

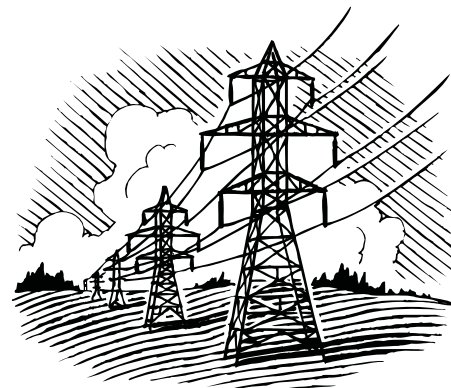


# CUBFacts

## Getting smart about the grid Answering your questions about the ‘smart grid’

### The ‘Smart Grid’

“Smart grid” is an umbrella term for Internet-based upgrades to our “power grid” — the lines, wires, and power stations that deliver electricity to our doorstep. Our current system consists of one-way communication, with electricity that was literally generated a second ago simply being thrown onto the grid for our consumption. A smart grid, however, would be based on two-way communication, allowing homes to automatically alert the utility of costly problems and consumers to adjust their power usage at key times to cut their costs. If done correctly, a smarter grid should save Illinois consumers billions of dollars by reducing power outages and cutting energy waste. But the jury’s still out on whether the benefits of a smart grid would outweigh the costs. The state and consumer advocates want to answer that question with a ComEd pilot project.



### ComEd’s Smart Grid Program

In October 2009, state regulators approved a one-year ComEd program, called the Advanced Metering Infrastructure (AMI), or “smart meter,” pilot project. The program called for ComEd to install “smart meters” in more than 130,000 homes in Chicago’s Humboldt Park area and 10 suburbs: Bellwood, Berwyn, Broadview, Forest Park, Hillside, Maywood, Melrose Park, Oak Park, River Forest, and Tinley Park. This is one of the nation’s only programs to test smart-grid upgrades to see if the consumer benefits outweigh the costs in the face of our mounting energy problems.

### The Problems

Our electricity system has performed amazingly well over the years, but the underlying technology has changed little since the day Thomas Edison first flipped the switch. Nineteenth Century technology is no match for costly 21st Century problems.

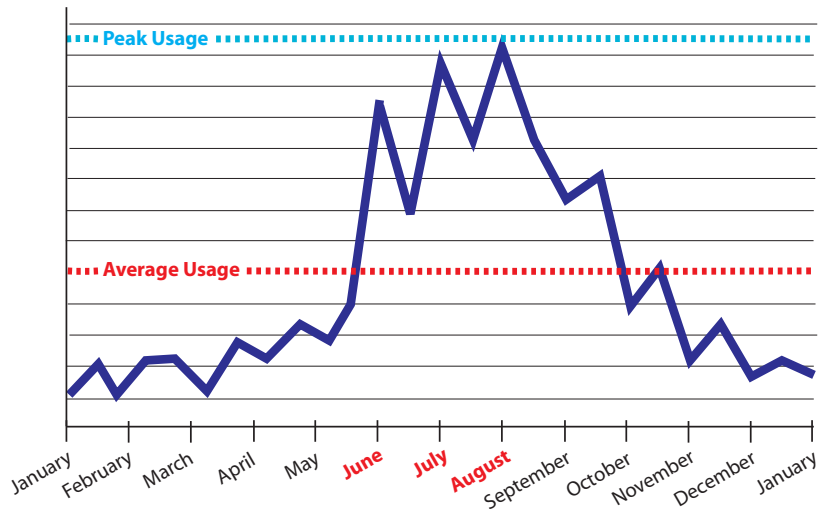
**Peak Power Costs:** Electricity is quite cheap most of the year, but just a handful of steamy summer hours have a devastating impact on our electric bills. Unlike natural gas and oil, electricity can’t be stored for emergencies. So we are forced to build more and more

### What exactly is a smart meter?

A typical electric meter has tiny mechanical dials that someone—you or a utility worker—has to read each month in order to measure a home’s power usage. There are no dials on a “smart meter.” It has a digital face, and unlike traditional meters, it can send—automatically and almost instantly—your power usage to ComEd.



expensive power plants to meet “peak” demand—the hottest hours of the year when homes and businesses are blasting their air conditioners and electricity market prices can jump by more than 500 percent. These are the few times we fire up costly “peaker plants”—and coal-fired power plants, which are among our most inefficient and expensive electricity sources, work even harder. Not only do these peak times force us to build more power plants, but they also drive up the price we pay for electricity for the rest of the year. The good news is that cutting peak demand—even a little—makes a big impact on everyone’s bills, even



for those homes that don’t practice energy efficiency. In fact, a 2007 study by the Brattle Group found that shaving demand by just 5 percent could lead to at least \$35 billion in savings nationwide over the next two decades.

**Waste:** Experts estimate that less than 50 percent of the power generated in the United States actually reaches consumers. Some 6-8 percent is lost just on the way to your home—“line loss” due to an inefficient power grid. It gets even worse inside the home. “Vampire power”—electricity burned from appliances that are plugged in but not being used—devours another 10 percent to 12 percent, costing the nation an estimated \$11 billion a year, or \$100 per person. Even empty office space in downtown Chicago can cost us money. ComEd customers pay up to \$35 million a year for vacant offices where the power was never turned off after the previous tenant left.

**Uncertainty:** Power outages cost the nation up to \$150 billion a year, or \$500 per person. Yet, ComEd has no way of knowing that the power is out on your street—unless you or a neighbor calls the company. Getting an outage fixed can be a long, expensive process—punctuated by spoiled food, dangerously hot homes, and utility repair work, that we eventually pay for on our electric bills.

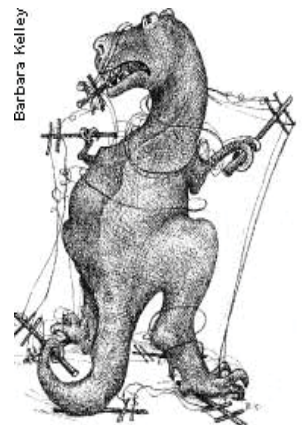
### How much will ComEd’s program cost?

ComEd says customers will pay a total of about \$5—somewhere between the price for a carton of milk and a sub sandwich—for the entire year. That amount will be divided up over 12 months and will appear as a charge, labeled “Smart Meter Program,” on ComEd bills.

### Potential Smart Grid Benefits

**Improving Reliability:** ComEd’s smart meters will alert the utility immediately to a power outage in your neighborhood, and in some cases, automatically fix the problem by rerouting power. Avoiding prolonged power outages could save Illinois consumers hundreds of millions of dollars.

**Eliminating Estimated Bills:** Many people don’t know that the power company can delay reading your meter for months at a time and instead estimate your usage. The problem is if the company underestimates that usage for months (which it has done), you will suddenly be slapped with a huge make-up bill. Smart meters virtually eliminate estimated bills.



**Eliminating Waste:** A smarter power grid could detect inefficiencies in the system, reducing line loss. It also opens the door for money-saving innovations at home. For example, “smart appliances,” which are now being developed, could automatically power down when not in use, reducing or eliminating the vampire power that’s adding up to 12 percent to your electric bills.

ComEd’s smart meters also lay the groundwork for “Home Area Networks” that would allow consumers to track their energy usage through in-home displays. Imagine being able to program your thermostat to automatically bump up the temperature when electricity prices skyrocket during peak summer hours. You may not even notice a change in the temperature, but you’ll be saving money and reducing the peak demand that is so damaging to our electric bills. Smart meters would help solve another problem, which costs ComEd customers up to \$35 million a year: vacant business offices that may still have the power on, even though they’ve been empty for months. A smarter grid would allow ComEd to remotely shut the power off in those spaces that are costing us so much money.

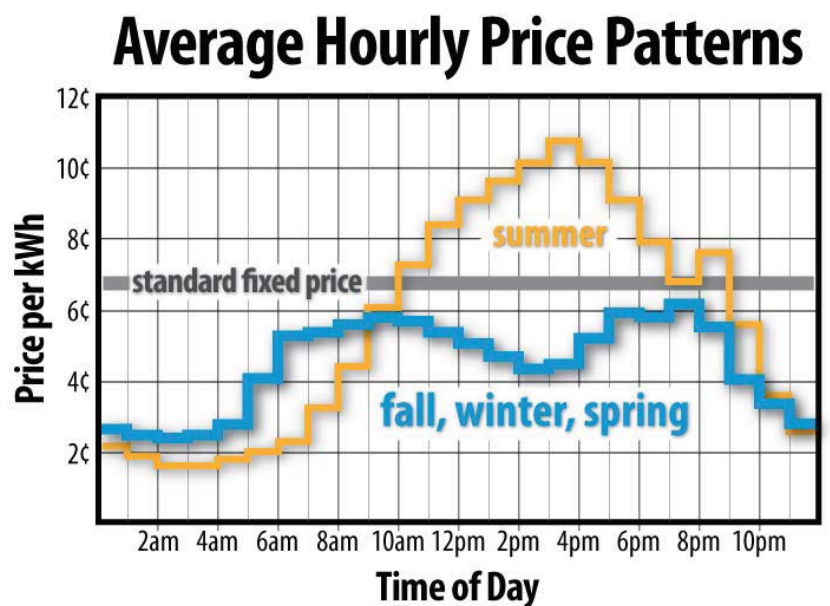
**Paving the Road for Electric Cars:** Automobile manufacturers have big plans to sell super-efficient fleets of electric cars that could solve our dependence on foreign oil over the next 10 to 20 years. The problem is, all those new electric cars have the potential to overload the power grid, because their batteries need to be charged. A smarter grid would be better equipped to manage this need and prevent a meltdown of our electricity system. It also would give car owners an opportunity to make money. With smart-grid technology, electric-car drivers who have excess power after charging their vehicles would actually be able to sell that power back to the grid to help keep power up and prices down during peak-demand times.

**Special Pricing Programs:** Remember, shaving our “peak demand” just a little would make a big difference on our electric bills, and ComEd’s smart-grid pilot project is experimenting with special power-pricing programs to do just that. Standard Illinois electric rates charge most of us a rigid, flat rate that gives consumers absolutely no flexibility to take advantage of how cheap the market price for electricity is during “off-peak” times of the day. But imagine getting a rebate for shifting your electricity usage from peak to off-peak times. A “peak-time rebate” is just one of the pricing plans ComEd is testing. The smart meters have already improved the one special pricing program Illinois does have: Real Time Pricing, which allows customers to capture lower rates at off-peak times. That program currently has a \$2.25 meter charge, but homes with smart meters don’t have to pay that fee. There’s more on that program below.

### What you can do now

You don’t have to wait for the smart grid to save energy and money. You can do that right now.

**Real-time Pricing:** The price of electricity fluctuates wildly over the course of a day from about 13 cents per kilowatt-hour (kWh) or more during peak-demand hours (about 1 p.m. to 6 p.m.) down to about 2 cents per kWh in the early-morning and late-night hours. However, we haven’t been able to take advantage of the low rates because utilities have traditionally charged a flat per kWh price, 4-7 cents per kWh, depending on the season (summer or winter). Real-time Pricing changes all that. The optional program al-



lows customers to pay a “time of use” rate based on market prices, which typically average out to a better rate than the utility’s traditional price. If your typical electric bill is more than \$40 or 400 kWh a month and your family can easily adjust the times it uses big-ticket items like the clothes dryer and dishwasher, Real Time Pricing could be perfect for you. Savings aren’t guaranteed, but average savings in the program were about 15 percent in 2009.

### Energy-efficiency Incentives

CUB is the source on state, federal, and utility financial incentives that Illinois consumers can get for making their home more energy-efficient. For example, that old fridge in your home is one of the biggest energy guzzlers you have. Did you know you can get paid \$25 to have ComEd haul it away? ComEd also has an air-conditioning cycling program in which it pays you between \$5 and \$10 per month in the summer to cycle your air conditioner on and off on the hottest days. The fan stays on to circulate already cooled air—so you may not even notice a difference. The only difference you’ll notice is the credit on your bill. Also, from April 16-25, you can get 15 percent discounts on energy efficient refrigerators, dishwashers, freezers, room air conditioners, and clothes washers. Plus you could get an additional \$75 recycling rebate if you buy a new freezer or refrigerator and get the old one recycled.

### CUB Energy Saver ([www.CUBEnergySaver.com](http://www.CUBEnergySaver.com))

CUB has launched a new online tool that can help you build a money-saving plan perfect for your home. CUB Energy Saver, the first tool of its kind in the country, is like having your very own, 24-hour, on-call energy expert whose only job is to slash your utility bills—for free! All you need to give is your address and CUB Energy Saver has enough information to give you a list of energy-saving actions that will help you cut your costs. As an added bonus, consumers who choose to give their ComEd billing information will be able to see exactly how their energy-efficient actions are cutting their power bills. In fact, you’ll get monthly e-mails telling you if you’re meeting your goals and giving you guidance on what other actions you can take to improve. Those consumers also will qualify for a rewards program in which their energy-efficient actions will earn them points that can be redeemed for free or discounted items at local stores and restaurants.



It pays to be energy-efficient, and these programs prove it.