

Energy Efficiency Standards for Battery Charger Systems

Frequently Asked Questions

What are battery charger systems?

Battery charger systems (or battery chargers) are broadly defined by the California Energy Commission as any device that charges a battery – large or small – for the operation of that device. Battery chargers are an important component of cell phones, laptop and tablet computers, power tools, electric toothbrushes, electric razors, and larger items such as golf carts and forklifts. The standard would not affect highway plug-in electric vehicles.

How many battery chargers are there in California?

There were an estimated 170 million chargers in California households, as of 2009. The average California home has approximately 11 battery chargers.

What is being proposed?

The Energy Commission is proposing energy efficiency standards to require battery chargers to consume less energy while performing the same service. Beginning in February 2013, battery chargers manufactured will be more efficient and waste less energy.

Why is this necessary?

Energy consumed to charge batteries has been rapidly increasing in California. While the technology to minimize waste during the charging process is available and well-known, many products have not been designed with reducing wasted energy in mind. The proposed standard is feasible, cost-effective, and will save California consumers and businesses money.

How much money can be saved?

Once fully implemented, it is estimated California ratepayers will save approximately \$306 million a year.

WITHOUT STANDARDS



WITH STANDARDS



ENOUGH ENERGY TO POWER **350,000** HOMES,
SAVING CALIFORNIA RATEPAYERS **\$306 MILLION**
ANNUALLY

How much energy can be saved?

Nearly two-thirds of the 8,000 gigawatt hours of electricity consumed by battery chargers in California is wasted by inefficiency.

The proposed standards will save nearly 2,200 gigawatt hours each year – or enough energy to power nearly 350,000 homes. It will also eliminate 1 million metric tons of carbon emissions.

When would these standards start?

Consumer chargers, used in such products as cell phones, personal care devices, and power tools, will be required to comply by February 1, 2013. Industrial charger compliance (e.g. forklifts) is required by January 1, 2014. Compliance for small commercial chargers (e.g. walkie talkies for emergency personnel, portable barcode scanners) is required by January 1, 2017.

Why are energy efficiency standards important?

Standards conserve energy and prevent the need to build new, expensive power plants. California building and appliance standards have saved consumers \$66 billion dollars since 1975.

What are the details?

Battery charger systems are composed of three things: a power supply, internal charging circuitry, and the battery. The standard covers all common battery chemistry including nickel cadmium, nickel metal hydride, lithium ion, and lead cells.

Battery charger systems use energy in three modes: (1) energy used to actually charge batteries (charge mode); (2) energy consumed by the battery charger when the battery has been removed or disconnected (no-battery mode); and (3) energy consumed after the battery has been fully charged (battery-maintenance mode).

The proposed standards will eliminate wasted energy by setting a limit on the total electricity consumed by a battery charger in all three modes. Many consumer electronics manufacturers produce chargers that already meet the standards.

What about ENERGY STAR rated products?

The ENERGY STAR specification is voluntary and doesn't comprehensively address the energy consumption of battery chargers. It was designed only to focus on a few types of battery chargers.

Who is supporting this standard?

Supporters include environmental groups (Natural Resources Defense Council and Environment California), California utilities (Pacific Gas & Electric, Southern California Edison, and San Diego Gas & Electric), the Power Sources Manufacturers Association which represents companies that manufacture components to enable more efficient battery chargers, and the Appliance Standards Awareness Project.

Will this increase the cost of new appliances?

Consumers may see a small increase in the cost of some appliances in the short term, which will be more than offset by energy savings. In most cases, there are already competitively-priced products that meet the proposed standards. Manufacturers whose products do not meet the standards will have the flexibility to meet the standards by redesigning their products to charge more efficiently, reduce wasted energy when no battery is being charged, or stop charging when the battery is full.

The estimated increase to an electric toothbrush, for example, would cost 40 cents, but would return \$1.19 in electricity savings – a 3-to-1 return – over the life of the product. The added cost of 50 cents to a laptop computer would yield an 18-to-1 return by providing the consumer with \$9 in electricity savings over the life of the device.

Will this standard affect medical or communication devices?

No. FDA-approved, life-sustaining medical equipment is exempted by this proposed standard. Ensuring their products work safely and efficiently, the Energy Commission granted companies producing commercial walkie-talkies until 2017 to comply with the standard.

Why create a standard that's being considered by the US Department of Energy?

California has historically taken a leadership role on energy efficiency standards that become the basis for Federal standards. The energy and cost savings for California in just one year is significant. The Commission has been working with industry and the public on developing the proposed standard since 2006.

The Commission's proposed standard encompasses a broader scope than a DOE standard, since the DOE proposal would only regulate consumer products.

www.energy.ca.gov/appliances/battery_chargers

JANUARY 2012

Battery Charger Consumption

with standards and without standards

