

# Charting a New Path for Texas's Electricity Generation and Use



## Texas's energy future is at a crossroads

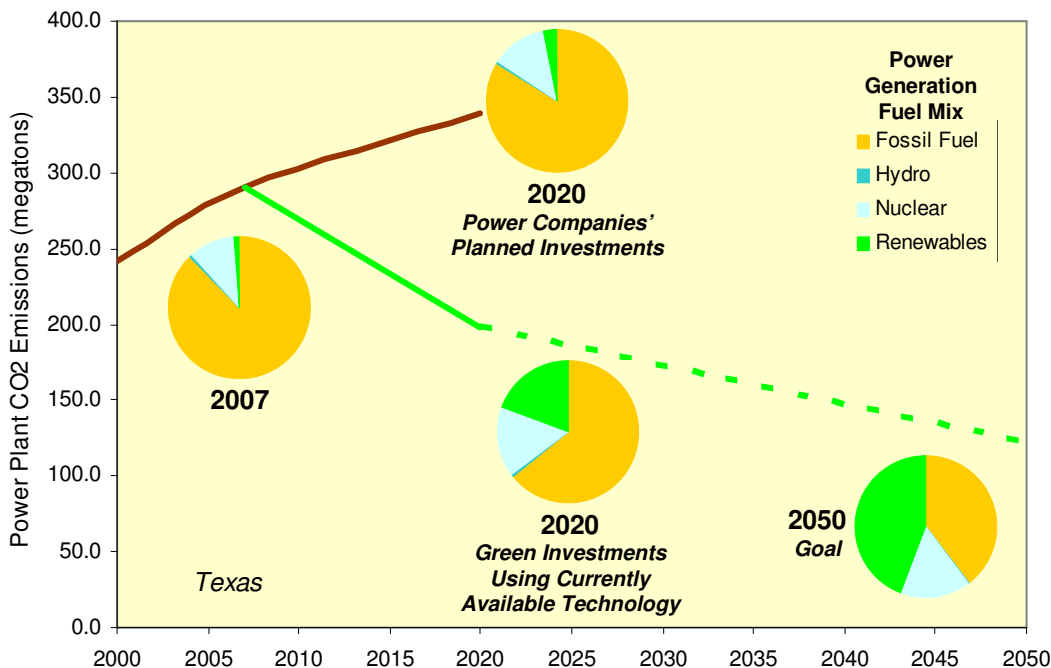
One path leads to increased dependency on fossil fuels—threatening our economy and fueling global warming. The other leads to a new, smarter energy future for Texas. Investing in clean energy alternatives—like solar and wind power—can create and protect jobs in Texas, save families and businesses money, and make America more energy independent. Clean energy is also the most effective solution to the threat of global warming. We can start making progress right away using proven technology, and then draw on American innovation to take us the rest of the way with new technologies.

### How does Texas generate electricity today?

In 2007, electric power generated in Texas primarily came from coal (37.8 percent), gas (41.1 percent), and nuclear (10.5 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. Texas power companies plan to increase the energy generation from coal by 30.0 percent, gas by 7.2 percent. Only about 1.1 percent of electricity generated in Texas is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

### Texas has a choice to invest in a cleaner energy future

Texas can achieve a new energy future by making better investments as utilities replace increasingly aged infrastructure and expand capacity. An important first step is for Texas to generate at least 20 percent of electricity from renewable sources by 2020, a goal readily achievable with today's technology. Continuing to convert 15 percent of the state's energy portfolio to renewable energy sources each decade could yield an energy profile of at least 65 percent renewables by 2050.



Texas can also benefit from improved energy efficiency. Technologies are available that could reduce demand nationally by 20 to 30 percent over the next decade. Innovations in energy efficiency should allow us to keep demand constant after 2020, even as the population grows.

Today, Texas is ranked 22nd in the nation for energy efficiency, largely because the state's utilities are already spending \$80 million annually to improve energy efficiency.

**About the chart:** 2000, 2007 and 2020 Power Companies' Planned Investments from CARMA 1.0 ([www.CARMA.org](http://www.CARMA.org)). The 2020 Green Investments projection assumes that, using currently available technology, Texas makes (1) improvements in efficiency to reduce overall demand by 25 percent and (2) shifts away from fossil fuels so that 20 percent of power generation is from renewable energy sources. The 2050 Goal assumes (1) hydro and nuclear are unchanged, (2) continued efficiency improvements keep total demand flat, and (3) renewable energy replaces at least 65 percent of power generation formerly done through fossil fuel burning. Note that the projection of future CO<sub>2</sub> emissions from fossil fuels assumes no investment in carbon capture and storage.

## Making a Difference in Texas

Texas is currently the leading state in wind power production has the second most potential for future wind production in the nation. Twenty-three wind farms were completed and put online from 2007 to 2008. Another 16 are under construction, with countless more in the planning stages. Even oilman T. Boone Pickens is getting into the wind energy game. Pickens is planning to build the world's largest wind farm in Texas, and he believes that the United States could produce 20 percent of its electricity through wind energy alone. In addition to producing clean, green energy, all of these new facilities create jobs for the people of Texas.

### Sources:

<http://www.awea.org/projects/projects.aspx?s=Texas>  
<http://www.pickensplan.com/theplan/>



## Making a dent in global warming pollution

Simply by shifting to renewable energy sources and improving energy efficiency over the next decade or so, Texas can reduce its future carbon dioxide (CO<sub>2</sub>) emissions from electricity generation by 42 percent compared to the business-as-usual path that utilities are following now.

Given that 33 percent of Texas's CO<sub>2</sub> emissions come from electricity generation, diversifying and updating our power sources is critical for cutting the state's total global warming pollution.

## Increasing Texas's energy and economic security

Investing in renewable energy sources will reduce Texas's dependence on fossil fuels and at the same time create new green collar jobs. A new energy future in Texas could include:

**Expanded solar power.** Texas has enough solar resources to produce 4,500 to 6,500 Whr per square meter using photovoltaic systems and 3,500 to 7,500 Whr per square meter using concentrating solar power systems. This means that devoting just 1 square mile in Texas to solar power can provide enough electricity for about 1,600 households each year.

**Expanded wind power.** Texas is currently ranked 1st

for wind power, with 5,605 MW of existing electricity generation capacity and 3,162 MW under construction. The American Wind Energy Association ranks Texas 2nd in terms of its future wind potential, with 136,100 MW of potential capacity.

**Biomass power.** Texas has 20.7 million dry tons of biomass available each year that could be used to generate about 4,100 MW of electricity.

**New jobs.** Committing to a 30 percent growth in solar energy use in the United States will bring 5,567 jobs and \$4,481 million investment to Texas.

**A stronger economy.** Texas could realize as many as 8,943 jobs manufacturing wind turbines and \$2.98 billion investment in the wind industry alone if 50,000 MW of new wind energy is created on a national level.

**Consumer savings.** Reducing electricity demand in Texas by 22 percent below what is projected for 2023 could result in 38,291 jobs and a cumulative net savings of \$5.1 billion.

## How does Texas use electricity?

Texas's energy is used to power:

- homes (37 percent),
- businesses (32 percent), and
- industry (31 percent).

Per capita residential electricity use is 5,419 kilowatt hours per year, 20 percent greater than the national average.

### References and Additional Reading:

American Council for an Energy-Efficiency Economy, [www.aceee.org](http://www.aceee.org).

American Wind Energy Association, [www.awea.org](http://www.awea.org).

Bioenergy Feedstock Information Network, [bioenergy.ornl.gov](http://bioenergy.ornl.gov)

CARMA (Carbon Monitoring for Action), [www.CARMA.org](http://www.CARMA.org).

Database of State Incentives for Renewables and Efficiency, [www.dsireusa.org](http://www.dsireusa.org).

Department of Energy, Energy Efficiency and Renewable Energy, [apps1.eere.energy.gov/states/alternatives/electricity.cfm](http://apps1.eere.energy.gov/states/alternatives/electricity.cfm).

Energy Information Administration, State Energy Data System, [www.eia.doe.gov/emeu/states/\\_seds\\_updates.html](http://www.eia.doe.gov/emeu/states/_seds_updates.html).

Environmental Protection Agency, Energy CO<sub>2</sub> emissions by state, [www.epa.gov/climatechange/emissions/state\\_energyco2inv.html](http://www.epa.gov/climatechange/emissions/state_energyco2inv.html).

Geothermal Energy Association, [www.geo-energy.org](http://www.geo-energy.org).

McKinsey Global Institute, 2007: *Wasted Energy: How the U.S. Can Reach its Energy Productivity Potential*.

Political Economy Research Institute, [www.peri.umass.edu](http://www.peri.umass.edu).

Renewable Energy Policy Project, [www.repp.org](http://www.repp.org).

*For more information, visit [www.nwf.org/globalwarming](http://www.nwf.org/globalwarming).*