



**Luminant**

# 2011

**ENVIRONMENTAL REVIEW**



# ABOUT LUMINANT

## Luminant, a subsidiary of Energy Future Holdings Corp.,

is a competitive power generation business, including mining, wholesale marketing and trading, and development operations. Luminant has more than 15,400 megawatts of generation in Texas, including 2,300 MW fueled by nuclear power, 5,100 MW fueled by natural gas and 8,000 MW fueled by coal. The company is also one of the largest purchasers of wind-generated electricity in Texas and the nation. EFH is a Dallas-based energy holding company that has a portfolio of competitive and regulated energy subsidiaries, primarily in Texas.

Visit [www.Luminant.com](http://www.Luminant.com) for more information.

## GENERATION SUMMARY

FUEL TYPE	CAPACITY (MW)	PLANTS	UNITS
Nuclear	2,300	1	2
Coal	8,017	5	12
Natural Gas <sup>1</sup>	5,110	8	26
<b>TOTAL</b>	<b>15,427</b>	<b>14</b>	<b>40</b>

<sup>1</sup> Includes 390 MW of units that are leased and 1,655 MW of mothballed units not currently available for dispatch



## GENERATING PLANTS AND MINES

FUEL TYPE	UNITS	CAPACITY (MW)	COUNTY
<b>NUCLEAR</b>			
□ Comanche Peak	2	2,300	Somervell
<b>COAL</b>			
● Big Brown	2	1,150	Freestone
◆ Big Brown			Freestone
◆ Turlington			Freestone
● Martin Lake	3	2,250	Rusk
◆ Beckville			Panola/Rusk
◆ Oak Hill			Rusk
◆ Tatum			Panola
● Monticello	3	1,880	Titus
◆ Thermo			Hopkins
◆ Winfield			Titus/Franklin
● Oak Grove	2	1,600	Robertson
◆ Kosse			Limestone/Robertson
● Sandow	2	1,137	Milam
◆ Three Oaks			Lee/Bastrop
<b>NATURAL GAS<sup>1</sup></b>			
▲ DeCordova	4 CTs	260	Hood
▲ Graham	2	630	Young
▲ Lake Hubbard	2	921	Dallas
▲ Morgan Creek	6 CTs	390	Mitchell
▲ Permian Basin	1, 5 CTs	865	Ward
▲ Stryker Creek	2	685	Cherokee
▲ Trinidad	1	244	Henderson
▲ Valley	3	1,115	Fannin

□ NUCLEAR    ● COAL    ◆ MINES    ▲ NATURAL GAS    CTs COMBUSTION TURBINES



Texas bluebonnets and other native wildflowers adorn Luminant's reclaimed land.

## LUMINANT LOCATIONS

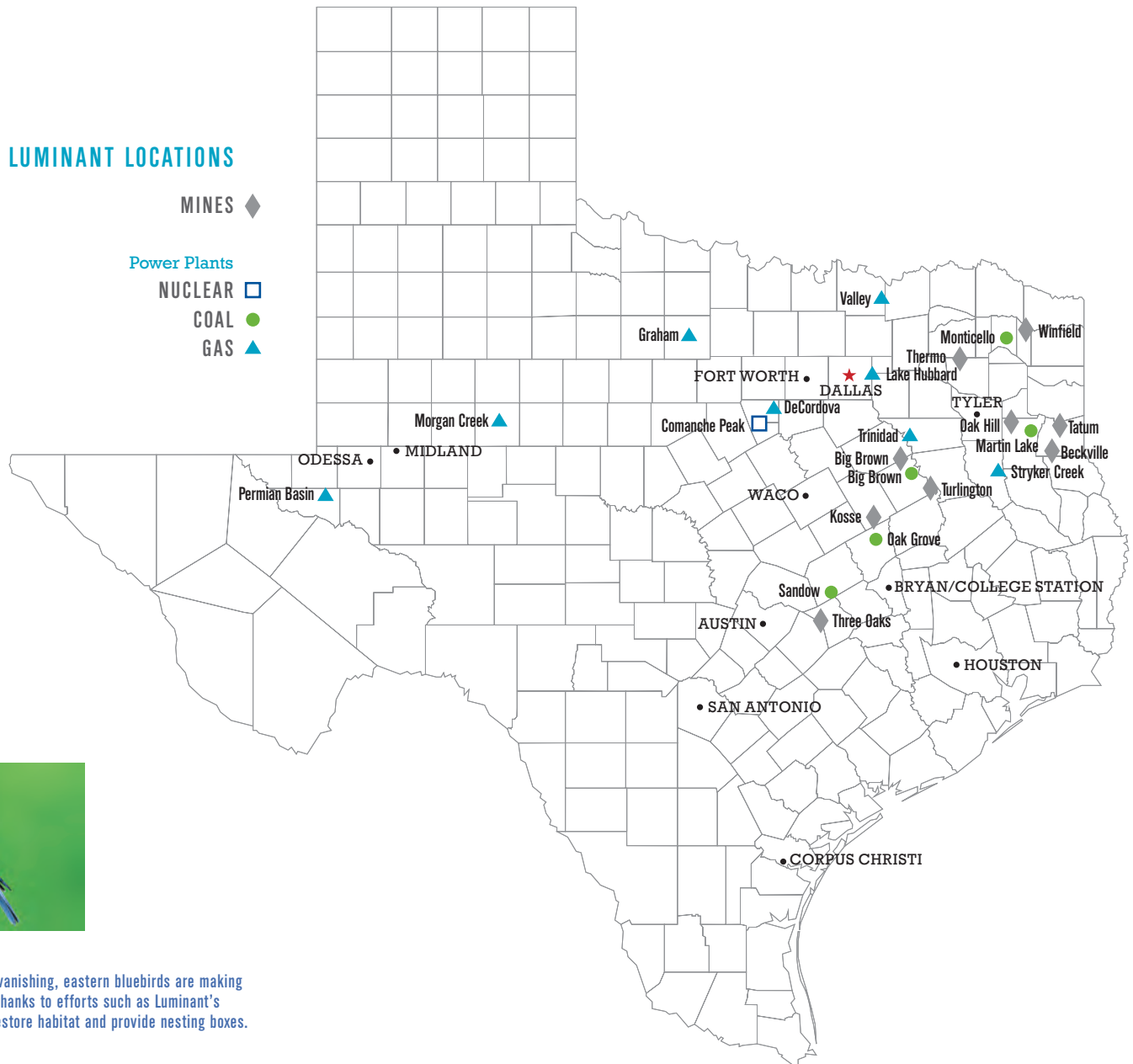
MINES ◆

Power Plants

NUCLEAR □

COAL ●

GAS ▲



After nearly vanishing, eastern bluebirds are making a comeback thanks to efforts such as Luminant's program to restore habitat and provide nesting boxes.

## LOW-COST NUCLEAR AND COAL UNITS GENERATE MOST OF LUMINANT'S ENERGY



**GENERATING CAPACITY<sup>1</sup>**  
Total: 15,427 MW

**COAL | 52%**  
**NUCLEAR | 15%**  
**NATURAL GAS | 33%**

<sup>1</sup> Includes 390 MW of units that are leased and 1,655 MW of mothballed units not currently available for dispatch



**2011 ENERGY PRODUCTION<sup>2</sup>**  
Total: 78,681 GWh

**COAL | 74%**  
**NUCLEAR | 24%**  
**NATURAL GAS | 2%**

<sup>2</sup> Does not include purchased power

# CLEAN-AIR PROGRESS

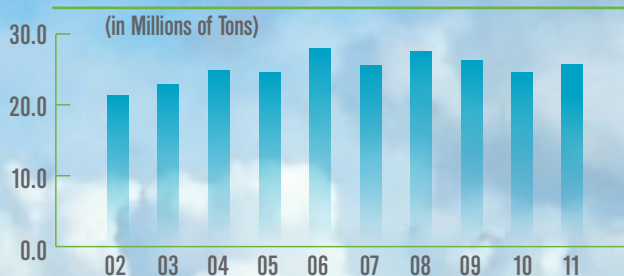
- As Texas' largest power producer, Luminant is proud to be a leader in the progress the state is making to create an even cleaner energy future.
- Texas is leading the way in clean power generation, with a diverse portfolio of energy sources. While the state is by far the nation's top electricity generator, the Texas power sector's emissions rates are significantly cleaner than the U.S. average and continue to improve.
- With a wind-energy portfolio of 900 megawatts—enough to serve nearly 430,000 Texans—Luminant is one of the state's largest wholesale purchasers of wind-generated electricity.
- In the last several years, Luminant has added 2,200 MW of coal-fueled units to help satisfy the state's need for additional electric generating capacity. The \$3.25 billion construction of Oak Grove 1 and 2 and Sandow 5 includes \$500 million in advanced clean-air emissions controls.
- For two decades, Luminant's voluntary climate change program has been among the nation's largest individual company efforts, avoiding, reducing or sequestering more than 447 million tons of carbon dioxide, including more than 25 million tons in 2011.
- The Oak Grove units are the nation's first use of selective catalytic reduction technology to reduce nitrogen oxide emissions on 100 percent lignite-fueled power plants. The Oak Grove units, along with Sandow 5, are also the nation's first all-lignite units to use activated sorbent injection systems to reduce mercury emissions. As a result of these and other technologies, Oak Grove's key emissions rates are the lowest of any Texas lignite plant and at least 75 percent lower than the national average for coal plants.
- An industry leader in mercury control, Luminant has voluntarily equipped its entire coal fleet with sorbent systems to control mercury emissions, and additional voluntary technology retrofits and other improvements are reducing nitrogen oxide and sulfur dioxide emissions.
- Luminant continues to evaluate the development and commercialization of new power facility technologies; technologies that support sequestration or reduction of CO<sub>2</sub>; incremental renewable sources of electricity, including wind and solar power; energy storage; and related technologies that seek to lower emissions intensity.



Rare carnivorous pitcher plants discovered at the new Turlington Mine now thrive in a rehabilitated bog that serves as an outdoor classroom at an East Texas Girl Scout camp.

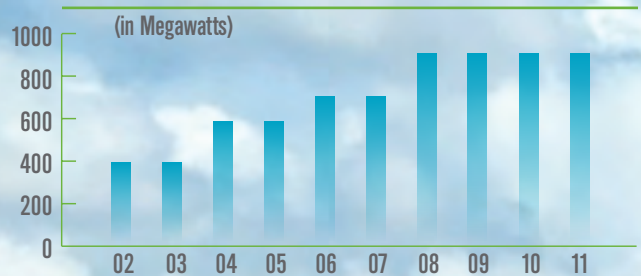
## VOLUNTARY CLIMATE CHANGE PROGRAM

Total since 1991: 447.5 Million Tons of CO<sub>2</sub> Avoided, Reduced or Sequestered



## PURCHASED WIND CAPACITY

Current total capacity: 913 Megawatts



# LAND STEWARDSHIP

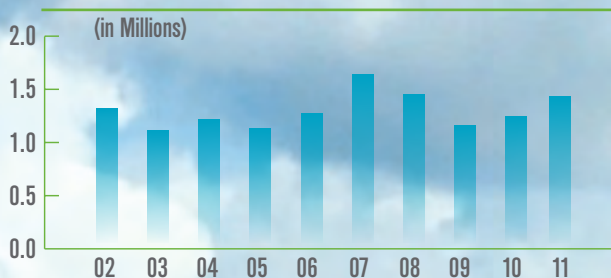


Cattle graze on reclaimed land at Monticello.

- To date, Luminant has reclaimed nearly 69,300 acres, including more than 1,400 acres in 2011.
- More than 31.6 million trees have been planted, including 1.4 million in 2011. Since 1996, Luminant's reforested areas have been certified by the American Tree Farm System as sustainably managed forests. About 60 percent of the acres Luminant reclaims are reforested.
- Luminant has created or enhanced over 5,100 acres of wetlands, ponds and stream channels on its restored land for the benefit of wildlife and livestock.
- A number of endangered, threatened and protected species, including the interior least tern, bald eagle, timber rattlesnake and alligator snapping turtle, and an abundance of other wildlife benefit from Luminant's plant cooling water reservoirs and restored mined land. In addition to the work of Luminant's environmental professionals, its unique Environmental Research Program provides valuable studies by graduate students related to wildlife recovery, enhancement and management.
- Luminant has received nearly 90 awards for reclamation excellence, including an unprecedented five Director's Awards, the highest honor from the U.S. Department of the Interior's Office of Surface Mining.
- Luminant has been surface mining lignite coal for more than 40 years to fuel its coal generation plants, which produce electricity for a large part of the state's population.
- The company's lignite-mining operations are the largest in Texas. The production of 32 million tons of lignite in 2011 set a company record following the commencement of full operation of Luminant's three new lignite units.
- For four decades, Luminant has set the national standard in mining reclamation, restoring the land for use as forests, pastures, wildlife habitat and cropland.
- Before mining its first ton of lignite, Luminant developed a plan to reclaim the land. Its goal remains the same: to quickly return mined land to productivity and achieve all regulatory reclamation obligations.

## TREES PLANTED

Total since 1975: 31.6 Million Trees



## MINING AND RECLAMATION

		TOTAL (In Acres)
Mined	2011 To Date	2,072
		63,181
Reclaimed <sup>1</sup>	2011 To Date	1,422
		69,295
Released	2011 To Date	2,890
		32,730

<sup>1</sup> Includes mined acreage and non-mined acreage disturbed to support mining

# WATER CONSERVATION AND WASTE REDUCTION



Creation of water resources, such as this small lake at Big Brown, is a crucial ingredient of Luminant's reclamation program.

## WATER

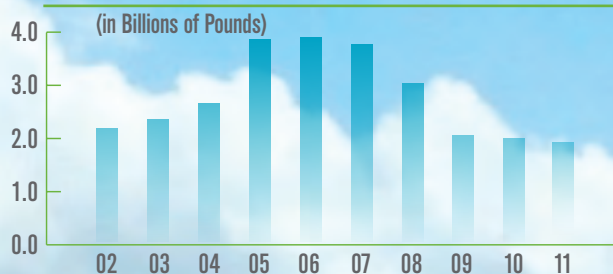
- Adequate, clean water is essential every day for the operation of Luminant's power plants.
- Luminant captures, monitors, treats when necessary, and reuses or releases water at its generating facilities and mines to ensure good water quality and regulatory compliance.
- As the largest private owner of Texas reservoirs, Luminant owns and operates 14 lakes and also has power generation facilities on five others in which it has invested in water. The company is active in planning for water conservation and use of water resources and maintains representation on regional water planning groups.
- Luminant's reservoirs, which are used to cool its plants, provide thousands of acres of aquatic habitat for wildlife, and some of the largest are open to the public for fishing, boating and other recreational activities.

## WASTE

- Luminant's programs to reduce chemical use, replace hazardous substances with nonhazardous ones, and minimize and reuse materials continue to achieve major environmental benefits.
- Since 1993, Luminant has recycled more than 40 billion pounds of materials, including more than 2 billion pounds in 2011. Materials range from paper, aluminum, antifreeze, lead-free batteries, oils and tires to steel, copper and scrap metal from a demolished Luminant power unit. The reuse of materials decreases energy costs, reduces emissions and saves landfill space.
- Combustion byproducts from Luminant coal plants make up the largest quantity of recycled materials. Since 1986, more than 43 billion pounds, including nearly 2 billion pounds in 2011, have found a second life in the roofing and concrete industries as well as in road construction and the oil field.

## COAL COMBUSTION BYPRODUCT SALES

Total since 1986: 43.7 Billion Pounds

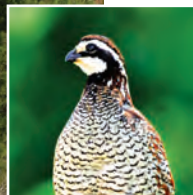


# COMMUNITY COMMITMENT

- The safety of the public and employees is always Luminant's top priority.
- Luminant's operations produce a significant economic benefit to Texas through power plant payrolls, purchases, contracts, taxes and other expenditures. Luminant paid more than \$110 million in property taxes in 2011. The company is the largest taxpayer by a wide margin in virtually all the communities where it operates plants.
- Luminant invests billions of dollars in new infrastructure. Its multiyear investment in the recent construction of new power facilities generated employment for thousands of construction workers. The completed plants and mines provide hundreds of high-quality jobs for rural areas of the state.
- For its 4,200 employees, Luminant means good jobs and career opportunities, savings programs, and benefits that include health care for them and their families.
- Luminant also takes pride in powering its communities through philanthropy, leadership and volunteerism. Its charitable contributions totaled \$1.4 million in 2011, and employees pledged over \$610,000 in support of United Way and TXU Energy Aid<sup>SM</sup>.
- Educational outreach is an essential part of Luminant's environmental commitment:
  - Directed by uncompensated university professors, the unique Luminant Environmental Research Program has produced outstanding scientists and environmental professionals and has provided Luminant with sound environmental solutions since 1971.
  - The Luminant Carbon Management Program, founded in 2007 at the University of Texas, offers doctoral candidates an opportunity to conduct hands-on research in carbon capture and storage, a process that removes carbon dioxide from coal-fueled flue gas and stores it safely underground.
  - For decades, Luminant's summer partnerships with universities and the Texas Mining and Reclamation Association have provided elementary and secondary teachers with a comprehensive overview of the relationship between power generation and environmental stewardship.
  - For more than a decade, Luminant and employees at its Comanche Peak nuclear plant have partnered with Glen Rose ISD environmental science classes in monitoring the water quality of the Paluxy River. In 2010, they began a new project along with Texas Parks and Wildlife and other groups to restore habitat for the bobwhite quail and eastern bluebird at the company's Squaw Creek Park and Reservoir.



Environmental science students work on an ongoing project to restore habitat for the eastern bluebird and the bobwhite quail at Luminant's Squaw Creek Park and Reservoir.



TO LEARN MORE, PLEASE VISIT: [WWW.LUMINANT.COM/ENVIRONMENT](http://WWW.LUMINANT.COM/ENVIRONMENT)



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