



CHP
TECHNICAL ASSISTANCE
PARTNERSHIPS

Ameren Missouri's Bill Calculator Tool

Increasing Transparency of Utility Standby Charges

Program Description

Even the best operating self-generation systems require regular maintenance and experience occasional unplanned forced outages. For those brief periods, utility maintenance and back-up power service, often referred to as *standby service*, is a necessity for most industrial, commercial, and institutional operations. Unfortunately, utility standby service tariffs are often complex and ambiguous, leading to overestimates of the service's cost. The confusion can adversely affect investment and design decisions.

The Ameren Missouri *Standby Bill Calculator Tool* is a cost calculator that can help self-generation customers estimate what their utility-provided standby service will cost. The tool is an Excel file programmed to apply the charges and parameters in Ameren's Standby Service Rider (SSR) to individual customers' standby service profiles. The Excel file can be populated with 12 months of the customer's historic load data (which can be provided by Ameren) or with projected load profiles and generation assumptions; these data are used to calculate Ameren's SSR charges. The tool is designed to utilize 15-minute customer demand data—the same data used in Ameren's SSR. Ameren also offers an auxiliary tool that will convert hourly data into 15-minute data to populate the tool. With the *Standby Bill Calculator Tool*, prospective combined heat and power (CHP) and waste heat to power (WHP) customers can calculate and compare their projected SSR costs to their current monthly electric bills. Ameren Missouri makes three tools available, one for each customer class eligible for standby service: Large General Service, Large Primary Service, and Small Primary Service. Ameren's Standby Service Rider webpage provides customers with a point of contact for assistance obtaining and using the tool: Tom Hickman, Regulatory Rate Specialist.

The U.S. Department of Energy's Central CHP Technical Assistance Partnership (TAP) works closely with the Missouri Department of Natural Resources' Division of Energy to provide technical assistance to potential CHP and WHP customers in Missouri. TAP staff have experience with the tool and are available to help CHP and WHP customers and their consultants with its application.

Quick Facts

Location: Missouri

Market Sector: CHP and WHP applications, including manufacturing, oil & gas, commercial, and institutional

Program Type: Standby rate calculator

Geography: Ameren Missouri Electric Service Territory

Program Start: 2017

Program Development

	Full Service Requirement		Supplemental + SSR		Generated kWh	Avoided Cost Percentage*	
	kWh	Bill	kWh	Bill			Avoided Cost
January	2,005,478.11	109,341.26	1,100,156.09	65,829.15	43,512.11	905,322.03	0.88153775
February	1,853,657.89	102,689.76	1,018,338.89	61,248.88	41,440.89	835,319.00	0.89552789
March	1,946,291.17	106,142.54	1,086,678.15	62,682.88	43,459.66	859,613.02	0.92704682
April	1,881,793.37	103,947.25	1,054,780.35	61,526.62	42,420.63	827,013.02	0.9285892
May	2,025,220.65	113,088.25	1,144,018.17	67,077.50	46,010.75	881,202.48	0.93505777
June	2,094,030.51	182,442.87	1,258,116.67	119,557.07	62,885.79	835,913.84	0.86346978
July	2,189,453.50	188,770.87	1,333,058.79	120,410.25	68,360.63	856,394.71	0.92583331
August	2,239,081.96	194,160.83	1,359,409.50	123,046.00	71,114.83	879,672.46	0.93228248
September	2,074,302.08	184,194.54	1,227,719.36	113,967.27	70,227.27	846,582.72	0.9341823
October	1,970,437.56	108,293.18	1,112,215.68	64,312.09	43,981.09	858,221.88	0.93245521
November	1,839,658.22	101,048.71	1,110,884.93	69,953.36	31,095.35	728,773.29	0.77680021
December	1,877,201.47	102,056.37	943,355.99	54,849.07	47,207.29	933,845.48	0.92983277
Annual	23,996,606.50	1,596,176.43	13,748,732.55	984,460.15	611,716.28	10,247,873.95	0.89739821

Sample Output from the Standby Bill Calculator Tool

- During a series of workshops arising out of an Ameren rate case, the Missouri Division of Energy recognized an opportunity to help potential CHP and WHP customers estimate their standby charges using readily available utility data and an Excel file developed to illustrate the cost impacts of Ameren's SSR in various scenarios.
- The Division of Energy worked in collaboration with Ameren Missouri to make the tool user-friendly.
- Programming for each of the three customer class tools had to consider nuances of the SSR's effects on different customer classes and loads. Ameren Missouri's standby tariff includes a one-page summary of key charges for each class of customer, which was used to inform this process.

- The Central CHP TAP was one of the first entities to use the tool and provided review and feedback on how to further streamline its application.

Summary of Program Results and Outcomes

Ameren Missouri's *Standby Bill Calculator Tool* allows potential CHP and WHP system owner/operators to identify the economically optimal system design, sizing, and operational parameters during a project's design phase. Further, this tool allows current CHP and WHP system owner/operators to minimize standby charges by scheduling system maintenance during low cost periods. The tool makes transparent the cost impact of an unplanned outage and the importance of proper maintenance procedures to avoid higher charges. Understanding how their systems' operational characteristics affect standby charges empowers self-generators to take control of their utility bills.

Rate Transparency

Ameren Missouri's *Standby Bill Calculator Tool* is a landmark approach to utility rate transparency. Though many experts cite tariff transparency as a best practice in utility rate design, standby tariffs are often one of the most complex and least straightforward electric rates. This lack of clarity can discourage investment in CHP, as well as lead to inefficient use of utility backup resources. Ameren's tool enables customers to cut through the tariff maze at an early stage in project design and later to evaluate how their operating decisions are affecting their standby service bills.

Lessons To Share

- Utilities can translate their standby tariff's structure and charges into a bill calculator tool using an Excel spreadsheet, a tool often used in emission calculators.
- The ease with which a standby tariff can be translated into an Excel spreadsheet depends on the complexity of the associated base tariff.
- Creating a one-page summary of the utility's standby charges is helpful to customers and aids in the process of creating a bill calculator tool.
- Utilities likely have the historic customer load data necessary to assist customers in using a bill calculator tool such as this.
- Customers who do not have historic load data may also be able to use this type of standby service tool by uploading their projected load assumptions and self-generation profiles.
- To promote standby tariff transparency, this type of standby service bill calculator tool should be user-friendly and readily accessible to customers, and the utility should actively promote and facilitate the tool's use.

Resources:

- Ameren Missouri (Union Electric) Standby Service Rider
www.ameren.com/missouri/business/rates/electric-rates/rider-ssr
- Midwest CHP Technical Assistance Partnership www.mwchptap.org
- Missouri Department of Natural Resources, Division of Energy
<https://dnr.mo.gov/energy/energy-resources/combined-heat-power-chp>

For More Information

U.S. DOE CENTRAL CHP TECHNICAL ASSISTANCE PARTNERSHIP (CHP TAP)
www.cchptap.org

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