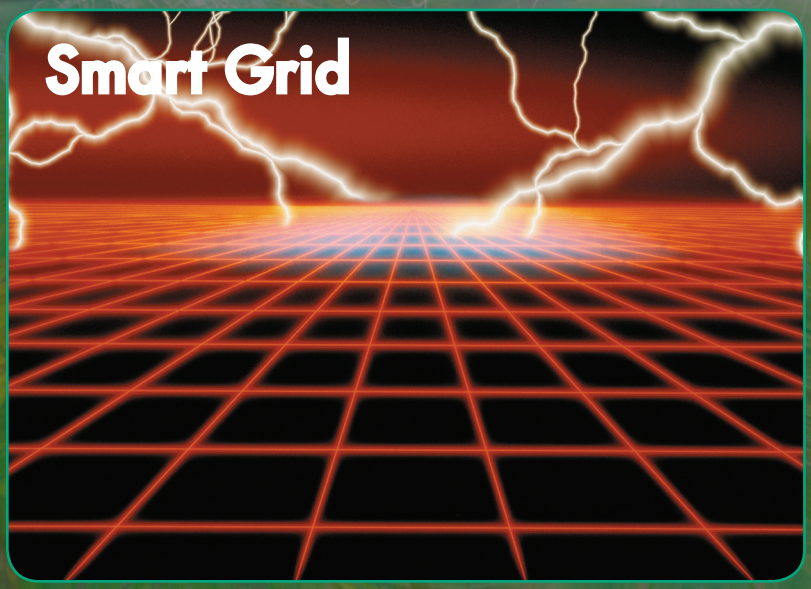
GREEN REVOLUTION



About the Series

Coming up with better ways to get where we need to go and power the lives we live requires development of new technologies, along with research to help us minimize the impact of these technologies on our environment. The overall goal of this series is to encourage people to ask questions and look beyond fossil fuels for innovative solutions to our ever-growing energy needs. Interest in science and technology provides the necessary foundation for our future in a world powered by clean energy. The series also provides insight into what careers in science, engineering and other topics related to clean energy technologies are really like.

In this Episode

We explore how a smart grid will connect renewable energy resources to our existing power grid, and help us share that power more efficiently.

Sid Suryanarayanan and his research group at the Colorado School of Mines study electric power systems. By developing ways to make sure we have a reliable stream of electricity and control systems that regulate energy use, the team is making our power grid smarter.

Graduate student Hilary Brown looks at what changes we can make to our existing grid and explores a new concept called "distributed generation." Fellow student Josune Armas writes computer programs to improve how and when we use electricity at home. Since electricity is cheaper at "off-peak" times, this means we can save a little cash too.

At the University of Texas at Austin, Ted Song designs, builds and tests a device that regulates and converts electricity from different renewable sources that we'll be able to use in our homes.

Smart Grid will change where our power comes from and how we all use it so we can keep turning on the electronics we need and love.

Concepts

- Engineering design involves practical problem solving, research, development and invention/innovation, and requires designing, drawing, building, testing and redesigning.
- Electrical systems generate, transfer and distribute electricity.

Content Standards

Technology/Engineering
High School*

1.2 Solve problems and advance society through use of the engineering design process.

5.2 Identify and explain the components of a circuit.

5.5 Compare and contrast alternating current (AC) and direct current (DC) and give examples of each.

*Based on Massachusetts Science and Technology/Engineering Curriculum Framework, October 2006