ELEVATE ENERGY
Smarter energy use for all

Hourly Pricing and Electric Vehicles

Elevate Energy is a nonprofit, mission-based organization dedicated to ensuring that the benefits of energy efficiency and hourly electric pricing reach the people who need them most, including owners of electric vehicles (EVs). In Illinois, Elevate Energy serves as the third-party administrator for the ComEd Residential Real-Time Pricing (RRTP) program and the Ameren Illinois Power Smart Pricing program. These two programs serve over 23,000 residential households and have saved customers more than $22 million since their inception in 2007. The programs offer significant savings for electric vehicle owners who can charge their cars at off-peak times, compared to flat rates.

Advantages of Hourly Pricing for Electric Vehicle Owners

Hourly Prices are Typically Lowest at Night

Hourly prices in Illinois are typically lowest at night, when many EV owners charge their cars at home. Sometimes, wholesale electricity prices in Illinois even dip below zero, allowing EV owners on hourly pricing to get paid to charge their cars. As wind generation expands in MISO and PJM, negative prices should become even more common. From 2006 to 2011, the percentage of hours with negative prices in PJM grew from approximately 0.5 percent to 2 percent, reaching 3 percent in 2010. In MISO's Illinois zone, negative prices grew from approximately 0.5 percent of hours to close to 3 percent, topping out at over 4 percent in 2009.

Large Users Save on Hourly Pricing

Elevate Energy's analysis shows that larger users are the most likely to save on residential hourly pricing, even if they do not shift their electricity demand. There are two reasons for this. First, fixed charges make up a relatively small percentage of a larger users' bill. Second, larger users use more electricity during the off-peak months of the year, saving more on their supply costs than small users. Of course, larger users also have more demand available for shifting to off-peak times, giving them an even greater opportunity to save on hourly pricing. So, EV owners should not worry that their additional demand will make hourly pricing a bad option. On the contrary, it makes hourly pricing even more attractive.

Comparison of Various Electric Rate Options in Illinois

In Illinois, electricity customers can charge their vehicle on a fixed rate option, a time of use (TOU) rate, or an hourly rate option like ComEd Residential Real-Time Pricing or Ameren Power Smart Pricing. To determine the best rate option for EV customers in Illinois, the figures below display estimated monthly and annual charging costs on the fixed, time of use, and hourly rate options. The calculations assume that an EV owner drives their car an average of 30 miles/day and requires a recharge of 10kWh/day (300kWh per month). Capacity and transmission charges have been removed from all of the rates listed in the figures below to provide the closest "apples to apples" comparison of the various rate options. Only additional participation or administrative fees have been added to the Total Monthly Supply Cost and Annual Supply Cost estimates listed below. Also note that the Ameren rate option table only compares the Ameren fixed rate to the hourly rate pricing average from 1-5 a.m. since a TOU rate is not currently available in Ameren territory.

These figures show that RRTP and Power Smart Pricing provide EV owners with an additional opportunity for annual savings on vehicle charging costs. Assuming an EV owner is charging their vehicle from 1-5 a.m., the cost for ComEd's fixed rate and MC^{2}s TOU rate are 82 percent and 62 percent more expensive, respectively, than the RRTP cost. Annual charging costs on the Ameren fixed rate is 41 percent more expensive than Power Smart Pricing.

Figure I: Comparison of ComEd Fixed rate, MC^2 Smart Time of Use rate, and ComEd Residential Real-Time Pricing, Average Price per kWh between 1 a.m. and 5 a.m. (2013)

	ComEd Standard Fixed Rate	**TOU** MC^2 Smart Value Power Program	**RRTP** 1 a.m. – 5 a.m. average, 2013
Cost per kWh	$0.0426*	$0.033**	$0.02217***
Total Monthly Supply Cost (charging 300 kWh)	$12.78	$9.90	$6.65
Extra administrative costs	N.A.	$1.50 ($0.005/kWh program admin charge)	$0.39 ($0.39 participation fee/month)
Total Monthly Supply Cost including administrative fees (charging 300 kWh)	$12.78	$11.40	$7.04
Annual Supply Cost (including admin fees)	**$153.36**	**$136.8**	**$84.49**
Percent more than RRTP avg. supply cost	**82%**	**62%**	

*This is the current non-summer ComEd fixed rate. The ComEd fixed rate used in this table does not include capacity.
**This is the cost/kWh for the MC2 "Value Hours" time period (7 p.m. – 7 a.m., weekdays and all hours on the weekend). This energy charge does not include Transmission and Capacity Charges. Also note that this TOU rate is only available to customers in ComEd territory with a smart meter in place.
***This is the average cost/kWh between 1 a.m. and 5 a.m. on the RRTP program in 2013. The ComEd RRTP cost/kWh does not include Transmission and Capacity Charges.

Figure II: Comparison of Ameren Illinois Fixed rate and Power Smart Pricing Average Price per kWh between 1 a.m. and 5 a.m. (2013)

	Ameren Illinois Standard Fixed-Price Rate	**Ameren Power Smart Pricing Program** (1 a.m. – 5 a.m. average, 2013)
Cost per kWh	$0.0426*	$0.02269**
Total Monthly Supply Cost (charging 300 kWh)	$12.78	$6.80
Extra administrative costs	N.A.	$2.25 ($2.25 participation fee/ month)
Total Monthly Supply Cost including administrative fees (charging 300 kWh)	$12.78	$9.06
Annual Supply Cost (including admin fees)	**$153.36**	**$108.72**
Percent more than Power Smart Pricing avg. supply cost	**41%**	

*This is the current non-summer Ameren fixed rate. The fixed rate used in this table does not include capacity.
**This is the average cost/kWh between 1-5 a.m. on the Power Smart Pricing program in 2013. The Power Smart Pricing cost/kWh does not include Transmission and Capacity Charges.

Electric Vehicle Owners are Currently Saving on Hourly Pricing Programs

As of May 2, 2014, 190 EV owners have received a bill on either the Power Smart Pricing or RRTP program. On average, EV owners have experienced an overall savings on both hourly rate pricing programs. Through May 2, 2014, the average cumulative savings for all EV owners on the RRTP program was $142.07. The average cumulative savings for all EV owners on the Power Smart Pricing program was $268.78.