



# Accelerating the clean energy revolution

Over the next twenty years, the nation will invest two trillion dollars in replacing aging, inefficient electric grid infrastructure, creating a once-in-a-generation opportunity to revolutionize how we generate, distribute and use electricity. But there is no guarantee that this massive investment will protect the environment and put us on the path to climate stability.

Nearly 80% of global warming pollution comes from the energy we generate to power our homes, businesses and cars.

## A smart green grid for the 21st century

Environmental Defense Fund (EDF) is working to ensure that money is well spent on a smart grid that enables far greater reliance on clean, secure low-carbon resources. Our strategy is to put in place three key policies in California, Texas, North Carolina, New York, Illinois and at least three other Midwest states, which together consume more than 40% of the power in the U.S.

The policies we seek will use smart grid investments to:

- ✓ open electricity markets to entrepreneurs, innovation and clean energy resources
- ✓ value clean energy resources on equal footing with power from fossil fuels
- ✓ achieve high environmental performance—through levers including standards that promote renewable energy and rates of return that utilities are allowed on their energy investments

By making full use of the transformative power of information technology, the smart grid of tomorrow will allow the U.S. to avoid building hundreds of new fossil fuel power plants—and

## Leading scientists conclude that climate stability requires:

- broader electrification of the economy, especially in industry and transportation
- massive scaling up of clean electricity produced by renewable energy sources
- a smart, green electric grid to manage it all



NASA satellite image courtesy of nasaimages.org

EDF is working to ensure that the electric grid is as interactive as the Internet: open to entrepreneurs and innovation, including clean, low-carbon resources.

cut planet-warming pollution by at least 30% from the electric sector and 25% from cars and trucks over the next two decades.

# ENERGY

“EDF has played an indispensable role in ensuring our smart grid investments deliver environmental returns.”

—Michael Peevey, President,  
California Public Utilities  
Commission

## City of Austin as a living energy laboratory

Since 1882, when Thomas Edison switched on the world's first commercial generator in New York City, the electric grid has been a one-way path from power plants to consumers. A smarter grid will be a two-way street enabling revolutionary new capabilities, including matching demand for power to available supplies of solar and wind energy.

One of our testing grounds is the prototype smart, green grid we are developing with the city of Austin and its municipal utility. Pecan Street is a \$30 million neighborhood demonstration project that integrates rooftop solar panels, plug-in vehicles that double as batteries for solar energy, and smart appliances that know to run when clean energy is available.

### High-tech partnerships

EDF is partnering on Pecan Street with dozens of entrepreneurs and high tech companies, including Sony, Oracle and Intel. Sony has put



David Newsom

Solar “flowers” track the sun at EDF's Pecan Street neighborhood pilot in Austin.

its gaming experts to work devising enticing new ways to make customers want to manage the electricity flow in their homes. Best Buy's “geek squad” is helping customers integrate and use smart devices and appliances. The University of Texas is deploying its supercomputers—among the most powerful in the world—to analyze data from the pilot to better understand, for instance, the best direction to orient solar panels to match Austin's late afternoon peak energy use period.

### EDF's smart grid experts



**Miriam Horn** leads EDF's smart grid team, helping to design smart grid deployments and reform market rules. With EDF president Fred Krupp, she co-authored *Earth: The Sequel: The Race to Reinvent Energy and Stop Global Warming*. Her team recently won the prestigious Zayed Future Energy Prize for global leadership in finding sustainable energy solutions.



**Lauren Navarro, JD**, leads our smart grid state regulatory efforts, working with utilities and state public utility commissions to ensure that smart grid investments maximize environmental, public health and economic benefits. Her current focus is the planning process and rate cases shaping smart grid deployments in California.



**Colin Meehan** is an energy analyst and EDF's Pecan Street project leader. With University of Texas faculty, he is tracking emissions reductions in the pilot neighborhood. He is also working to open the Texas electricity wholesale market to entrepreneurs offering clean, community-based energy.



**James “Jamie” Fine, PhD**, is an economist whose areas of research and advocacy include deploying smart grid for environmental and electricity customer benefits, designing and implementing market-based policy and modeling the economic, air quality and health consequences of policy decisions.

For more information, please contact **Miriam Horn**, director of EDF's smart grid initiative, [mhorn@edf.org](mailto:mhorn@edf.org).

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