

# The New Notion of Electricity

Environmental groups and public utilities join forces on an innovative energy future

By Paul Wesslund

When it comes to electricity, it's time to think bigger. By looking at electricity in a new light, we can reveal surprising ways to make our lives better—from saving money to helping the environment.

Keith Dennis, vice president of consumer-member engagement for the National Rural Electric Cooperative Association, agrees with this approach.

During the past four years, he has been part of a group promoting an approach to electricity that unites utilities and environmental advocates; redefines the meaning of energy efficiency; and reduces costs. That new way of thinking is catching on. He says “it's become a bit of a movement.”

Beneficial electrification is a tongue twister that refashions our notion that electricity is something we buy to run our refrigerators and charge our phones. It is a concept that reveals new ways energy can improve our quality of life—from our everyday lives at home to the more effective operation of the nation's electric grid.

## Electricity and Environmental Goals

Dennis explains beneficial electrification this way: Think about your gasoline-powered lawnmower. Maybe you love it.

Maybe the size of your mowing job takes longer than a battery lasts. On the other hand, thinking through the advantages of an electric mower could uncover surprising reasons.

No more gas cans to fill and store in a garage. You don't have to worry about gas fumes or yank a cord hoping the motor will start up this time. An electric mower is quieter, less intrusive on neighbors and family in the house or on the porch.

From there the benefits go global. An idle mower plugged in for recharging becomes part of the electric grid.

In the future, with enough mowers plugged in, timing could be coordinated so the charging happens when people are using the least amount of electricity, perhaps in the middle of the night. That would allow electric utilities to operate more efficiently, evening out electricity use over a 24-hour period. If you're concerned about the environmental effects of your energy use, more and more of your electricity is generated by wind and solar energy.

That renewable energy trend is part of what led to one of the nation's leading



environmental groups to become part of the beneficial electrification movement. The National Resources Defense Council has worked with NRECA to form the Beneficial Electrification League.

In 2018, the NRDC published a report outlining a broad plan to significantly reduce greenhouse gas emissions during the next 30 years. A key part of that plan calls for using electricity for a bigger share of our energy consumption—a lot more. The NRDC plan calls for increasing electricity's contribution to all end-use energy from about 20% today to 45% in 2050.

The NRDC sees four main ways beneficial electrification can reduce greenhouse gases:

- Renewable fuels generate a rapidly growing share of electricity, which means using more electricity emits less greenhouse gases.
- Electric cars are more efficient at converting energy into motion, plus, the increase of renewable energy to generate electricity means a rise in the share of electric cars would lead to a drop in



greenhouse gas emissions.

- Heat pumps are far more efficient than natural gas or oil furnaces. Other electric technologies in industry and new buildings can create more efficiencies.

- The smart grid uses digital technology to coordinate electricity use across the nation's power lines. Smart thermostats, electric water heaters and even electric vehicle batteries could be linked to make the most effective use of energy.

NRDC data shows a more aggressive pursuit of energy efficiency, renewable energy, electrification of end uses and an enhanced power grid can put the U.S. on the path to cutting its greenhouse gas emissions by 80% by 2050.

### Conservation Is Not Efficiency

Dennis describes the NRDC's support of beneficial electrification, saying, "When they do the math, they find out that electrification of more things is the answer. It's one of the only

pathways to a low-carbon future."

Beneficial electrification shows the need to rethink what energy efficiency means, Dennis says, noting it's not conservation. As initiatives such as the federal government's Energy Star program help consumers save money on the most efficient electric products, and the advantages of beneficial electrification become more well-known, he says energy efficiency can actually mean using more electricity.

"When people talk about energy efficiency, they don't necessarily take into account the systemwide benefits of electricity," he says. "There's a big opportunity for electrification to meet many objectives: saving folks money, reducing environmental impact, increasing the quality of life and helping the electric grid." ■

*To learn more about beneficial electrification watch the animated video by the Beneficial Electrification League at [www.youtube.com/watch?time\\_continue=20&v=HDCKmAjzV8&feature=emb\\_title](http://www.youtube.com/watch?time_continue=20&v=HDCKmAjzV8&feature=emb_title)*

## Ride Electric

By Maria Kanevsky

Ten years ago, electric vehicles were a rare sight, but today, they are on roadways across the country. Advancements in battery technology have led to smaller, more efficient batteries, which has opened the door to new forms of electric transportation, or e-transportation.

One new form of electric transportation is the electric scooter. It is inexpensive and some are foldable, making it easy to carry and store. Several electric scooter rental companies offer their services in many major cities, making it easy to find a scooter to use for a limited time. However, electric scooters' small wheels are only meant to be ridden on paved surfaces such as sidewalks, and electric scooters' limited range and speed make them unsuitable for long-distance travel.

Electric bicycles offer the same ease of use as traditional bicycles, but travelers can ride longer distances without being as fatigued.

Some of these forms of e-transportation can be used for recreation in addition to everyday use. The electric skateboard has more power than a normal skateboard, and the user can still perform tricks while riding. There are even electric roller skates.

For those looking for more exciting forms of e-transportation, many innovative options are being developed. One is the electric unicycle, which is a self-balancing device. You can speed up and slow down by leaning forward or backward. It is easy to store or carry around. Because of its large wheel, it can travel on a variety of terrain, such as grass, gravel, curbs and even potholes. It's relatively difficult to learn how to ride a unicycle, so keep that in mind.

For even faster speeds, there is the electric motorcycle. Compared to gas-powered motorcycles, their electric counterparts offer increased performance, less maintenance and lower fuel costs. Although they are much quieter than gas-powered models, electric ones cannot drive as far, which may make them less appealing for longer road trips.

Since these technologies are relatively new, they are more expensive than their conventional counterparts. Before buying, do your research.