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# Unplugging Texas' Most Powerful Polluters

*A Report On How To Choose Electricity and Why it Matters*

July 2002



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*A Report On How  
To Choose Electricity and  
Why It Matters*

*A Study for:*

**Public Citizen's Texas Office  
And  
The SEED Coalition**

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# EXECUTIVE SUMMARY

American ingenuity has developed renewable energy technologies that offer real solutions to environmental damage caused by our use of electricity. In the nation, Texas is first in solar and biomass potential and second in wind potential, but these vast resources remain largely unexplored by energy producers. Tapping these energy sources would be an economic boon for Texas in addition to eliminating the pollution from conventional power sources that harms public health and the environment.

As the renewable energy debate heats up in Congress, a look at how the Texas market has developed may offer insights to the effectiveness of green markets versus targets like renewable portfolio standards (RPS).

Six months ago, Texas changed the way its electricity industry operates and created an opportunity to buy green electricity. Texans concerned about the environment hoped that a significant

number of consumers would choose power from a variety of clean, renewable providers. Despite the benefits of green power and the escalating public health costs of fossil fuel, voluntary purchases of renewable energy account for less than 1 percent, or 233 megawatts, of Texas' residential power sales, while the RPS has been so effective that 915 megawatts of generating capacity has been built—more than 2.5 times what was required by law.

Green market success would benefit the entire state, boosting the Texas economy and cleaning up the Texas environment. The hidden costs of dirty power continue to mount, from pollution that harms public health to water use that drains Texas' limited supply.

Choosing green energy is vital to improving the Texas environment. Policies and incentives should promote the green energy that benefits everyone.

## *Unplugging Texas' Most Powerful Polluters*

## KEY FINDINGS

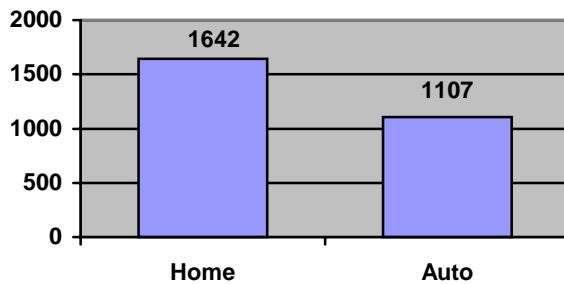
1. **Texas ranks number one in power plant emissions** of nitrogen oxides (NO<sub>x</sub>) and carbon dioxide (CO<sub>2</sub>), key contributors to smog, acid rain and global warming.<sup>1</sup> **Power plants also take in half of all water used in the nation**—Texas power plants alone use 13,400 million gallons per day to generate electricity.<sup>2</sup>
2. In one month, generation of electricity needed to power an average Texas home **emits 1,642 lbs** of carbon dioxide, **3 lbs** of smog-causing nitrogen oxides, **5 lbs** of sulfur dioxide and **1.33 oz** of particulate matter or soot.
3. The costs of dirty power continue to grow, taxing the environment and public health. **50% of Texans breathe air that fails to meet federal standards designed to protect public health**,<sup>3</sup> which leads to the illness and death of thousands of Texans each year.
4. Texas leads the nation in potential renewable power production. **Wind in Texas** alone could produce 250,000 megawatts of power—that's **30% of the nation's electricity** and eight times Texas' current total generating capacity.<sup>4</sup> Exploring this resource could provide a huge number of jobs and economic benefits to Texans.
5. The green market cannot succeed through market forces alone. In the first six months of deregulation, **less than 5% of consumers with a choice have switched electric providers** despite the presence of cheaper, cleaner power in every service area. Public policy options must promote the green market that benefits all Texans.
6. Renewable energy purchases represent **less than 1%** of Texas' residential energy sales.

# The Green Market and Six Months of Deregulation

## Why Your Choice Matters

Consumers in Texas should shop for electricity the way they shop for cars or clothes: the price matters, but so does the quality and the source of power. Texans shopping for electricity need to have information about where their electricity comes from, and how it impacts the rest of Texas. Powering households produces more heat-trapping carbon dioxide (See Chart 1) and nearly the same amount of smog-forming

**Chart 1: Comparison of Monthly Carbon Dioxide Emissions for Home and Auto (lbs)**



Source: EPA Mobile Source Emissions and <http://www.eaenandgreener.org/pollution-from-electricity.htm>

nitrogen oxides as automobiles. And the hidden costs of that pollution are huge. Pollution from coal, natural gas and nuclear power plants costs the state thousands of lives, cut short by fine particulate pollution, and hundreds of millions of dollars every year in medical costs for those poisoned by emissions.<sup>5</sup>

Dirty air affects everyone, so choosing clean, renewable energy can help unplug Texas' most powerful polluters. But poor consumer education and failure to promote the renewable energy that benefits the entire state have prevented the green market from flourishing as it should. At this point, the hopes for the green market

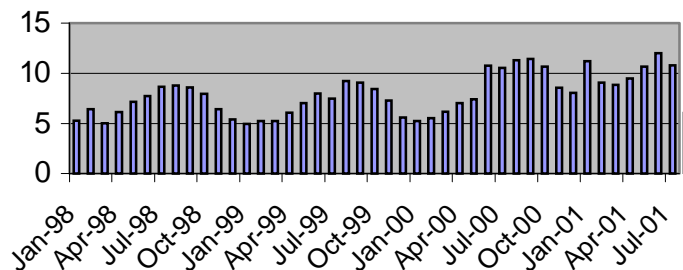
have been largely unrealized.

## Hopes for the Green Market

On January 1, 2002, Texas opened its electric system to retail competition. Texans concerned about the environment hoped that the green market would grow as consumers became educated about the benefits of clean power. Renewable energy stabilizes electric bills traditionally subject to the fluctuating market prices of fossil fuels such as coal or natural gas (see Chart 2). It also keeps costs down in the summer when the demand for power increases, and it leaves no trace on an environment heavily taxed by fossil fuel power plant emissions.

Consumers and the environment benefit from renewable energy choices, but the Texas economy also stands to gain. The green market has huge potential for long-term success in Texas: this state leads the nation in ability to produce renewable power.<sup>6</sup> That untapped economic opportunity will lead to more investment and jobs in Texas.

**Chart 2: Price of Natural Gas Electricity Delivered to Residential Consumers in Texas (\$/mcf)**



Source: Energy Information Administration

## GreenChoice for Austin

Municipally-owned utilities were not affected by deregulation, but consumers in these areas often still have choice. Austin residents can clear the air by signing up for Austin Energy's GreenChoice Program. For about one cent more per kWh (about \$10 a month for the average household), Austin residents help fund the 83 megawatts of renewable power available on the power grid. While slightly more expensive now, the wind, biogas and solar power prom-

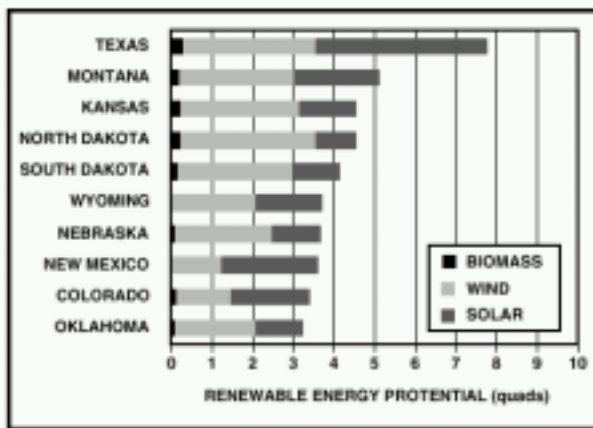
ises to be the cheaper alternative in the future: its price will remain constant until 2011 while fossil fuel costs will inevitably rise.

GreenChoice gets most of its energy from 59 wind turbines on King Mountain in West Texas, which produce enough energy for 20,000 homes. Today, 6,635 Austin households and 162 businesses participate in the program, and the numbers are steadily increasing. Other generation sources include biogas locations, small hydroelectric facilities and five solar panel installations.

### A Six-Month Report Card on the Green Market

Despite high hopes and obvious potential, the green electricity market has not made as much of a difference as other policies. After six months of deregulation, less than one per-

centage of electricity customers who can switch have chosen green power. It is encouraging that of customers who have switched (or signed up new), 6 percent have chosen renewable energy. This amount (150 MW) represents more than 16 percent of Texas' new renewable energy purchases.



Source: Texas State Energy Conservation Office

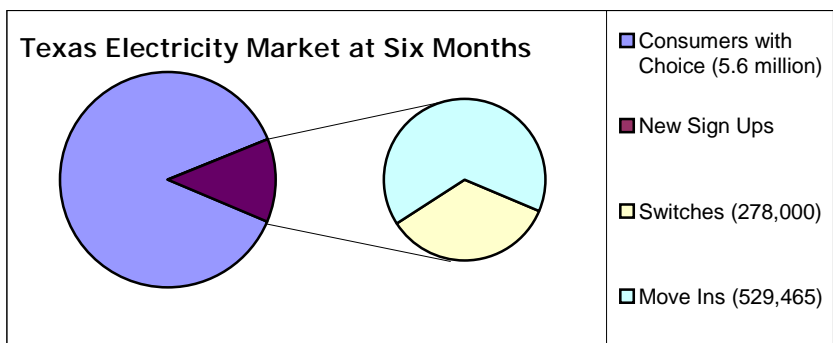
cent (approximately 50,000)<sup>7</sup> of electricity customers who can switch have chosen green power. It is encouraging that of customers who have switched (or signed up new), 6 percent have chosen renewable energy. This amount (150 MW) represents more than 16 percent of Texas' new renewable energy purchases.

However, it is clear that the green market alone cannot spur renewable energy development. Texas needs to expand policies like the renewable portfolio standards that have been effective in reducing pollution

through clean energy development. These policies will boost renewable energy state-wide and create a low-cost market for more green power providers as Texas strives to meet its clean air and water goals. Currently, only one company is offering green power in four of the state's five "service areas".

Poor consumer education helps explain the limited success of Texas' green market. While Texans may be aware that they can choose, comparing electricity providers can be daunting: only the PUC-run "power to choose" website offers a comparison of electricity providers in each service area, and its information is often incomplete, out-of-date and difficult to find. [For a side-by-side analysis of power providers in each area, see Appendix A.]

Promoting green energy is in Texas' best interest. The untapped economic potential of renewable energy production can invigorate the Texas economy by fueling investment and jobs. The environmental and public health costs continue to rise as emissions foul the air, taint the water and choke the citizens of Texas. Public policies must do more to promote the renewable energy that benefits everyone.



# Green vs. Dirty Energy

## Green Power Benefits

American ingenuity has developed renewable energy technologies that offer real solutions to environmental problems, while creating jobs and helping the economy. In the nation, Texas is first in solar and biomass potential and second in wind potential, but these vast resources remain largely unexplored by energy producers. Tapping this energy source would be an economic boon for Texas in addition to eliminating the pollution from conventional power sources that harms public health and the environment.

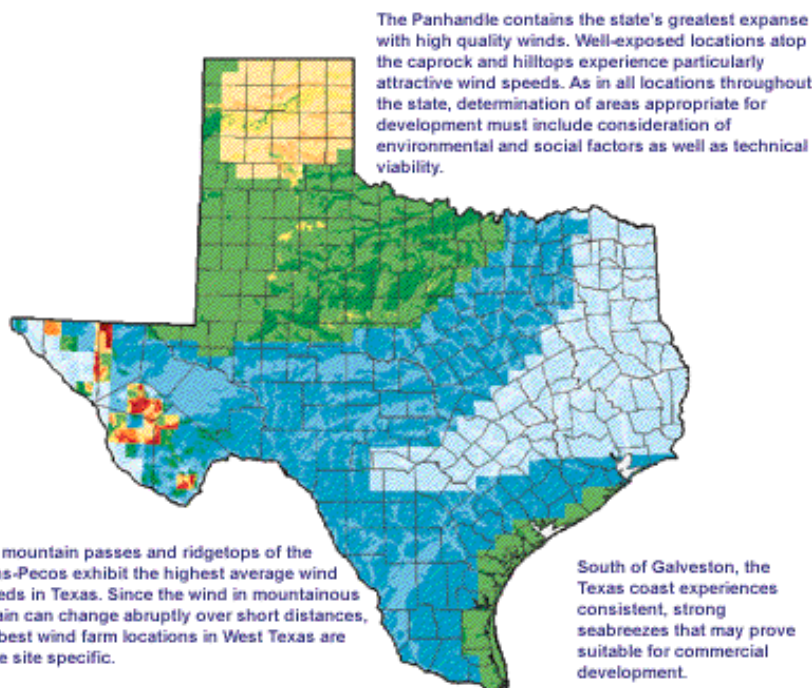
## Wind Energy in Texas

Wind in Texas alone could provide 30 percent of the nation's electricity capacity.<sup>8</sup> By harnessing the full potential of wind power, Texas could produce eight times its current total generating capacity and supply the state and the nation with cheap, clean, reliable power.<sup>9</sup>

Wind power has been used in Texas for more than a century, pumping water for residences and livestock. As Texans realize the competitive advantage of wind power, new large and small turbines for utility and on-site power generation are springing up throughout West Texas. Wind generation in Texas jumped 900 megawatts in 2001 alone.<sup>10</sup>



This boom was sparked by specific state policy: under the state's RPS, 2,000 megawatts of new renewable energy resources must be added to the Texas system by 2009. As a result of the renewable portfolio standard, utilities have invested over \$1 billion in Texas over the past two years and have reached nearly half the 2009 target.<sup>11</sup>



This new energy boom benefits entire communities, from schools to landowners who lease their land to wind farms, without degrading the land's capacity for agriculture or livestock. In some counties, wind plants are the largest source of tax revenue for local school districts.<sup>12</sup> While many major metropolitan areas choke under dangerous pollution levels from conventional power plants, West Texas reaps the economic benefits of an

energy boom without any of the environmental costs.

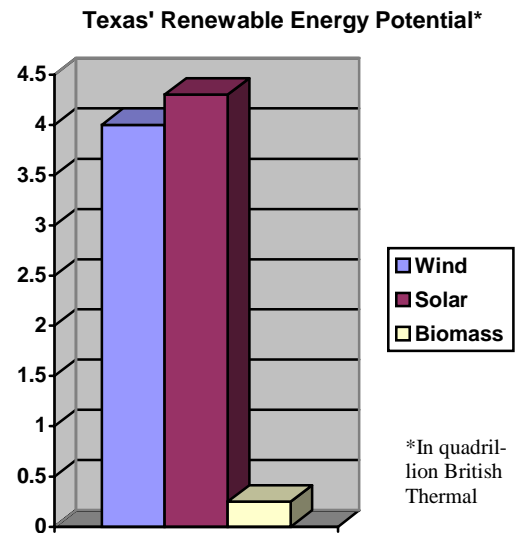
### ***Other Renewable Sources for Texas***

The sun is the ultimate source of all the earth's energy, and it's also a rich natural resource. Solar power can be harvested directly through two types of solar panels. West and Far West Texas are particularly rich in solar resources, and Texas has the greatest capacity for solar production in the nation.<sup>13</sup> While producing solar energy remains more expensive than other sources like wind, technological improvements will soon lower the costs.

### ***Conclusion: Green Energy Success Benefits All Texans***

Not since Texans first struck oil has there been such statewide economic potential from energy production. Technology has rendered Texas' vast renewable resources, particularly wind, practical and profitable to explore. Unfortunately, despite leading the nation in the ability to generate renewable power, Texas derives just 1 percent

of its energy from these clean sources.<sup>14</sup> As the explicit and hidden costs of conventional dirty power sources are growing, renewable energy production should be exploding. But the market forces alone, fighting against the entrenched monopoly of dirty power, are not sufficient to stimulate the green market. Thus, policies must be implemented to promote this power source that benefits every Texan.



Source: Texas State Energy Conservation Office



## Dirty Power: The Costs

Fifty percent of Texans breathe air that fails to meet federal standards designed to protect public health.<sup>15</sup> These problems do not arise from nowhere—the utility sector is a major contributor to the pollution that puts the lives and health of millions of Texans at risk. Power plant emissions cause tens of thousands of Texans to suffer from respiratory illness and damage to the gastrointestinal and central nervous systems.<sup>16</sup>



Coal fired power plants in east and central Texas have been implicated in the dramatically reduced visibility in parks like Big Bend, where views have been reduced from 100 miles to as low as nine due to particulate matter and SO<sub>2</sub> pollution.

Emission	Problems	Impacts
SO <sub>2</sub> , NO <sub>x</sub>	Fine Particulates	- regional haze - lung and heart disease
NO <sub>x</sub> , VOCs	Ozone Smog	- respiratory disease, permanent lung damage
CO <sub>2</sub>	Climate Change	- increases in global temperature - extreme weather
Mercury, Selenium	Air Toxics	- damage to central nervous system - contaminated lakes
SO <sub>2</sub> , NO <sub>x</sub>	Acid Rain	- degradation of soil, foliage and water bodies
Nuclear waste	Radioactive waste	- health risks - dangerous to store, transport

### Fine Particulates

Fossil fuel-fired electricity generating systems, particularly coal facilities, are significant emitters of particulate matter. Particulate matter haze is often visible during the hot days of summer. While power plants directly emit some particulate matter as soot, the sulfur dioxide gas from power plants is a major source of particulate matter as it becomes transformed into

tiny acidic sulfate particles in the atmosphere. These smallest ash particulates cause human respiratory effects and impaired visibility. Fine particulate matter, known as PM<sub>2.5</sub>, less than 2.5 microns in diameter or 1/100<sup>th</sup> the width of a human hair, is deposited deep in the lung where it can affect both the respiratory and cardiovascular systems.

Particulates enter the lungs and cause reduced respiratory function in healthy humans and aggravate respiratory conditions in those with existing respiratory ailments. Epidemiological studies have suggested that sulfate-related particles are among the most strongly associated with health impacts and premature mortality in adults due to heart attacks, respiratory disease and lung cancer.<sup>17</sup> A recent report estimated that 30,000 premature adult deaths a year occur because of particulate matter.<sup>18</sup>

Texas power plants release more particulate matter-forming sulfur dioxide than any other pollution source—689,818 tons in

1998.<sup>19</sup> In Texas, El Paso County has repeatedly exceeded the 24-hour standard set in 1987 for PM<sub>10</sub> (10 microns in diameter). Other areas, such as Lubbock, have occasionally exceeded the 24-hour standard. Preliminary TNRCC data show that, among Texas metropolitan areas, Houston-Galveston, El Paso, and Dallas-Fort Worth may have difficulty meeting the new federal PM<sub>2.5</sub> standard.<sup>20</sup>

### **Ozone Smog: Harms Lungs**

Ground-level ozone—the main component of smog—is formed when nitrogen oxides (NO<sub>x</sub>) react with volatile organic compounds (VOCs) in the presence of sunlight. While ozone in the upper levels of the atmosphere provides a protective layer from the sun's ultraviolet radiation, ozone smog at ground level is extremely harmful to lungs.

*Imagine when you received your monthly electric bill you also got a package containing 1,642 pounds of carbon dioxide, 5 pounds of sulfur dioxide, 3 pounds of nitrogen oxides and 1.33 ounces of soot. That's how much pollution is produced each month to power your home.*

<http://www.cleanerandgreener.org/pollution-from-electricity.htm>

Ozone is an extremely reactive gas that can have substantial short-term and long-term effects on human health. According to EPA, short-term exposure to ozone can cause rapid, shallow breathing and related airway irritation, coughing, wheezing, shortness of breath, and exacerbation of asthma, particularly in sensitive individuals and asthmatic children.<sup>21</sup> Short-term ozone exposure also suppresses the immune system, decreasing the effectiveness of bodily defenses against bacterial infections. When ozone is inhaled over a continuous period of time, it attaches to lung tissue

through chemical reactions and causes serious damage.<sup>22</sup>

According to EPA EGRID and Air Trends Database, power plants are the source of approximately 20 percent of all nitrogen oxide emissions in Texas. There are four major metropolitan areas in Texas that

Pollutant	Tons per year	National Rank
CO <sub>2</sub>	263,795,823	1
NO <sub>x</sub>	475,963	1
SO <sub>2</sub>	689,818	7
Hg	9,022	2

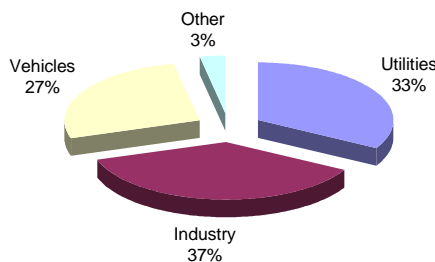
Source: EPA—EGRID

consistently have exceeded the one-hour federal ozone standards (Houston/Galveston/Brazoria, Dallas/Fort Worth, El Paso and Beaumont/Port Arthur), while in recent years, the Tyler/Longview/Marshall area has also exceeded standards. The Houston-Galveston-Brazoria metropolitan area reports the highest number of days exceeding ozone standards in Texas.

### **Climate Change**

Few scientists dispute the global warming trend that results from human emission of greenhouse gases, primarily carbon diox-

**Texas Carbon Dioxide Inventory**



Source: TNRCC

ide (CO<sub>2</sub>). When power plants burn fossil fuels to generate energy, emitted CO<sub>2</sub> accumulates in the atmosphere, trapping increasing amounts of heat on the earth. Ultimately, this increase in global temperatures leads to dramatic changes in weather, catastrophic droughts and storms and a rising the sea level.

If Texas were an independent nation, it would rank seventh in the world in CO<sub>2</sub> production. Electric utilities alone contribute 33 percent of the CO<sub>2</sub> emitted in the state, and residential use accounts for over 36 percent of that total, or 43 billion pounds of CO<sub>2</sub>.<sup>23</sup> The choice Texas consumers make regarding their power supplier makes a difference to the entire world.

### Air Toxics

Mercury and other toxics can severely damage the central nervous system and are particularly dangerous to children, whose brains develop until age 14. Developmental neurological abnormalities, including delayed onset of walking and talking, cerebral palsy, and reduced neurological test scores can all result from exposure to toxics emitted by power plants in Texas.<sup>24</sup>

In Texas, electric utilities emit 31 percent of the mercury released; other wastes include arsenic, lead and selenium.<sup>25</sup> These air toxics result from coal combustion: emitted into the air or buried with combustion waste, they disperse widely and

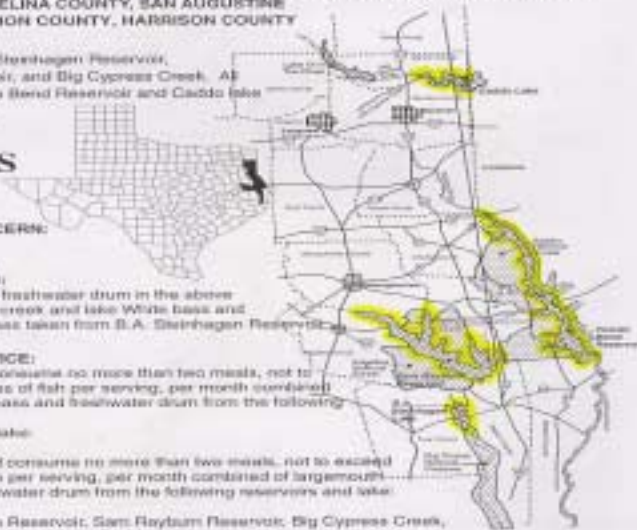
contaminate air, water and soil, where they poison humans and wildlife.

Through the air, these toxics can be directly inhaled, but the greater health risks occur when they reach the water supply. Because of the health risks, the Texas Department of Public Health has issued fish

**B.A. STEINHAGEN RESERVOIR, SAM RAYBURN RESERVOIR, BIG CYPRESS CREEK, TOLEDO BEND RESERVOIR AND CADDO LAKE**  
ADV-12 Issued November 2, 1985

SABINE COUNTY, SHREVEPORT COUNTY, PANOLA COUNTY, NEWTON COUNTY, JASPER COUNTY, ANGELINA COUNTY, SAN AUGUSTINE COUNTY, MARION COUNTY, HARRISON COUNTY

**ADVISORY AREA:**  
All waters of the B.A. Steinhagen Reservoir, Sam Rayburn Reservoir, and Big Cypress Creek. All Texas waters of Toledo Bend Reservoir and Caddo Lake.



**EAST TEXAS**

**CHEMICAL OF CONCERN:**  
Mercury

**SPECIES AFFECTED:**  
Largemouth bass and freshwater drum in the above mentioned reservoirs, creek and lake. White bass and hybrid white/striped bass taken from B.A. Steinhagen Reservoir.

**CONSUMPTION ADVICE:**

- 1) Adults should consume no more than two meals, not to exceed 4 ounces of fish per serving, per month combined of largemouth bass and freshwater drum from the following reservoirs and lake:  
B.A. Steinhagen Reservoir, Sam Rayburn Reservoir, Big Cypress Creek, Toledo Bend Reservoir and Caddo Lake.
- 2) Children should consume no more than two meals, not to exceed 4 ounces of fish per serving, per month combined of largemouth bass and freshwater drum from the following reservoirs and lake:  
B.A. Steinhagen Reservoir, Sam Rayburn Reservoir, Big Cypress Creek, Toledo Bend Reservoir and Caddo Lake.
- 3) Of the meals recommended above, adults should consume no more than one meal, not to exceed a 4 ounce serving of fish, per month of white bass or hybrid/striped bass from B.A. Steinhagen Reservoir.
- 4) Of the meals recommended above, children should consume no more than one meal, not to exceed a 4 ounce serving of fish, per month of white bass or hybrid white/striped bass from B.A. Steinhagen Reservoir.

consumption advisories due to mercury in eight freshwater bodies and three advisories due to selenium—and only a fraction of lakes have been tested. Even tiny amounts count: 1/70<sup>th</sup> of a teaspoon of mercury can contaminate a 25-acre lake to the point that the fish can no longer be eaten.

### Acid Rain

Acid deposition, or acid rain, results from emissions of sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>), primarily from power plants, vehicles and industry. In Texas, 58 percent of SO<sub>2</sub> emissions are from electric

utility plants.<sup>26</sup>

SO<sub>2</sub> and NO<sub>x</sub> combine with moisture in the atmosphere and are then deposited as acids in precipitation. Acid rain damages forest foliage, degrades soil and renders some lakes and streams uninhabitable by native trout and other species. It is also responsible for eutrophication, or loss of dissolved oxygen, which leads to algae blooms and “dead zones,” killing plants, animals and fish in coastal areas.

### ***Water Use and Abuse***

In fossil fuel and nuclear power plants, electricity is generated by heating water to create steam that spins turbines. This process requires that an immense amount of water be withdrawn from ground and surface sources—in Texas alone, 13,400 million gallons per day in 1995.<sup>27</sup> And the demand keeps growing, taxing Texas’ limited water resources.

Water use is a huge hidden cost of dirty power. Power plants account for 47% of all the water withdrawn each year in the U.S. The average Texas household uses 621 gallons of water per day to generate its electricity<sup>28</sup>—that’s more than 15 full bathtubs each day. If that individual household switched to 100% renewable energy, it alone would save 230,964 gallons (more than 15 average swimming pools) of Texas’ shrinking water supply each year.

Much of this water is ultimately returned to the environment; however, removing and returning the water to the source has serious consequences. Water that cycles through power plants often contains pollutants, and the withdrawal of such huge quantities of water from lakes or rivers kills significant numbers of fish and other organisms. Water returned to the rivers

and lakes is much hotter (about 104 degrees Fahrenheit) than the surrounding water, which wreaks havoc on ecosystems.<sup>29</sup>

Fossil fuel power takes other tolls on water supply. Mining contaminates and physically alters aquifers; chemicals pollute water, while blasting causes groundwater to seep to lower, less accessible levels. At the ALCOA strip mine in Bastrop and Lee counties, groundwater seeps into the mine and must be pumped out, lowering the water table and drying local wells.

Waste materials from mining pile up at the surface, changing the flow of streams and polluting water with runoff, rendering it undrinkable by altering the taste. Mining reduces the productivity of overlying soil, alters the rate of groundwater discharge and increases potential for flooding.<sup>30</sup>

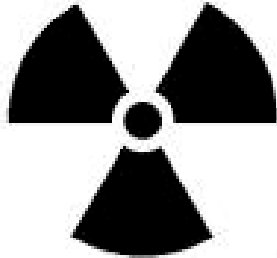
### ***Nuclear Waste***

Radioactive waste is a dangerous byproduct of nuclear power plants. Nuclear waste disposal is a problem that has not been solved. Both low-level and high-level nuclear waste pose health risks, are dangerous to transport, and remain radioactive for up to hundreds of thousands of years.<sup>31</sup> The term “low-level” does *not* mean that radioactive materials are short-lived or safe.

Low-level radioactive waste includes sludge, clothing, paper, filters and resins and evaporator bottoms from cleaning the large volumes of water used at nuclear power reactors, as well as reactor parts that have been bombarded with radioactive neutrons. Even if they are radioactive, dismantled nuclear power reactor parts fall into the “low-level” category, with the exception of fuel rods. Large volumes of low-level waste also come from nuclear weap-

ons production.

High-level radioactive waste includes radioactive material from the reprocessing of nuclear fuel, spent fuel rods removed from nuclear power reactors, and nuclear weapons. High-level radioactive waste is currently being stored on-site at weapons manufacturing plants and power plants



around the nation. Spent fuel rods are stored in pools of water on-site at Texas' two commercial nuclear reactors.

In Texas, low-level radioactive waste comes from two nuclear power reactors: the South Texas Project in Matagorda County, and Comanche Peak Project in Somervell County.

While nuclear plants don't contribute CO<sub>2</sub>, NO<sub>x</sub> or SO<sub>2</sub> directly to the atmosphere, the mining and uranium enrichment processes for nuclear power generate significant amounts of greenhouse gases.<sup>32</sup>

## Conclusion

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Not enough Texas consumers have seized the opportunity to clear the air through their electricity choice. Currently, there is only one retailer selling renewable energy in four of the state's five electricity service regions. Although renewable energy has proven very popular with customers, the renewable portfolio standard has proven far more successful in developing renewable energy.

As the environmental and public health costs of traditional electricity continue to rise, choosing renewable energy is increas-

ingly important. The Texas Natural Resource Conservation Commission and the Texas Public Utilities Commission should educate consumers about their choices and the consequences to the entire state's environment and health.

Additional policies are needed to continue developing Texas' vast renewable resources. Churches, state and local governments and schools can "lead by example" by committing to use renewable energy in their facilities. Setting targets and goals will provide incentives for businesses to invest in renewable energy development.

Consumers should unplug Texas' most powerful polluters and buy green electricity. Texas' environmental future lies in the hands of its citizens and the decisions they make. Choose clean and green renewable energy!



# FOUR POLICIES TO CLEAN AIR

This section provided by  
Public Citizen Inc.

Texas' electric utilities are a major contributor to local, national and international environmental damages. They cause about 58 percent of Texas' sulfur dioxide emissions and 20 percent of Texas' nitrogen oxide emissions. Texas' electric utilities cause 33 percent of the state emissions of carbon dioxide, the principal global warming gas.<sup>33</sup>

Texas' green electricity market has failed to adequately develop the states' vast renewable resources. There is currently only one renewable energy provider in four of the five state electricity service areas. Six months after green power has become available to Texas consumers, less than one-tenth of 1 percent of potential customers have switched to a renewable energy provider.

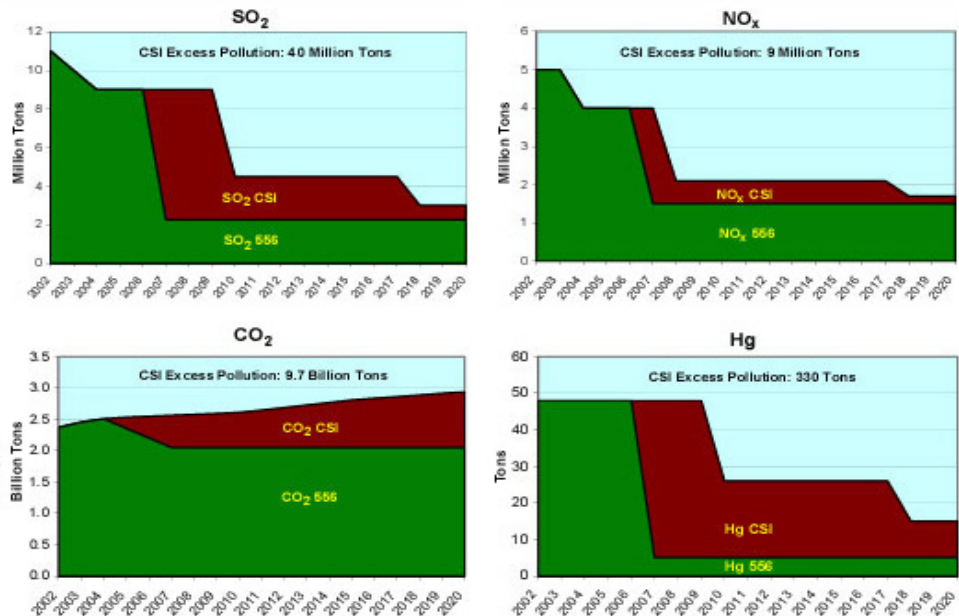
Texas' growing air pollution crisis demands further promotion of clean energy sources. There are a number of state and federal initiatives that can provide key incentives for renewable development. Among them are:

## ***The Clean Power Act***

Several "multi-pollutant" proposals have gained considerable support as competitively neutral approaches for improving pollution control and achieving substantial emissions reductions. The Clean Power Act -- S.556 (companion HR 1256), introduced by Senators James Jeffords (I-Vt.) and Joseph Lieberman (D-Conn.) -- would cut nitrogen oxide and sul-

fur dioxide emissions by 75 percent, and would cut heat-trapping carbon dioxide emissions by 25 percent [See Chart below comparing the Clean Power Act (556) to the Bush Administration's Clear Skies Initiative (CSI)]. Electric companies can achieve these targets through a market-based system that rewards

**Comparison of The Clean Power Act (S.556) and the Bush Administration's Plan (CSI)**



Source: NRDC

innovation and clean technology, so long as safe air quality standards are met throughout the country. The legislation would slash mercury emissions by 90 percent.

According to the U.S. Energy Information Administration, when implemented with the bill's integrated efficiency and renewable energy policies, the comprehensive Clean Power Act would save businesses and consumers \$16 billion in net electricity costs in 2010 compared with business-as-usual. By 2020, savings would reach more than \$40 billion.<sup>37</sup>

## ***Clean Energy Provisions of the Federal Energy Bill***

A Congressional conference committee is currently working through the differences in the

Senate and House version of the federal energy bill. The Senate version (S. 517) includes a federal renewable energy portfolio standard (RPS) and a full five-year extension of the wind energy production tax credit (PTC). The bill also would create a new investment tax credit for small wind systems used to power homes, farms, and small business.

### ***Renewable Portfolio Standard***

Texas' renewable portfolio standard, signed into law by Governor George W. Bush in 1999, specifies that 2,000 megawatts of new renewable capacity will be built in Texas by 2009. This clear-cut policy encouraged construction of some of the world's largest wind power projects delivering clean energy at prices lower than ever before achieved. The current cost competitiveness of wind power has Texas five years ahead of its renewables construction schedule, almost halfway to meeting its 2,000 megawatt goal.

The Senate version of the federal energy bill currently includes a renewable portfolio standard provision. By establishing a national RPS, other states can benefit from clean, pollution-free energy from renewable sources. Like Texas, a federal RPS will stimulate business investment by creating a minimum long-term market. This investment then drives economies of scale savings that make renewable energy a cost-competitive option.

The RPS included in S. 517 would require that an additional 1% of the nation's electricity come from new renewable energy sources by 2005 and increase slowly each year thereafter, until renewable energy provides 10% of the national electricity supply by 2019. A credit trading system would be established so that utilities could comply with the renewables requirement in the most cost-effective manner. The PTC, which provides an incentive of 1.5 cents per kilowatt-hour (adjusted for inflation) for electricity generated during the first 10 years of operation of a new wind plant, would be extended until Dec. 31, 2006. The

new investment tax credit for small wind systems (75 kilowatts and below) would cover 30% of system costs for both residential and business uses.

### ***Global Warming Plan***

In Texas, fossil-fuel power plants emit 33 percent of statewide carbon dioxide emissions (the leading global warming gas), and power plant CO<sub>2</sub> emissions have been increasing faster than overall statewide emissions. In its first year, the Bush Administration retreated from a campaign promise to limit carbon dioxide emissions, rejected the Kyoto Protocol and proposed a new national energy policy that would actually accelerate global warming, all the while promising that it would issue its own solution to global warming. On February 14, 2002, the Administration proposed a voluntary program that does *not* call for actual global warming gas reductions. The Bush plan simply calls for continuing the status quo.

As the federal government continues to call for voluntary approaches to slow global warming emissions growth, a growing contingent of state governments are proceeding independently to reduce actual emissions within their jurisdictions. Since 2001, several states have specifically debated or established global warming gas reduction strategies from power plants. Governor Rick Perry should propose a statewide global warming plan for Texas. This plan should include an accurate inventory of all global warming emission sources. The plan should also set global warming gas reduction targets and have the state government lead the way by making energy efficiency improvements as well as increased renewable energy purchases at state facilities.

The Bush Administration should live up to its campaign promises and its Rio Accord commitments (signed by President George H.W. Bush in 1992) by proposing a plan to reduce global warming gas emissions from power plants. This plan should build on the success of state initiatives and be compatible with current international agreements.

# Appendix A: Evaluation of Energy Providers

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A lack of public education has led to little change in Texas' electric market since deregulation six months ago. Of 5.6 million Texans able to choose their energy provider, only 278,000 have switched in the half year. Even if consumers know they have a choice, there are few resources that allow for comparison shopping. The PUC-run website [www.powertochoose.com](http://www.powertochoose.com) provides some information on prices and production of energy, but the numbers are often incomplete or out-of-date.

For example, on its electricity fact label, ACN Energy Inc. neglects to report its emissions relative to the state average as required and simply states:

ACN Energy, Inc will provide electricity to our customers from a variety of generation sources that will vary from month-to-month. Waste and emissions discharges will be representative for these generation sources.<sup>34</sup>

Some of the electricity providers lack emissions data. Where this data has not been available, it is indexed to the state average and marked with question marks. Since

PUC rules allow up to one year to supply the emission data, this analysis uses coal as a proxy.

While emissions rates do vary from one coal plant to another, coal and lignite are the most environmentally detrimental: coal-fired power plants contribute 60% of the nation's sulfur dioxide, 23% of the nitrogen oxide emissions, which cause acid rain and smog, 32% of mercury emissions which poison people and animals, and 31% of the nation's carbon dioxide emissions, the chief cause of global warming.

In an effort to make sense of the information, this report presents recent prices and production information for energy providers in each service area of Texas. In order to make informed decisions, consumers must be aware not only of recent price information, but also of the quality of energy provided. How does each company impact the rest of Texas?

Prices are based on June 2002 numbers, the most recently released by the PUC, for 1000 kWh per month, the average household use.

# Energy Providers: Houston Area (Reliant Service)

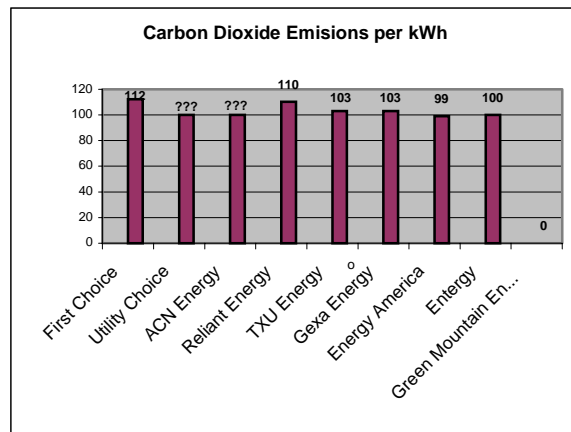
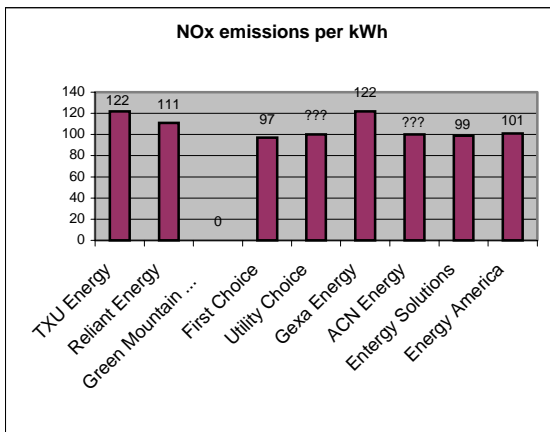
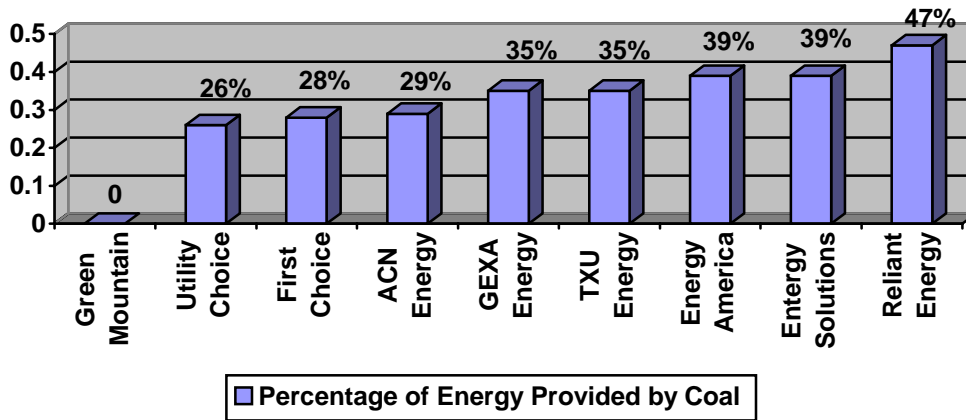
Energy Provider	Price
Reliant Energy (price to beat)	\$86.42
Utility Choice	\$82.95
First Choice Power	\$81.95
ACN Energy	\$86.95

GEXA Energy	\$80.00
TXU Energy	\$83.60
Energy America	\$89.40
Entergy Solutions	\$84.00
Green Mountain*	\$91.95/ \$94.95

POLR price:  
\$105.00

*When a customer fails to pay his bills, a provider of last resort sells him energy for an increased price.*

\* company offers month-to-month prices or a "reliable rate" guaranteed constant for one year



\*\* Statewide average power plant emissions are indexed to 100

## Energy Providers: Dallas Area (TXU Service)

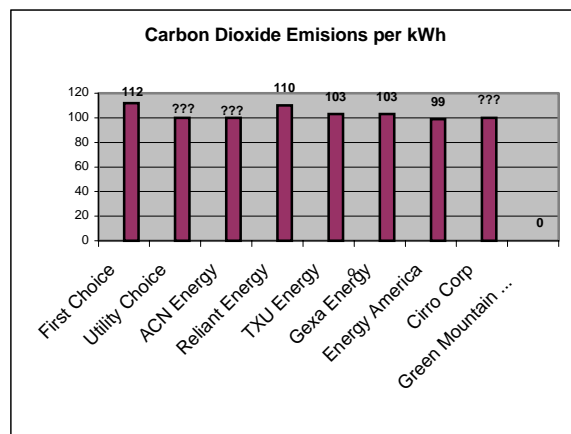
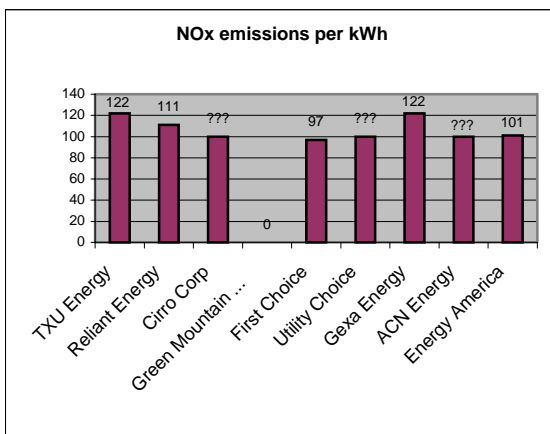
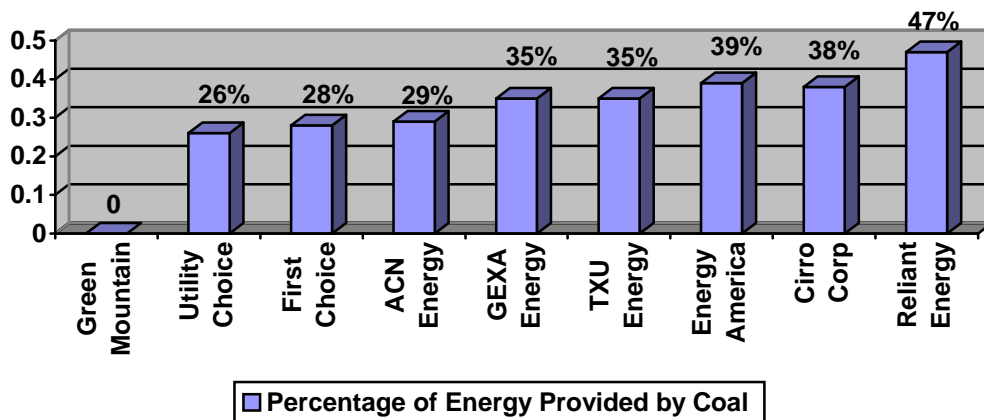
Energy Provider	Price
TXU Energy (price to beat)	\$86.34
Utility Choice	\$81.95
First Choice Power	\$81.95
ACN Energy	\$81.45

GEXA Energy	\$80.00
Green Mountain*	\$86.95/ \$89.95
Energy America	\$84.80
Cirro Corp	\$82.60
Reliant Energy	\$85.87

POLR price:  
\$94.50 (East)  
\$92.60 (West)

*When a customer fails to pay his bills, a provider of last resort sells him energy for an increased price.*

\* company offers month-to-month prices or a "reliable rate" guaranteed constant for one year



\*\* Statewide average power plant emissions are indexed to 100

# Energy Providers: Texas-New Mexico Service Area

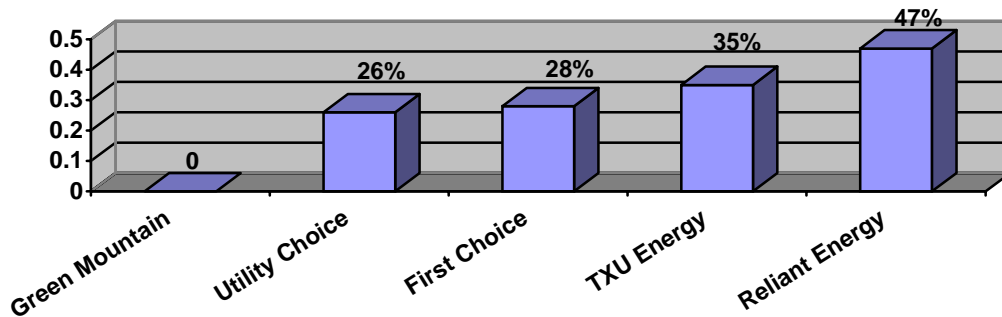
Energy Provider	Price
First Choice Power (price to beat)	\$87.67
Utility Choice	\$85.95
Green Mountain*	\$93.95/ \$96.95
TXU Energy	\$84.00
Reliant Energy	\$86.95

POLR price:  
\$105.00

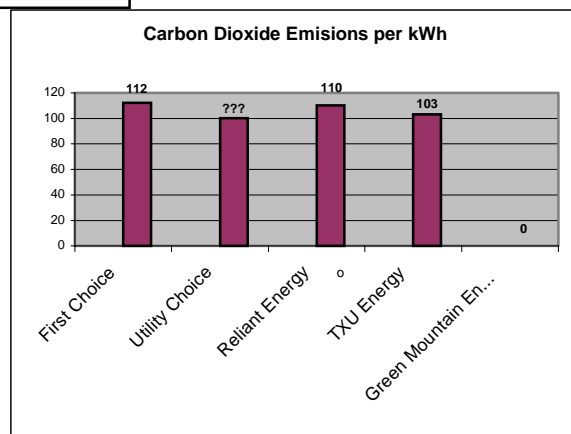
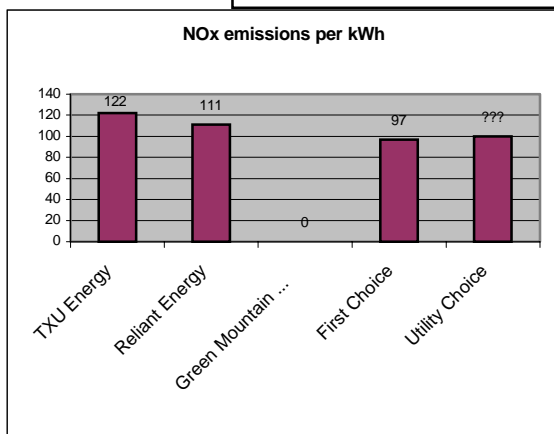
*When a customer fails to pay his bills, a provider of last resort sells him energy for an increased price.*

*Assurance Energy, an affiliate of TXU, is the provider of last resort (POLR) for this area. It charges a summer rate of \$.095 per kilowatt hour (the average household use is 1000 kWh per month) plus a monthly customer charge of \$10. Like many POLRs, Assurance also charges an account initiation charge for a new location of \$25.*

\* company offers month-to-month prices or a "reliable rate" guaranteed constant for one year



Percentage of Energy Provided by Coal



\*\* Statewide average power plant emissions are indexed to 100

# Energy Providers: Central Power and Light Service Area

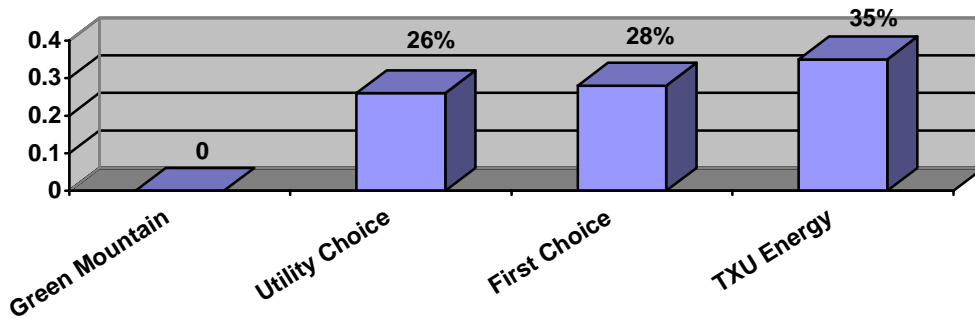
Energy Provider	Price
Mutual Energy CPL (price to beat)	\$86.89
Utility Choice	\$83.95
First Choice Power	\$83.67
TXU Energy	\$85.40
Green Mountain	\$92.95/ \$95.95

POLR price:  
\$105.00

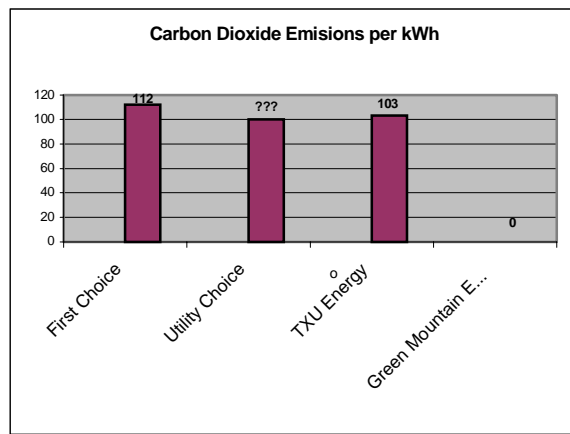
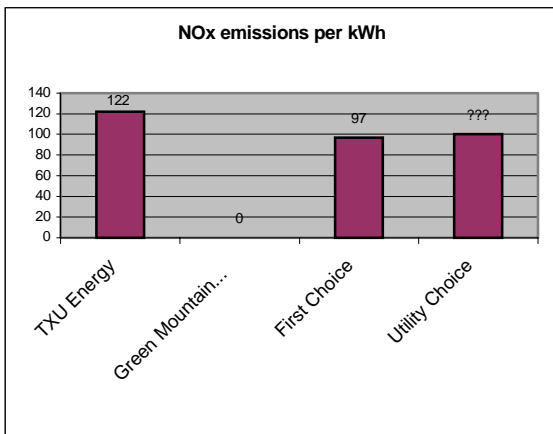
*When a customer fails to pay his bills, a provider of last resort sells him energy for an increased price.*

*Assurance Energy, an affiliate of TXU, is the provider of last resort (POLR) for this area. It charges a summer rate of \$.095 per kilowatt hour (the average household use is 1000 kWh per month) plus a monthly customer charge of \$10. Like many POLRs, Assurance also charges an account initiation charge for a new location of \$25.*

\* company offers month-to-month prices or a "reliable rate" guaranteed constant for one year



Percentage of Energy Provided by Coal



\*\* Statewide average power plant emissions are indexed to 100

# ENDNOTES

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- <sup>1</sup> Environmental Protection Agency EGRID 2000 database. 1998 emissions reported.
- <sup>2</sup> Solley, Wayne B., Pierce, Robert R., and Perlman, Howard A., *Estimated Use of Water in the United States in 1995*. United States Geological Society. p. 53. Available online at <http://water.usgs.gov/watuse/pdf1995/html/>
- <sup>3</sup> US Census 2000. Calculated using 16 counties currently designated as non-attainment areas under the Clean Air Act.
- <sup>4</sup> "Roping the Breezes," Texas State Energy Conservation Office, fact sheet No. 14. Available online at <http://www.infinitepower.org/pdf/FactSheet-14.pdf>.
- <sup>5</sup> Sonoma Air Quality Study, Office of Houston Mayor Lee P. Brown, press release, May 4, 1999.
- <sup>6</sup> Texas State Energy Conservation Office, fact sheet. Available online at [www.infinitepower.org](http://www.infinitepower.org)
- <sup>7</sup> This number was derived from a Public Citizen market analysis using 150 megawatts renewable energy billed. Communication with Green Mountain Energy Company. July 19, 2002.
- <sup>8</sup> Texas State Energy Conservation Office, EPA EGRID.
- <sup>9</sup> Ibid.
- <sup>10</sup> American Wind Energy Association, press release, January 15, 1999.
- <sup>11</sup> Wind power production costs in Texas vary from \$900-\$1,100 per megawatt.
- <sup>12</sup> "Wind Power Development: Sustainable School Financing for Texas," Virtus Energy Research Associates, Inc, SEED Coalition, 1999.
- <sup>13</sup> "Renewable Energy Resources for Texas," Texas State Energy Conservation Office, fact sheet. Available online at <http://www.infinitepower.org/pdf/FactSheet-08.pdf>
- <sup>14</sup> EPA EGRID.
- <sup>15</sup> US Census 2000. Calculated using 16 counties currently designated as non-attainment areas under the Clean Air Act.
- <sup>16</sup> *Death, Disease, & Dirty Power: Mortality and Health Damage Due to Air Pollution from Power Plants, Clear the Air, October 2000*. Oldham, Charlene. "Utility savings still rising," *Dallas Morning News*, May 24, 2002.
- <sup>17</sup> Pope, C.A., Burnett, R.T., Thun, M.J., Calle, E.E., Krewski, D., Ito, K., Thurston, G.D., Lung Cancer, cardiopulmonary mortality and long-term exposure to fine particulate air pollution. *JAMA*, v. 287, No. 9, p. 1132-1141.
- <sup>18</sup> Abt Associates, *The Particulate-Related Health Benefits of Reducing Power Emissions, 2000*.
- <sup>19</sup> EPA EGRID.
- <sup>20</sup> Texas Natural Resource Conservation Commission, *State of the Texas Environment: Strategic Plan 2001-2005*.
- <sup>21</sup> Environmental Protection Agency, *Smog: Who Does it Hurt?: What You Need To Know About Ozone and Your Health, 1999*.
- <sup>22</sup> Pace University Center for Environmental Health, *Environmental Costs of Electricity, 1991*.
- <sup>23</sup> Electric Utilities in Texas emit 33% (121 billion lbs) of CO<sub>2</sub> emissions statewide, according to the TNRCC. 36.7% (43 billion lbs) of this electricity is consumed by the residential sector, according to the PUC.
- <sup>24</sup> Environmental Protection Agency, *Mercury White Paper*. Available online <http://www.epa.gov/ttn/oarpg/t3/memoranda/whtpaper.pdf>
- <sup>25</sup> EPA EGRID
- <sup>26</sup> Environmental Protection Agency, *AcidRain Database*. Available online at <http://www.epa.gov/airmarkets/>
- <sup>27</sup> Solley, Wayne B., Pierce, Robert R.,

and Perlman, Howard A., *Estimated Use of Water in the United States in 1995*. United States Geological Society. p. 53. Available online at <http://water.usgs.gov/watuse/pdf1995/html/>

<sup>28</sup> Ibid.

<sup>29</sup> Pace University Center for Environmental Legal Studies, Environmental Costs of Electricity.

<sup>30</sup> Giammar, Daniel. "Surface Coal Mining and Environmental Degradation in the U.S." CalTech. June 1997.

<sup>31</sup> Nuclear Regulatory Council. Available at <http://www.nrc.gov/waste/low-level-waste.html>.

<sup>32</sup> *Mother Jones Magazine*. "Nuking the Atmosphere". Mark Francis Cohen. May 23, 2001.

<sup>33</sup> Energy Information Administration, "Analysis of Strategies for Reducing Multiple Emissions from Electric Power Plants with Advanced Technology Scenarios," SR/OIAF/2001-05, October 2001.

<sup>34</sup> Information accessed on the [www.powertochoose.com](http://www.powertochoose.com) website 7/19/02.