

# The Smart Grid and Climate Change

*“If the grid were just 5% more efficient, the energy savings would equate to permanently eliminating the fuel and greenhouse gas emissions from 53 million cars.”* – U.S. Department of Energy

## What is the Smart Grid?

Our electrical grid is outdated and demand is outpacing supply. The smart grid will revolutionize how we create and consume energy. The smart grid transforms our electrical system into a modern network that delivers electricity from suppliers to consumers using digital technology to save energy, reduce cost and increase reliability. Such a modernized electricity network is being promoted by many countries as a way of addressing energy independence and global warming issues.

## Benefits of the Smart Grid

*Modernization of our aging electric grid infrastructure:* The electrical power industry faces many business challenges surrounding increased demands on an aging infrastructure. The smart grid will allow utilities to track the grid in real time, enabling increased reliability.

*Saving money and energy:* The smart grid will empower consumers to monitor energy usage, conserve energy, save money, and reduce energy costs for the country. It is far less expensive to conserve energy than to generate it.

*Security:* The smart grid will improve national and economic security by reducing our dependence on fossil fuel.

*Helping the environment:* Energy efficiency is likely to increase through the use of the smart grid, leading to the reduction of GHG emissions, enhancing the use of renewable energy sources and increasing the viability of electric vehicles.

*Economic and job growth:* The smart grid creates jobs; it is essential to upgrade the century-old grid to fuel economic growth.

## How the Smart Grid Will Reduce GHG Emissions

Cost-effective downstream GHG reduction opportunities can be facilitated by the smart grid by boosting energy efficiency (in both grid efficiency and end-use conservation), as well as enabling greater integration of renewables (in both utility-scale projects and distributed generation).

Additionally, smart grid infrastructure also can be leveraged to enable widespread transport electrification, which not only confers dramatic GHG reduction benefits due to the favorable emissions profile of traditional generating plants - and certainly of renewable power - over internal combustion engines, but also serves to enhance US energy security and trade balances by reducing the need for imported petroleum.

