Scheduled to begin producing energy in 2020, Truman Field is a 10 MW solar field with an expected annual output of 23,000 MWhs a year. 733 kW of the 10 MW will be utilized as part of the Community Solar program.

Staff members have consulted with other utilities that offer a community solar program along with research conducted by the National Renewable Energy Labs, Solar Electric Power Association, the American Public Power Association, Electric Power Research Institute, and other organizations.

How it works

Customers choosing to participate in Community Solar will sign a 25 year lease agreement with Columbia Water & Light. The terms of the agreement will include an application fee, an operation and maintenance (O&M) fee, and a solar energy production credit per their subscribed blocks of the Community Solar fields. The credit will be presented on participating customer's monthly utility bill. Capital costs from Tiger field will be paid back over a 15 year period and distributed across all kW Blocks with O&M expenses continuing for the final 10 years of the production agreement.

Columbia Water & Light's Community Solar program will be divided into 1,000 one-kilowatt blocks, 100 of which will be reserved for low-to-moderate income households.

To encourage diversified participation, a maximum of three blocks per residential meter will be available in the initial offering, up to 80% of a home's capacity. Participating customers will pay a \$27 application fee and ongoing monthly subscription fee as part of a production agreement. The cost to participate will be \$9.17 per month per kW for the first 15 years. The monthly payment includes blended production and capital costs from Tiger and Truman fields minus the production value that the Utility has recouped since production began at Tiger Field in 2015.

Over the first 15 years, participating customers can expect an average production utility bill credit of approximately \$10.85 per kW per month with a net average benefit of approximately \$1.69 per month per kW. As electric rates increase, the value of solar production will increase at the same rate.

For the final 10 years, customers will see a decrease in the cost of participating in the Community Solar program. At that time, the capital costs from Tiger Field will be eliminated from their bill resulting in an anticipated total cost per kW per month of \$8.45. We estimate that a customer will see a net average benefit of approximately \$2.47 per month per kW at that time; however, this amount will depend on electric rates, O&M costs, and solar production.

Based on the production data collected from Tiger Field and anticipated production from Truman Field, customers leasing one kW can anticipate an annual output of approximately 1,650 kWh with a monthly average of 138 kWhs. Customers' bills will be credited based on the amount of solar production totalized from the fields and assigned according to the number of subscribed blocks of each agreement. All solar energy production will be credited at the current lowest tier of the effective residential rate. This value will fluctuate with rates. The current rate is \$.0786 per kWh.

The Community Solar program will be mobile within Columbia Water & Light electric territory, transferable between customers, and will have a fee free termination process to exit the program. Program participation will start on March 1 of each year and will true-up 12 months later. During its pilot phase, it will be regularly evaluated on a quarterly basis for success.

Low-to-Moderate Income Component

In order to provide access to all members of our community, 100 blocks of solar will be reserved for low-to-moderate income (LMI) households. To qualify for this benefit, participants must have an annual income at or below 200% of the federal poverty income level, or 80% of the area median income level. Participants in this portion of Community Solar will see additional benefits such as reduced participation costs and no application fee. This program would operate in a 12 month cycle for participants of Community Development's or Central Missouri Community Action's efficiency programs.

Participants in the LMI portion of Community Solar will pay 10% less per kWh, the cost of which will be carried by the other 900 blocks. This will result in a price per kW per LMI

block of solar of \$8.45. We estimate that a customer participating in this portion of the Community Solar program will see an average \$2.47 per month per kW bill credit.

Renewable Energy Credits

A renewable energy credit, certificate or attribute is a tradable certificate, credit or attribute that is certified by an entity that is approved by the Missouri Public Service Commission. Columbia Water & Light retains the rights to the Renewable Energy Credits for the Community Solar program to meet Columbia's renewable energy mandate. A participating customer may choose to retain the right to their credit; however, that credit must be retired in place.