



**UTILITY PARTNERS  
FOR  
IDFS, INC., 6.7 BILLION  
SYNCHRONIZATION AND POWER PROJECTS  
IN  
TEXAS URBAN TRIANGLE**

## PREAMBLE

The Utility Companies listed below are the main electrical energy providers in the State of Texas and in particular in the **Texas Urban Triangle** of Texas. The ultimate purpose of our power project is to interconnect the two Nuclear Power facilities in the Texas Triangle with a fiber optic cable system which is using **SONET** (Synchronous Optical Networking)

### A. NRG ENERGY, INC.

**NRG Energy, Inc.** is a large American energy company, dual-headquartered in Princeton, New Jersey and Houston, Texas. It was formerly the wholesale arm of Northern States Power Company (NSP), which became Xcel Energy, but became independent in 2000. NRG Energy is involved in energy generation and retail electricity. Their portfolio includes nuclear generation, coal generation, wind generation, utility scale generation, distributed solar generation, and oil generation. NRG serves 2.9 million retail customers in Texas, Connecticut, Delaware, Illinois, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, Ohio, and the District of Columbia.

NRG also has a 44% ownership stake in the **South Texas Nuclear Generating Station** and its majority owner and Operator. This is very important for our project because we intend to connect to the **ERCOT GRID** at the substation of the **STNPP**.

NRG Energy has acquired eleven other energy companies, both generation and retail, that include Reliant Energy, XOOM Energy, Green Mountain Energy, Stream Energy, Discount Power and Cirro Energy. As of 2018, they generate 23,000 MW of power from 40 power plants across the country. They incorporate a range of sales channels for retail customers, including call centers, direct sales, websites, brokers, and brick-and-mortar stores. Their wholesale generation services include plant operations, commercial operations, energy services, distributed generation services, and energy, procurement, and construction (EPC) services.

In March 2014, NRG Energy acquired Dominion Resources Inc. and Cirro Energy, growing its retail electric customer base by 30 percent. It adds about 600,000 accounts to its existing 2 million residential and commercial customers. Dominion's retail electricity customers were mainly in Connecticut, Illinois, Massachusetts, Maryland, New York, New Jersey, Ohio, and Pennsylvania; Cirro mainly served residential and business customers in Texas. NRG Energy operates Cirro Energy under Cirro's name. In 2014, NRG Energy had two other retail electricity services, Reliant Energy and Green Mountain.

By 2018, NRG Energy also added Pennywise Power to its retail electricity portfolio. They picked up a number of customers from Pioneer Energy of Sugar Land and Stat Energy of Richardson, as well. In July, the prices for day-ahead pricing reached \$2,172.70 per MW hour, compared to \$28 per MW hour of July 2017.

After the GenOn merger in 2012, NRG had 47,000 MW of total generation capacity, enough to power approximately 40 million homes. Its nearly 100 power plants were located in 18 states in

the Northeast, Chicago area, Gulf Coast, Southwest, Nevada, and California. Generation facilities include mostly fossil fuel power plants powered by natural gas, oil, and coal; plus four wind farms (in Texas) and six solar farms (in California, Arizona, and New Mexico).

Headquartered in Houston, Texas, Reliant Energy, a subsidiary of NRG Energy, is one of the largest Texas electricity providers serving over 1.5 million Texans. Reliant provides over 23 million megawatts of power annually to residential and business customers in the **Houston** area of the Texas Triangle.

Reliant Energy was founded in 2000. In June 2009, NRG Energy purchased Reliant Energy's retail electricity business. At the time, Reliant had 1.8 million customers and was the second largest electric provider in Texas. The name Reliant Energy was retained and the surviving wholesale business was renamed RRI Energy, which was retired in 2012 after additional NRG acquisitions.

In 2010, Reliant Energy received a \$20 million grant from the U.S. Department of Energy as part of the DOE's Recovery Act activities to fund a suite of Smart Grid products for upgrades of the nation's electricity grid.

In 2017, Reliant was awarded a MaritzCX CX (customer experience) Elite Award for excellence in customer experience strategy, execution, and results and the 2017 Temkin Group CX Excellence Award for customer experience transformation efforts, business and customer results, and sustainability.

Texas deregulated the electricity industry and now there are 116 retail electric providers (REPs) currently doing business in the state. Texas is one of 18 states that offers some level of deregulated electricity, with the state having the largest percentage (approximately 85%) of residents who are able to choose their service provider.

With deregulation the transmission and distribution of the electricity is handled by Transmission and Distribution Utilities (TDUs) that must offer access to their wires to all REPs on a non-discriminatory basis.

Deregulation eliminated monopolies and gave the residents and businesses in Texas competitive pricing options. Following the deregulation of the market, Reliant Energy began competing with other large energy companies in the state, including Direct Energy and TXU Corporation. Reliant Energy offers service to some of the largest cities in Texas including the Dallas/Fort Worth area in northeastern Texas, Houston and surrounding cities on the Gulf of Mexico including Corpus Christi and Galveston, and as far west as Midland.

## **B. CPS ENERGY**

**CPS Energy** (formerly "**City Public Service Board of San Antonio**") is the municipal electric utility serving the city of San Antonio, Texas. Acquired by the city in 1942, CPS Energy serves over 840,750 electricity customers and more than 352,585 natural gas customers in its 1,566-square-mile (4,060 km<sup>2</sup>) service area, which includes Bexar County and portions of its 7

surrounding counties. May 2015, CPS Energy had 1,059 megawatts of wind and 444 megawatts of solar power under contract.

Plant Name	Type	Rated Capacity	Year Completed	Cost	Notes
Blue Wing Solar Project	Solar-PV	14.4 MW	2010		Partner with Duke Energy
South Texas Project Unit 1	Nuclear	1250 MW	1987	\$2.25 Billion	40% Owner with NRG Energy and City of Austin
South Texas Project Unit 2	Nuclear	1250 MW	1988	\$2.25 Billion	40% Owner with NRG Energy and City of Austin
J.K. Spruce Power Plant Unit 1 <sup>[8]</sup>	Coal-Fired	556 MW	1992		At Calaveras Lake
J.K. Spruce Power Plant Unit 2	Coal-Fired	780 MW	2010	\$1 Billion	At Calaveras Lake; Design Capacity was 750MW, Analysis revealed capable of 780MW
J.T. Deely Power Plant Unit 1	Coal-Fired	486 MW	1977		At Calaveras Lake; Decommission in December 2018 <sup>[9]</sup>
J.T. Deely Power Plant Unit 2	Coal-Fired	446 MW	1978		At Calaveras Lake; Decommission in December 2018 <sup>[9]</sup>
O. W. Sommers	Natural Gas	892 MW			At Calaveras Lake
Leon Creek Power Plant	Natural gas	417 MW			First unit began operation in 1949
Desert Sky Wind Farm	Wind	160.5 MW	2001		Owned by American Electric Power, but CPS buys all the power.
Rio Nogales <sup>[10]</sup>	Natural gas	800 MW	2002		Located in Seguin, Texas. Purchased in 2012 to replace 871 MW two-unit coal-fired J.T. Deely.
Braunig Power Station <sup>[11]</sup>	Natural gas	1138 MW	1966		Located at Victor Braunig Lake

CPS Energy is governed by a five-member Board of Trustees. The Mayor of San Antonio serves as an *ex officio* member, for as long as s/he is the Mayor. Each of the other four members represents a geographical quadrant within the City, and must reside within that quadrant. They are nominated by the remaining trustees for a five-year term, with eligibility to serve one additional term. The nominations must be approved by majority vote of the San Antonio City Council.

In addition, a 15-member Citizens Advisory Committee serves as a liaison between CPS Energy and the citizens of San Antonio. Ten of the members are nominated by the ten City Council members (one from each district), while the remaining five are chosen from applicants who are interviewed by the Board. The Board approves all fifteen members, who must reside in the CPS Energy service territory and be customers of CPS Energy as well.

### C. AUSTIN ENERGY

**Austin Energy** is a publicly owned utility providing electrical power to the city of Austin, Texas and surrounding areas. Established in 1895, the utility is a department of the City of Austin and returns its profits to the city's general fund to finance other city services. Austin Energy is the United States' 7th largest public utility, serving more than 500,000 customers and more than one million residents (as of 2019) within a service area of approximately 437 square miles (1,130 km<sup>2</sup>), including Austin, Travis County and a small portion of Williamson County.

Austin Energy's total generation capacity is more than 3,000 megawatts (MW), provided by a mixture of wind power, solar power, biomass, natural gas, nuclear power, and coal. All of Austin Energy's generation is sold into the ERCOT wholesale market; all of the retail load is served by purchasing power from ERCOT.

#### Generation assets

Austin Energy owns and operates two natural gas-fired power plants in the Austin area: the Decker Creek Power Station and the Sand Hill Energy Center. The utility also owns 50% of units 1 and 2 at the coal-fired Fayette Power Project in La Grange and 16% of the South Texas Nuclear Project in Bay City (near Houston).<sup>[2]</sup> The STNP was the subject of a binding citizen referendum (November 3, 1981) to sell Austin's part in the project. STNP went online in 1986. No council has sold Austin's STNP telling citizens that "no one wanted our 16 percent".

Unit	Fuel	Capacity (MW)	Construction Year
Decker Creek Power Station (Austin)	Gas	927	1967–1978
Fayette Power Project (La Grange, 50% Share)	Coal	602	1979–1980
Robert Mueller Energy Center (Austin)	Gas	4.6	2006
Sand Hill Energy Center (Del Valle)	Gas	570	2001–2010
South Texas Project (Bay City, 16% Share)	Nuclear	436	1988–1989

### D. Luminant

**Luminant** is a Texas-based electric utility. It is a wholly owned subsidiary of Energy Future Holdings Corporation. Luminant's operations include electricity generation and wholesaling, mining, construction, and development. The company has capacity for the generation of 18,300 megawatts (MW) of electricity in 20 power plants spread across Texas, of which 2,300 MW

come from nuclear power generated at the company's Comanche Peak Nuclear Power Plant, 5,800 MW from coal-fired power plants, and the remainder from natural gas-fired plants. Luminant is also a major purchaser of wind power.

Luminant also owns and operates three of the five largest coal mines (by production) in Texas: the Beckville Strip, the Three Oaks Mine, and the Oak Hill Strip. The Beckville Mine was mined out in the fall of 2015 and the three drag lines were moved to other mines. The Oak Hill Mine will cease operation in December 2016. In December 2016, 77 miners were laid-off due to the closures. The company extracted over fourteen million short tons of coal from those three mines in 2007. The company also operates a private rail line known as the Martin Lake Rail Line that carries coal from mines around Texas and the Powder River Basin via BNSF to the Martin Lake Power Plant.

**Comanche Peak Nuclear Power Plant** is located in Somervell County, Texas. The nuclear power plant is located 40 miles (64 km) southwest of Ft. Worth and about 60 miles (97 km) southwest of Dallas. It relies on nearby Squaw Creek Reservoir for cooling water. The plant has about 1,300 employees and is operated by Luminant Generation, a subsidiary of Vistra Energy.

Construction of the two Westinghouse pressurized water reactors began in 1974. Unit 1, originally rated at 1,084 MWe, came online on April 17, 1990. Its current, 40-year operating license is valid until February 8, 2030. Unit 2, 1,124 MWe, followed on April 6, 1993 and is licensed to operate until February 2, 2033 when it has to renew its license. As of 2018 Unit 2 was the third-to-last power reactor to come online in the United States, followed only by Units 1 and 2 of Watts Bar Nuclear Generating Station.

In June 2008, the U.S. Nuclear Regulatory Commission (NRC) approved a request to increase the generating capacity of Units 1 and 2 by approximately 4.5% each. Luminant Generation Co. implemented the changes during refueling outages. Unit 1 was updated in autumn 2008 with a capacity increase of approximately 1,210 to 1,259 MWe and Unit 2, the capacity of which rose from an estimated 1,208 to 1,245 MWe, was updated in autumn 2009.

**Energy Future Holdings Corporation** is an electric utility company headquartered in Energy Plaza in Downtown Dallas, Texas, United States. The majority of the company's power generation is through coal and nuclear power plants.<sup>[1]</sup> From 1998 to 2007, the company was known as TXU Corporation until its \$45 billion leveraged buyout by Kohlberg Kravis Roberts, Texas Pacific Group and Goldman Sachs Capital Partners. That purchase was the largest leveraged buyout in history.<sup>[2]</sup> As of 2019, TXU Energy is a subsidiary of publicly traded Vistra Energy.

As of February 2013, the company has been described as "struggling"<sup>[1][3]</sup> which resulted in the April 29, 2014 filing for bankruptcy protection<sup>[4]</sup> under Title 11 of the United States Bankruptcy Code.<sup>[5]</sup> On July 7, 2017, the company announced its Oncor transmission business would be acquired by Berkshire Hathaway<sup>[6]</sup> for \$9 billion but Sempra Energy's higher \$9.45 billion bid was eventually accepted<sup>[7]</sup> instead on August 21, 2017.

Energy Future Holdings owns four of the nation's highest emitting coal-fired power plants, which together account for approximately one quarter of all industrial/utility air pollution reported to Texas regulators. Its Big Brown, Martin Lake, Monticello, and Sandow plants have been the subject of scrutiny by environmental groups for pollutants such as nitrogen oxides, mercury, and sulfur dioxides.

The Martin Lake, Big Brown, and Monticello plants rank first, third, and fourth, respectively, in airborne mercury pollution in the United States according to company reports submitted to the EPA.<sup>[10][13]</sup> Such high levels of mercury pollution have drawn criticism for their harmful effects on child development.

NOx emissions from EFH's coal plants help contribute to harmful levels of ozone in the air in Dallas and other parts of east Texas, and ozone pollution can trigger asthma attacks and respiratory problems.

## **E. South Texas Project Electric Generating Station**

The **South Texas Project Electric Generating Station** (also known as **STP**, **STPEGS**, **South Texas Project**), is a nuclear power station southwest of Bay City, Texas, United States. STP occupies a 12,200-acre (4,900 ha) site west of the Colorado River about 90 miles (140 km) southwest of Houston. It consists of two Westinghouse Pressurized Water Reactors and is cooled by a 7,000-acre (2,800 ha) reservoir, which eliminates the need for cooling towers.

The STPEGS reactors are operated by the STP Nuclear Operating Company (STPNOC). Ownership is divided among NRG Energy at 44 percent, San Antonio municipal utility CPS Energy at 40 percent and Austin Energy at 16 percent.

## **F. ENTERGY CORPORATION**

**Entergy Corporation** is a Fortune 500 integrated energy company engaged primarily in electric power production and retail distribution operations in the Deep South of the United States. Entergy is headquartered in New Orleans, Louisiana,<sup>[5]</sup> and generates and distributes electric power to 2.9 million customers in Arkansas, Louisiana, Mississippi and Texas. Entergy has annual revenues of \$11 billion and employs more than 13,000 people.

### **Entergy Texas**

Entergy Texas operates as a wholly owned subsidiary. This was done to prepare the Texas side for de-regulation under Texas law but later Entergy notified the Texas PUC it would not be splitting the Texas side off as a de-regulated operation (to do so would cost billions). So the Texas side has remained connected to the rest of the Entergy network, though it has its own CEO and until 2012, was based where the former Gulf States Utilities was, in Beaumont, Texas. Entergy Texas has moved to the rapidly developing area of The Woodlands, which is now larger population wise than the Beaumont area.

Gulf States Utilities is still a legally incorporated entity in the state of Texas. However, recently Entergy changed GSU's Texas name from **Entergy Gulf States** to **Entergy Texas, Inc.** and



merged the GSU Louisiana service territory with its Entergy-Louisiana unit. Entergy Texas notified the Public Utility Commission of Texas that it would not be joining the Texas Interconnection operated by ERCOT, but would stay regulated and part of the massive Eastern Interconnection (one of the two major power grids in the US besides Texas' own which covers 75% of the state and has only DC Direct Current ties to other states). Only ONE time was the tie connection in Dayton, Texas between GSU/Entergy and the Texas Interconnection (via CenterPoint Energy) ever used; after Hurricane Ike to provide power to the water pumps along the north side of Lake Houston and other affected areas. This was done after Texas Governor Rick Perry ordered CenterPoint to request Entergy to close the tie. In 2013, Joe Domino was replaced by Sallie Rainer, which began the transition of Entergy Texas to The Woodlands.



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