

## Energy Made for the New Millennium

*By Michelle Holub*

Flipping on a light switch, pumping gas into a vehicle, charging a cell phone: these all require energy. In this generation, technology is used all the time. Thus, energy is crucial for everyday life. The use of petroleum and coal has been the “comfort zone” in the past. However, with the population in Texas rising, new and various resources will need to be made available for daily use and eventually utilization for future generations to come. Texas can meet the energy needs of the 21st century with the use of natural gas, solar and wind energy, and hydroelectricity.

To begin, natural gas is one resource that could generate an abundance of energy. Natural gas is a hydrocarbon gas mixture found deep within the earth. Usually found alongside coal and petroleum, natural gas is simply another way to use our earth to create energy. Natural gas is a byproduct of petroleum, and in Texas, oil is pretty close to home. The Eagle Ford Shale in South Texas has helped the crude oil production in Texas rise by one-third in the last year (“Texas” n. pag.). Additionally, the Eagle Ford Formation is also known for producing natural gas as well. Natural gas production has skyrocketed, and prices have been reduced by 70 percent since the 2005 high of \$13 per cubic feet. Horizontal drilling and hydraulic fracturing are two ways to access this energy that was once unreachable, which in return has supplied 47,700 jobs to full-time employees (Smith n. pag.). Natural gas can also help boost rather than compete with other renewable resources, which was the result of the Battle Group analysis. Kip Averitt, chairman of the Texas Clean Energy Coalition, stated this while announcing the group's results: “Low-priced natural gas and clean renewable resources are complementary, not competing, resources to displace other fuels over the long term. Coordinated development of both will lead to a win-win for Texas and the environment” (qtd. in Cusick n. pag.).



Utilizing the environment to make clean and cheap energy is the goal for all renewable resources.

Competing nonrenewable resources may limit the abundance of different energy that Texans could use daily, so any additional renewable energy source will be a plus for the environment and the citizens of Texas. Obviously, natural gas is a great way to meet the energy demands, but solar and wind energy are as well.

Solar and wind energy are an additional route that can live up to the energy needs of this era. Both of these renewable resources are in use already, but they are not widespread enough. Texas is the state that has the most solar and wind energy potential. Wind energy has been utilized more than any other renewable resource. The percentage of wind power used between 2006 and 2010 grew from 4 to 11 percent (“Possible” n. pag.). Wind energy rose mainly because of large wind farms that were established throughout the country. Since Texas is the second largest state, it has a big population and also possesses more area and open fields. The Roscoe Wind Farm has produced 781.5 megawatts of electricity, making Texas one of the top three producers of wind energy in America (“Possible” n. pag.). Currently, there are not enough farms to solely support Texas; therefore, adding solar energy to the equation results in a renewable energy euphoria. Solar energy usage rose 12 percent every year from 2006 to 2010. Solar energy is projected to make a dramatic resurgence due to many factors. Primarily, the cost of photovoltaic (PV) cells has dropped, PV cell efficiency improved, and a proportionate saving in costs gained by an increased level of production for manufacturers happened when installation of more PV cells occurred. At present, it costs the consumer approximately 4 dollars per watt to install the solar panel. As it becomes more widely used, the installation price would reduce, making solar energy competitive (“Possible” n. pag.). Farms or power plants of solar panels are already in place and starting to become a trend throughout Texas. The largest power plant in Texas is the



Webberville Solar Farm near Austin. Carlos Cordova, Austin Energy spokesman, said that with wind power, renewable energy can make up 35% of all energy used in the near future. Cordova went on to say, “We're going to be able to meet our overall renewable goal by 2016. We're going to do it four years ahead of schedule” (qtd. in Miller n. pag.). All this energy is renewable, and with the great technology we have now, usage of solar and wind energy will expand exponentially. If one city in Texas can produce that much energy, imagine what the whole state can do. Apparently, harvesting the wind and sun's energy is a great way to fill energy needs, but hydroelectricity is another option to our growing demand.

Last but certainly not least, hydro-power could be a remarkable energy source for this millennium. Water makes up two-thirds of the earth. Precipitation also happens daily across our planet. Thus, water is a renewable resource. Like most states, Texas has a multitude of rivers and lakes. However, Texas has a large, warm body of water in its backyard. The Gulf of Mexico stretches all along the southern border of Texas and is known primarily for its supply of oil. Why not use the actual water in the gulf as energy? Hydroelectricity is generated by the movement of water known as kinetic energy. Although the idea of using this method is not unknown, steps to creating hydro-power on a large scale are still in the development process. The Electric Power Research Institute discovered in 2007 that at least 13,000 megawatts of energy could be produced through currents in rivers and oceans by the year of 2025 (Fowler n. pag.). Tides are caused by the gravitational forces of the moon. Tides and currents in the water cause energy to form. Hence, energy through hydroelectricity is a never-ending energy source. The state granted the using of waves from the ocean to produce energy for the first time. Conroe, Texas resident, Kenneth Welch Jr., designed a buoy that moves a piston while pumping water to create energy as it moves up and down with the waves. The disc-shaped pump, or



Seadog as it is called, can either force the water into a storage tank that uses a waterwheel or throughout the turbine directly. Texas A&M University's marine engineering technology department tested the Seadog pumps in Texas cities, Galveston and Freeport. Eighteen Seadog pumps will be placed in Freeport and are projected to produce 60 kilowatts of pure, free, renewable energy (Fowler n. pag.). With additional research and development, hydroelectricity will definitely play a major part in not only Texas or the United States, but globally as well. Clearly, hydro-power will be a great way to use our resources to make energy for our generation and for many generations to come.

All in all, natural gas, solar and wind energy, and hydro-power will not only meet the energy needs of Texas, but exceed them. These ideas will be the key to making the next step with our growing, advancing world. In this age, technology is used in every nuance of daily life. Energy is always and will always be in demand. The question, then, is whether or not the 21st century will meet these energy requirements in a responsible manner.

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