

Internet of Things

Connecting You With the World of Power

Internet of Things (IoT) is a large network of data-gathering sensors and connected devices built on cloud computing.

It's mobile, virtual and improves your life by making everything smart and interactive; from fitness trackers and thermostats to parking meters.

34 billion devices will connect to the internet by 2020.

By 2022 the average US household will own roughly

50 internet-connected devices.

HOME

Your home is a major part of this increasingly connected world. From new smart appliances to home automation, you can make your home energy efficient and convenient.

Smart appliances connected to the network can shift or reduce energy use based on ideal conditions and save you money by running at less costly times.

About 50% of a **refrigerator's** energy use is for defrosting and ice-making cycles. Smart refrigerators can automatically run these cycles at less expensive times.

Automated **window blinds** can open and close in response to the sun keeping your home closer to your ideal temperature.

Smart thermostats can respond to utility price signals, automatically adjust energy use and reduce your monthly bill.

Smart water heaters can run overnight when electricity is cheaper and store thermal energy for use elsewhere in a home, reducing energy costs up to \$200 per year, per heater.

When you're on vacation, your **appliances** and **water heater** can automatically go into energy-saver mode.

Dishwashers and **washing machines** can be scheduled to run during hours when power is cheaper.

About **25%** of home energy consumption is used for **lighting**. Occupancy sensors save energy by automatically turning lights on and off based on motion in the room.

Since October 2011, **Nest thermostat** customers have saved more than 1.4B kilowatt hours. That's enough electricity annually to power more than

135,000 US homes.

Using data from your connected devices and additional smart technologies, like digital meters, **your utility** can offer you flexible and convenient payment options like **cost-saving pre-payment programs**.

Energy consumers can use the **Green Button** to monitor energy use, get custom energy tips and take advantage of energy pricing and efficiency incentives.

In the Northwestern US **1,400 customers**, enrolled in **prepay electric service**, reported between 5.5% to 14% in **energy savings**.

IoT-enabled technology helps communities decrease energy consumption, use more renewable energy and improve energy reliability and performance.

COMMUNITY

Smart grid technology, your utility's IoT infrastructure, enabled the city of Chattanooga, TN to **reduce outage times** by over 50% and saved \$1.4m in operational costs for a single storm.

When a power outage occurs, an IoT-enabled, smart electric grid can **diagnose outages** in real-time, pinpointing the specific problem so power is restored faster.

Energy demand response programs can change your energy usage by having appliances run at lower-demand, lower-cost times of the day, **saving you money and reducing carbon emissions**.

IoT enables using **more sustainable energy** resources like solar, wind and geothermal power. Some states are targeting 50% clean energy by 2030.

For every \$1 spent on **reducing energy peak demand**, Illinois energy users saved \$2.62. In Massachusetts they saved \$3.65.

CITY

Smart Cities use Internet-of-Things technology to improve quality of living by reducing costs, creating new and better services, and improving sustainability.

Public transportation software, roadway sensors and transit apps **streamline traffic and reduce congestion** so you get where you're going...fast!

Solar-powered city benches provide mobile device charging and wireless network access.

By 2025 **7 million+ electric vehicles (EVs)** in the US will require 5K charging ports. IoT helps EV drivers utilize less costly rates and get open charging station notifications.

Smart garbage bins communicate when they're full, making city waste management more efficient while reducing CO2 emissions.

Smart street lights can reduce energy usage 50% to 70% by dimming when activity is low.

They can also adjust to pedestrians, traffic patterns and roadway hazards to increase safety.

Smart parking apps help drivers find open spots faster, reducing fuel consumption.

40% of clean water is lost to water system leaks. Leak detection sensors help reduce the 7B gallons of water lost daily in the US, saving energy used to treat and pump water.

What Does This Mean for You?

There is an abundance of possibilities for IoT devices in energy. IoT means more convenience for you. Whether in your home, around your neighborhood or throughout your closest metro area, IoT will take your relationship with power to the next level, empowering you to make the right choices for your family and your home.

Learn more about how you can become a smarter energy consumer at

WhatIsSmartGrid.org