Long-Term System Assessment Resource Siting Methodology

Table of Contents

1. Purpose

This document details the methodology used to site new generation and energy storage resources for the Long-Term System Assessment (LTSA). The capacity, type, and commission dates of new resources are determined by performing capacity expansion and retirement analysis for each study scenario. In the absence of complete knowledge about siting methodologies used by generation developers, this methodology attempts to locate probable generation sites based on drivers such as resource availability, transmission infrastructure accessibility, and economy.

2. Background

The LTSA is a scenario-based analysis. The scenarios to be studied are determined based on stakeholder input received during the scenario development process. Each scenario has a unique set of assumptions that drive the creation of different load forecasts and generation assumptions. These scenario-specific assumptions for generation and load are used in creating the capacity expansion plan for future years (LTSA study years). The capacity expansion plan provides the total capacity for different technology types. This methodology provides the guidelines to site generation and energy storage resources across the ERCOT system.

3. Inputs

The resource siting methodology requires a list of technologies that will be considered in capacity expansion and retirement analysis. It also requires a list of factors/drivers to be considered when selecting a particular county as a potential site. Table A.1 (Appendix A) displays the list of technologies and various factors/constraints to be considered for each type of technology. Additionally, the methodology requires county-specific data regarding each of the constraints/factors considered for selecting counties. Figures B.1 through B.10 (Appendix B) show the geographical requirements/limitations that are used in selecting potential sites. The siting methodology also considers mothballed generation and recently retired sites as potential locations for siting. A list of such brownfield sites were obtained from the latest Capacity, Demand, and Reserves (CDR) report.

The resource siting methodology also uses production-cost simulation software, such as UPLAN, to determine potential generation sites with best available Locational Marginal Prices (LMP). This requires that the UPLAN databases be updated with scenario-specific generation and load assumptions. These generation and load assumptions have to be consistent with those used in capacity expansion and retirement analysis. The transmission base case from the last year of the most recently completed Regional Transmission Plan (RTP) is used as a starting case in the UPLAN model.

4. Methodology

4.1. Overview

The resource siting methodology identifies the best possible sites for each resource type based on availability of the factors listed in Table A.1. The information in Table A.1 and the maps in Appendix B are used to identify potential counties that can be used for siting. Section 4.2 provides details on the resource siting process.

4.2. Resource Siting Methodology

Capacity expansion and retirement analysis yields the total capacity additions by resource type with expected in-service dates. The resource siting methodology identifies the individual buses where such generation can be modeled.

The siting process uses average Locational Marginal Prices (LMP) for the hours and months that the generator may be running. This is obtained for all 345-kV and 138-kV buses by performing UPLAN runs for the 10th year with the transmission model used in the most recent RTP study, and for the 15th year with the 10th year potential transmission model. The siting process is described in the following steps.

1. Wind and solar sites are dictated by the wind and solar profiles used in capacity expansion and retirement analysis. Similarly, geothermal and biomass sites are limited by resource availability. The sites for these types of resources will be based on the counties attributed to the profiles.
2. With the exception of the resource types listed in step 1, the total capacity added by resource type will be distributed to individual zones as identified in the scenario-specific capacity expansion plan.
3. The allotted capacity will then be sited using the following priority:
    a. Sites with active Generation Interconnection or Change Requests (GINRs) meeting Planning Guide Section 6.9 requirements, but were not included in capacity expansion and retirement analysis.
    b. Sites with active GINRs with signed Standard Generation Interconnection Agreement (SGIA), but which do not otherwise meet Planning Guide Section 6.9 requirements.
    c. Starting with the bus with highest available LMP, each bus will be evaluated as a potential site based on the following criteria, per the priority listed below.
        i. Resource availability at the counties where the buses reside. Counties are classified as good, average or not suitable based on resource requirements and county attributes. County ratings by resource type are summarized in Table A.1.
        ii. Among the favorable counties with good LMPs, buses will be further shortlisted if these sites have mothballed generation which can be repowered or re-constructed.
        iii. Brownfield sites, such as recent retirements, will be considered as potential sites, if they fall in a county with favorable attributes and have good LMP available.
        iv. Other buses with the best resource availability and LMP will be considered.
4. Step 3 is repeated until the total expected capacity by resource type is modeled.

If during any iteration of the siting process, there is a shortage of “good” buses, the buses from counties with “average” attributes will be used. In each case, if there are competing buses at a selected site or group of sites, revenue shall be used to prioritize siting.

4.3. Classification of Counties by Resource Availability and Limitations

This section provides guidelines on categorizing counties based on the availability of resources. Sections 4.3.1 through 4.3.9 show availability of each of the resources across counties in the ERCOT System. Table C.1 shows a summary of this classification. Additionally, Table A.1 shows the resource limitation/constraints that impact the selection of a potential site for a certain generation technology. The information from Tables A.1 and C.1 are used to identify favorable counties by generation type. Table C.2 shows a summary of this classification and is used in determining potential locations for generator siting.

4.3.1. Gas Pipeline Density

The Railroad Commission of Texas' map of the gas pipeline network in Texas (Figure B.1) was visually inspected. Each county was classified into four grades (high, medium, low, or very low) based on the number and density of pipelines running through them. Figure 4.1 gives examples of counties considered to have high, medium, low, and very low densities of pipelines (in green). Figure 4.2 shows the map of Texas classified into the four categories based on gas pipeline density: high, medium, low, and very low.

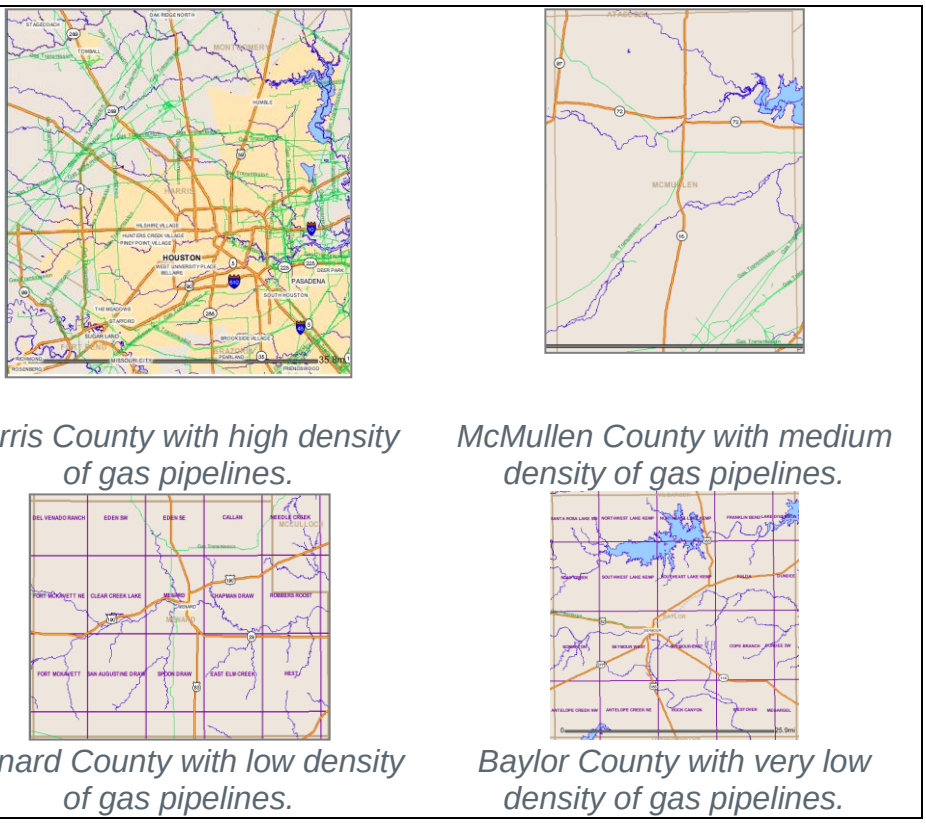


Figure 4.1: Examples of Texas counties classified as having high, medium, low, and very low gas pipeline density.

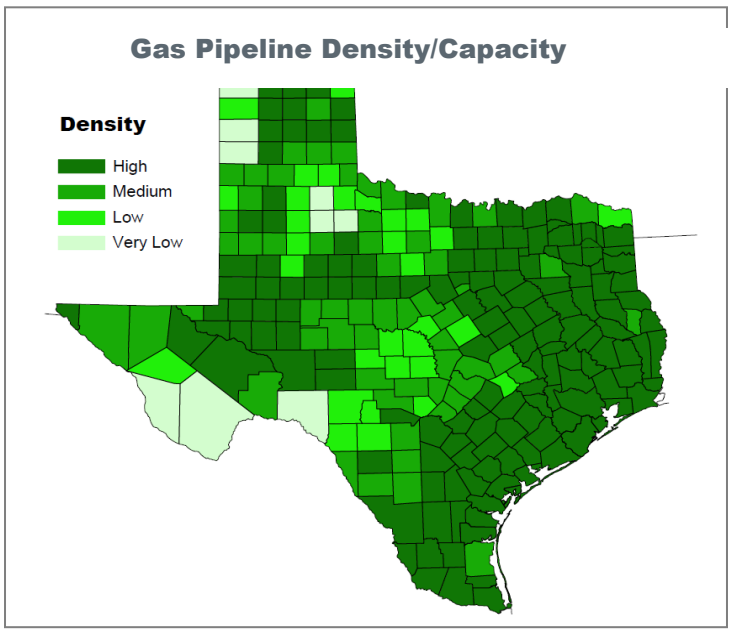
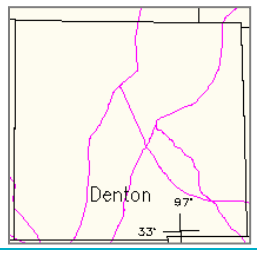


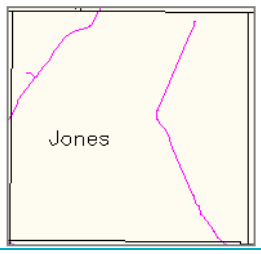
Figure 4.2: Texas counties classified into four gas pipeline density categories. Refer to Appendix B for a complete list of categorized counties.

4.3.2. Railroad Density

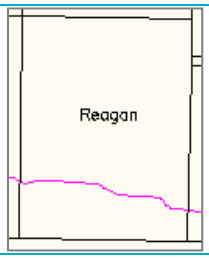
TxDOT's map of railroads in Texas (Figure B.2) was visually inspected to classify counties into four categories based on the number and density of railroads. Figure 4.3 gives examples of counties considered to have railroad densities of high, medium, low, and very low. Figure 4.4 shows all Texas counties and their density classification.



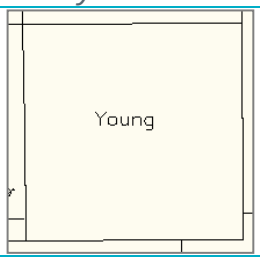
Denton County with high density of railroads.



Jones County with medium density of railroads.



Reagan County with low density of railroads.



Young County with very low density of railroads.

Figure 4.3: Examples of Texas counties classified as having high, medium, low, and very low railroad density.

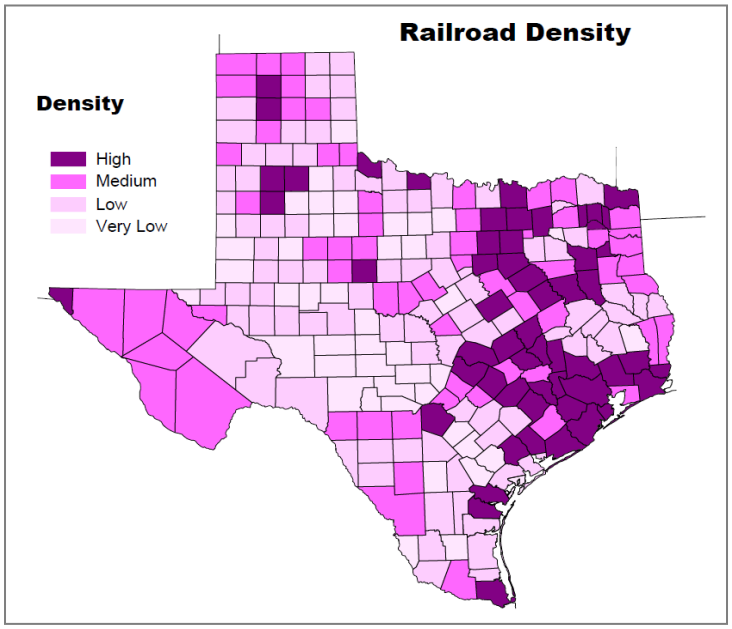


Figure 4.4: Texas counties classified into four railroad density categories. Refer to Appendix B for a complete list of categorized counties.

4.3.3. Urban Population Density

Tarrant, Dallas, Harris, Travis, and Bexar counties are the most densely-populated counties in Texas. Figure 4.5 highlights the counties designated as densely populated.

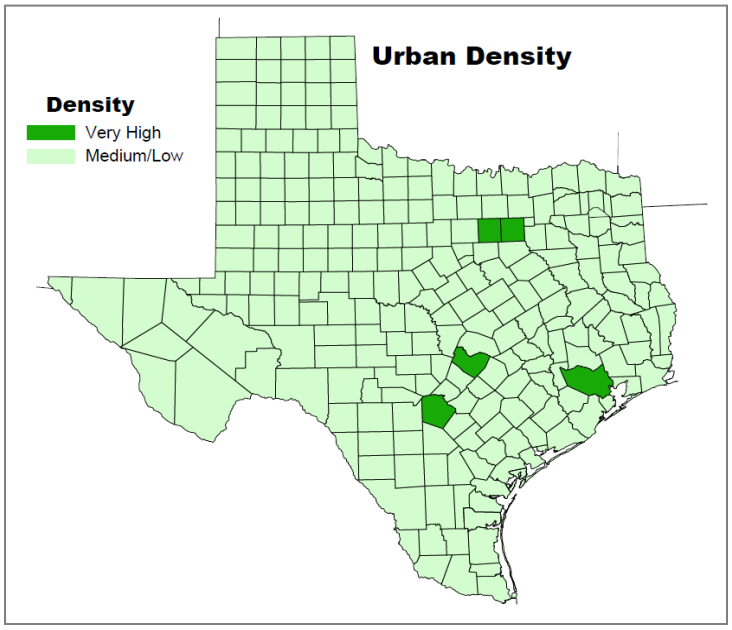


Figure 4.5: Texas counties categorized by population density. Refer to Appendix B for a complete list of categorized counties.

4.3.4. Wind Conditions

The Alternative Energy Institute at West Texas A&M University geographically classifies Texas into seven different classification zones (1 to 7 in increasing order of suitability) based on the suitability of conditions for wind generation (see Figure 4.6). Potential for off-shore wind generation was not taken into account while developing the process to site wind generation.

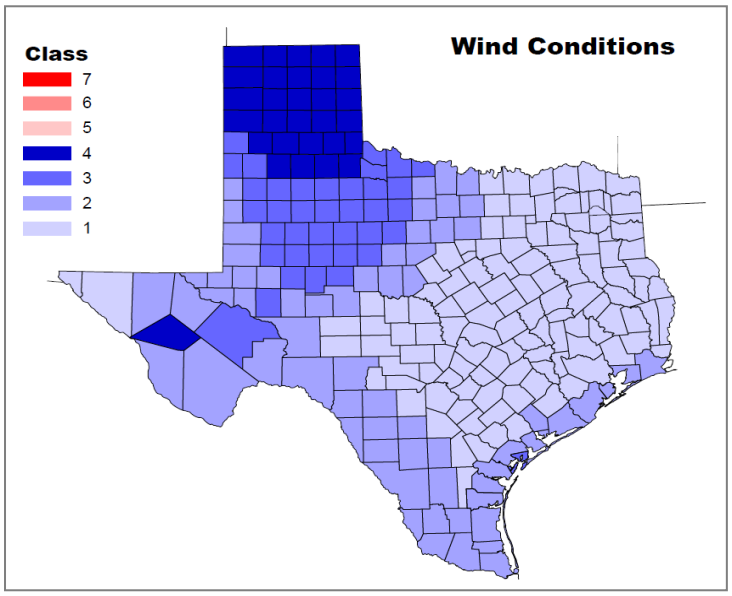


Figure 4.6: Texas counties categorized by wind conditions.
Refer to Appendix B for a complete list of categorized counties.

4.3.5. Solar Thermal Conditions

Figure B.3, from National Renewable Energy Laboratory (NREL), shows the distribution of direct normal solar radiation over Texas and was used to separate the counties into regions with good (6.5-7 kWh/m^2 per day), average (6-6.5 kWh/m^2 per day), below average (5.5-6 kWh/m^2 per day), and poor (≤5.5 kWh/m^2 per day) solar thermal conditions. Figure 4.7 shows all Texas counties classified based on these criteria.

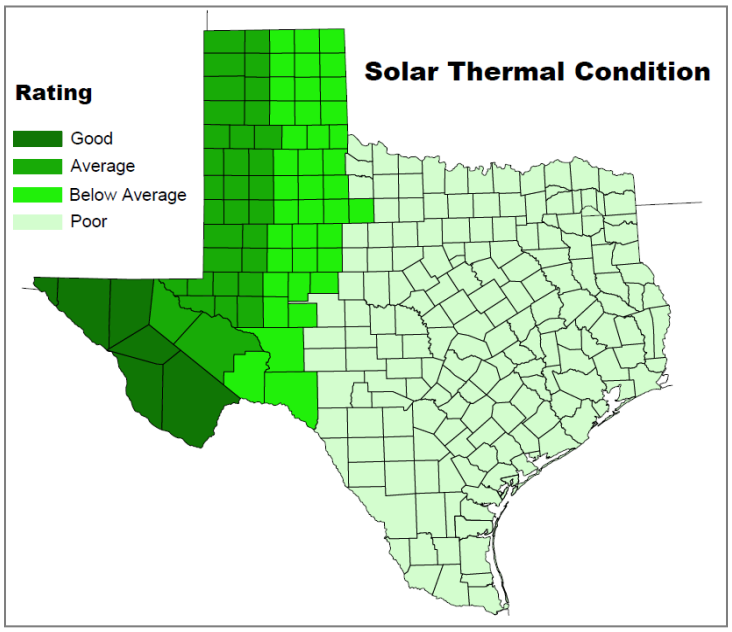
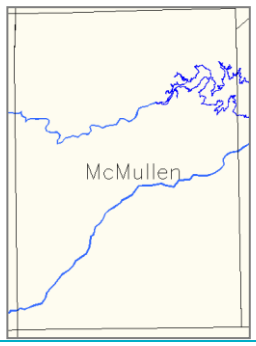


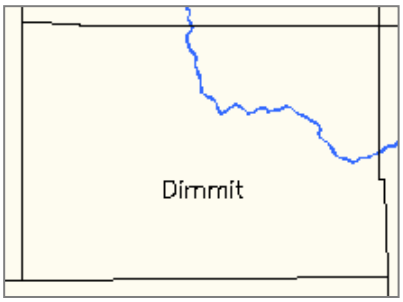
Figure 4.7: Texas counties categorized by conditions suitable for concentrated solar plants. Refer to Appendix B for a complete list of categorized counties.

4.3.6. Surface Water Availability

Figure B.4, showing surface water in Texas, was used to classify counties as having high, medium, and low surface water conditions depending on the number and density of rivers/streams and lakes. Examples of specific counties classified in the three categories can be seen in Figure 4.8. Figure 4.9 shows all Texas counties categorized into areas with high, medium, and low surface water availability.



McMullen County with high surface water.



Dimmit County with medium surface water.

Glasscock County with low surface water.

Figure 4.8: Examples of Texas counties classified by surface water availability.

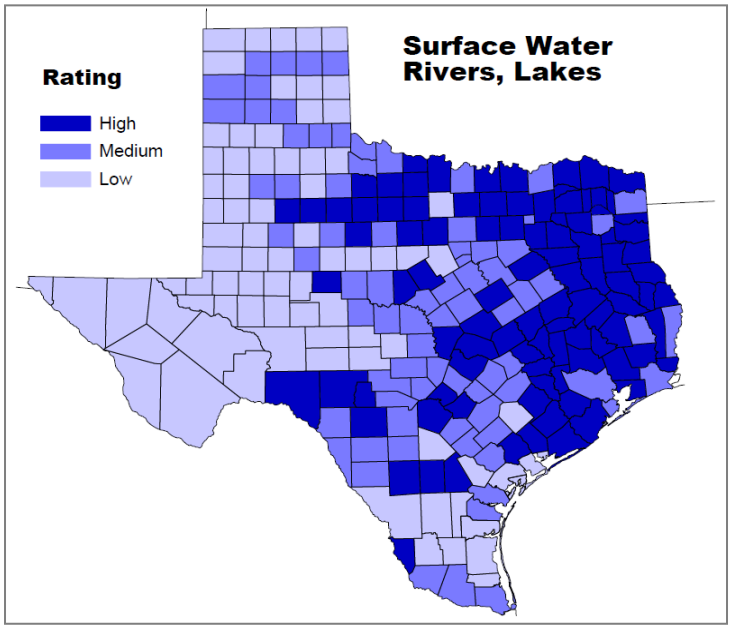


Figure 4.9: Texas counties categorized by surface water availability.
Refer to Appendix B for a complete list of categorized counties.

4.3.7. Solar PV Conditions

Figure B.5, from NREL, displays the distribution of average annual solar radiation over Texas and was used to classify counties into three groups: very high, high, and medium insolation, as shown in Figure 4.10.

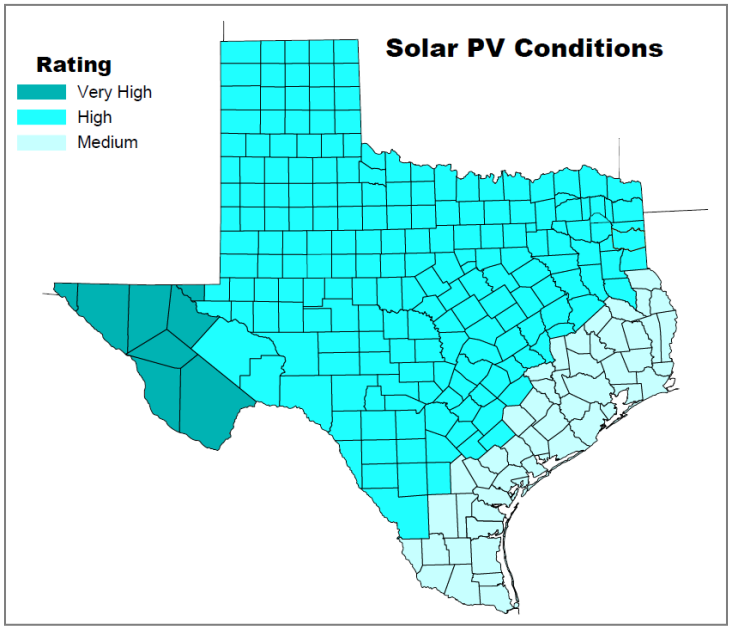


Figure 4.10: Texas counties categorized by Solar PV potential. Refer to Appendix B for a complete list of categorized counties.

4.3.8. Geothermal Conditions

Figure B.6 shows the geothermal gradient across Texas Counties. This allows classification of counties with potential for electricity production using geothermal energy. See Figure 4.11 for a map of Texas counties categorized by geothermal potential.

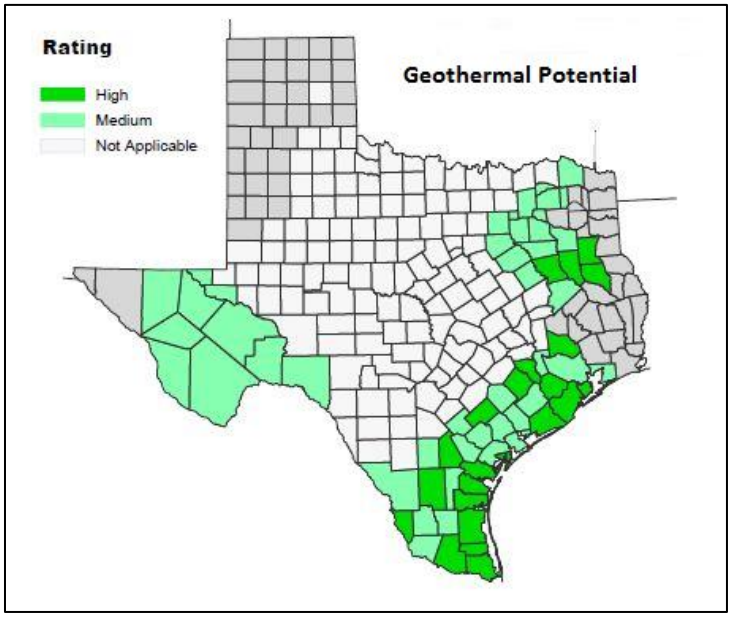


Figure 4.11: Texas counties categorized by geothermal potential. Refer to Appendix B for a complete list of categorized counties.

4.3.9. Non-Attainment Zones

Counties designated by the EPA and TCEQ as non-attainment zones for ozone pollutants are: Bexar, Brazoria, Chambers, Collin, Dallas, Denton, Ellis, Fort Bend, Galveston, Harris, Johnson, Kaufman, Montgomery, Parker, Rockwall, Tarrant, Waller, and Wise[1]. Nitrogen oxide-emitting generation such as combustion turbines, combined cycle units, and coal units, can only be sited in counties designated as non-attainment zones if replacing retiring generation with higher emissions rates.

[1] https://www.tceq.texas.gov/airquality/sip/texas-sip

Appendix A: Generation Technologies and Resource Limitations

Table A.1: Generation Technologies and Resource Limitations

Resource Type	Rating	Resource Limitations
Wind	Good	Low Urban Density; Wind Zone 3-4
	Average	Low Urban Density; Wind Zone 2
Solar Thermal	Good	Low Urban Density; Good Direct Solar Resource; High Water Availability
	Average	Low Urban Density; Average to Good Direct Solar Resource; Medium to High Water Availability
NG CT	Good	Low Urban Density; High Availability of Natural Gas Supply; Can Only Build in Non-Attainment Area if Replacing Higher-Emission Generation
	Average	Low Urban Density; Medium Availability of Natural Gas Supply; Can Only Build in Non-Attainment Area if Replacing Higher-Emission Generation
NG CC	Good	Low Urban Density; High Availability of Natural Gas Supply; Can Only Build in Non-Attainment Area if Replacing Higher-Emission Generation; Medium to High Water Availability
	Average	Low Urban Density; Medium Availability of Natural Gas Supply; Can Only Build in Non-Attainment Area if Replacing Higher-Emission Generation; Medium to High Water Availability
Coal	Good	Low Urban Density; Medium to High Availability of Rail Transportation; Cannot Build in Non-Attainment Area; Medium to High Water Availability
Biomass	Good	Low Urban Density; Low to High Availability of Rail Transportation; High Biomass Availability
Nuclear	Good	Low Urban Density; High Water Availability
Geothermal	Good	Low Urban Density; High Geothermal Potential
Solar PV	Good	High to Very High Total Solar Resource
	Average	Medium Total Solar Resource

Appendix B: Resource Distribution across Texas

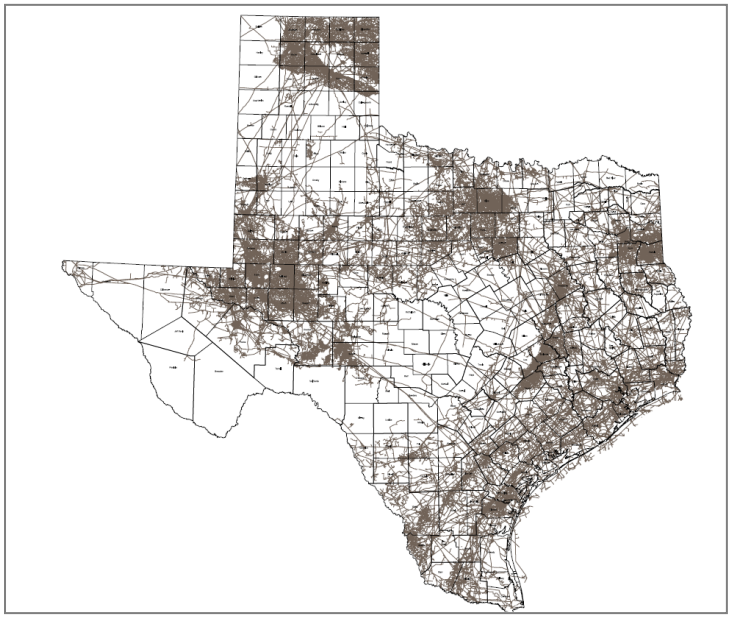


Figure B.1: Network of gas pipelines in Texas[2].

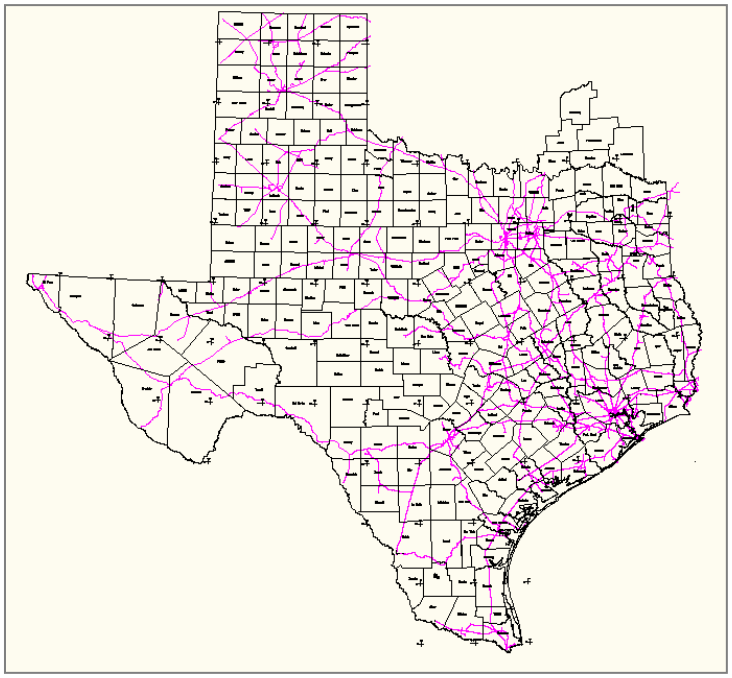


Figure B.2: Network of railroads in Texas[3].

[2] Railroad Commission of Texas: *http://www.rrc.state.tx.us/*
[3] Texas Department of Transportation: *http://www.txdot.gov/*

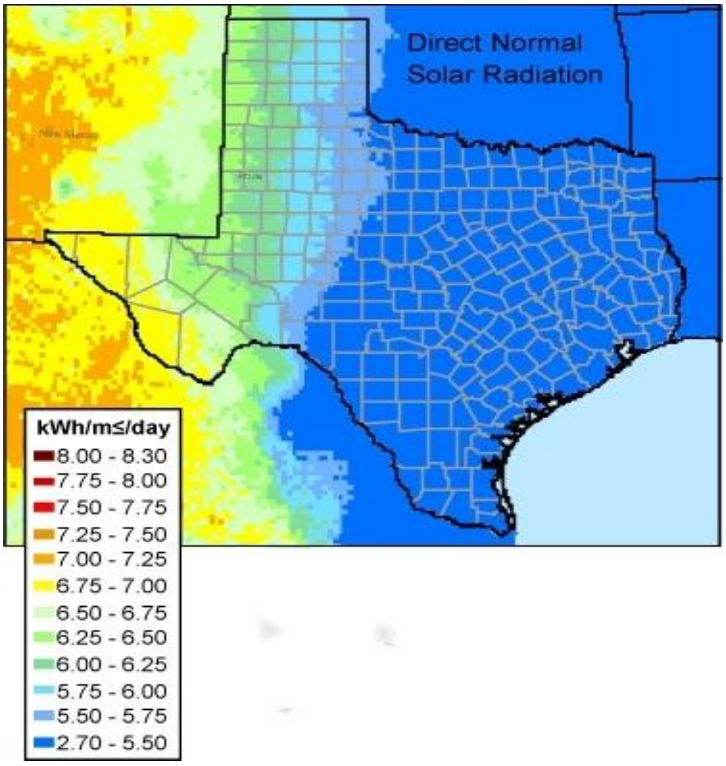


Figure B.3: Distribution of Direct Normal Solar Radiation[4].

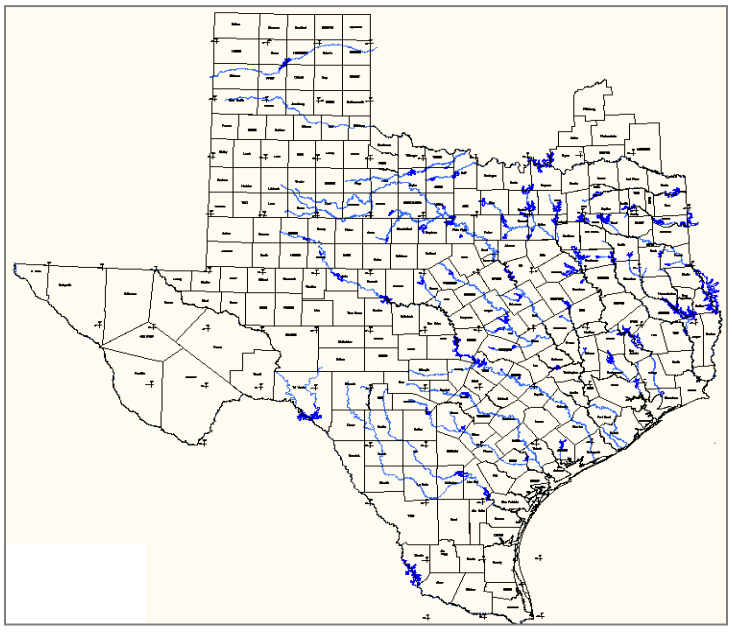


Figure B.4: Map showing surface water in Texas[5].

[4] National Renewable Energy Laboratory: *http://www.nrel.gov/csp/maps.html#tx*
[5] ERCOT map database

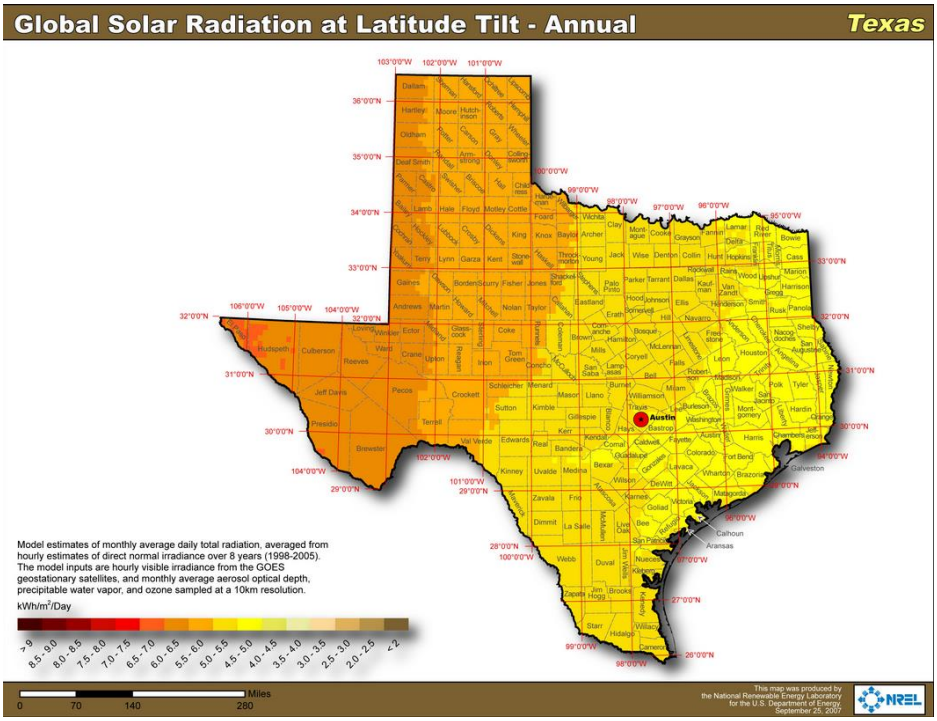


Figure B.5: Average Annual Solar Radiation over Texas[6].

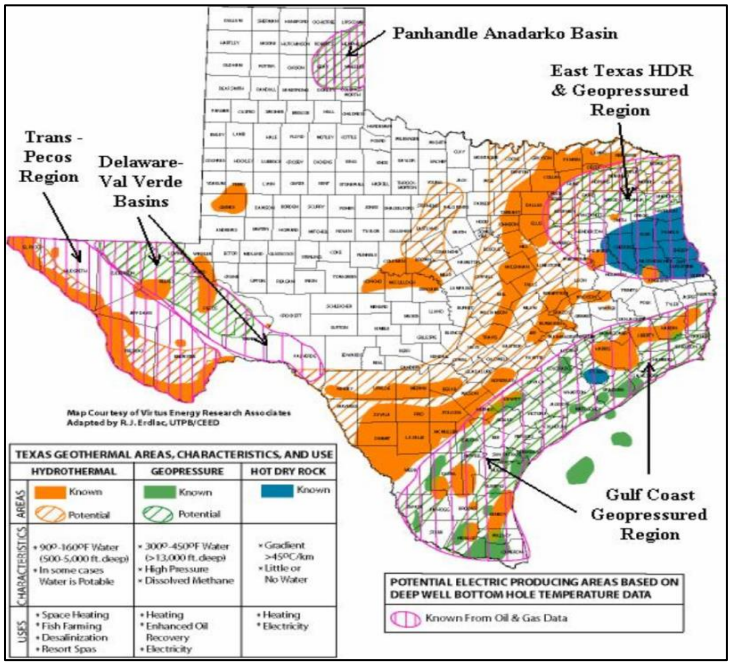


Figure B.6: Geothermal Gradient by County[7].

[6] National Renewable Energy Laboratory: Solar Radiation Resource Maps: *http://rredc.nrel.gov/solar/old_data/nsrdb/redbook/atlas/*
[7] Bureau of Economic Geology, The University of Texas at Austin: http://www.beg.utexas.edu/pubs/pdf/a-second-look.pdf

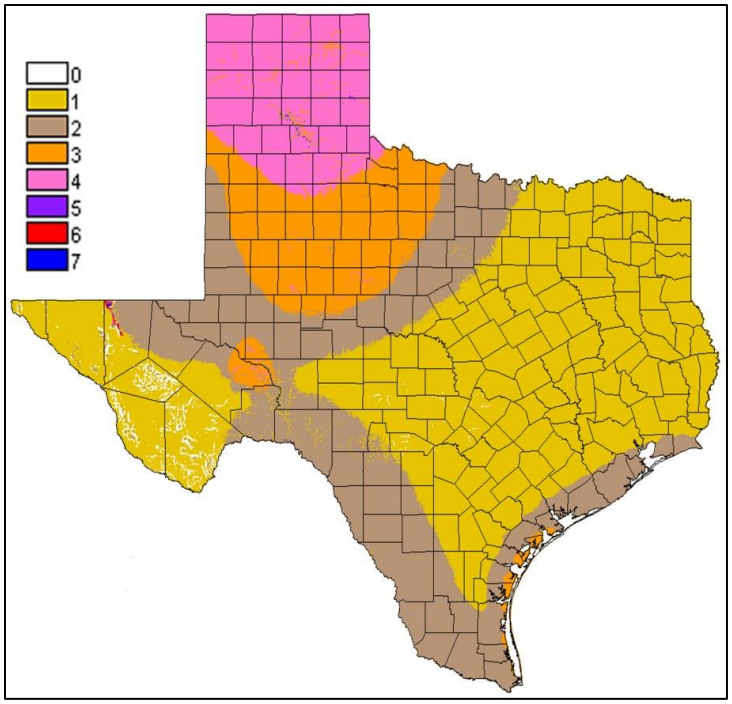


Figure B.7: Texas Wind Class Map[8].

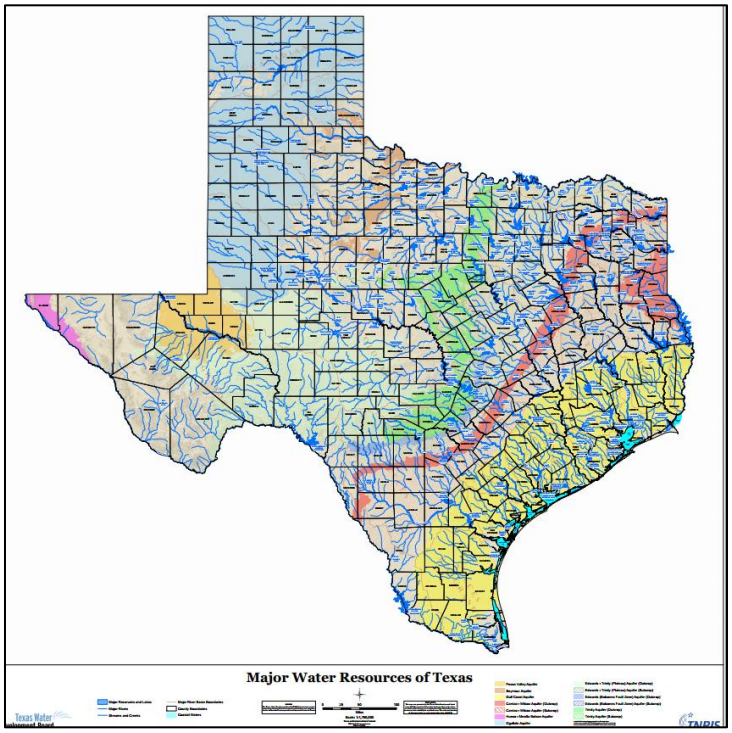


Figure B.8: Major Water Resources of Texas[9].

[8] *Simple Wind Class Map,* Alternative Energy Institute at West Texas A&M University (2004): *http://www.windcoalition.org/policy/transmission*
[9] Texas Water Development Board: http://www.twdb.state.tx.us/mapping/doc/maps/Major_Texas_Water_Resources_36x36.pdf

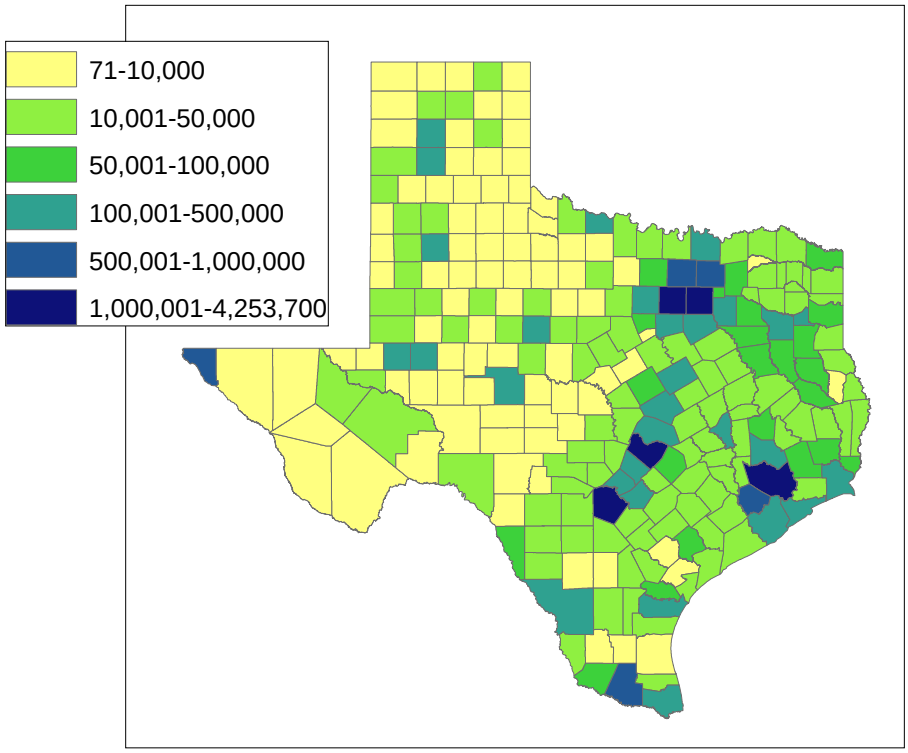


Figure B.9: Total Estimated Population by County, 2012[10].

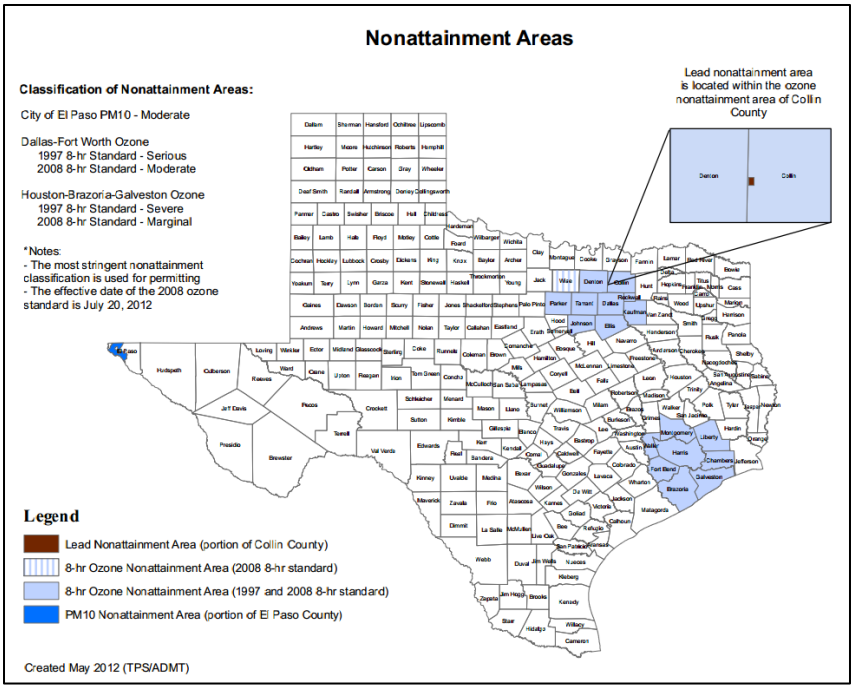


Figure B.10: Non-attainment areas in Texas[11].

[10] U.S. Census Bureau 2012 Population Estimates

[11] Texas Commission on Environmental Quality: http://www.tceq.texas.gov/assets/public/permitting/air/factsheets/factsheets-psd-na-maparea.pdf

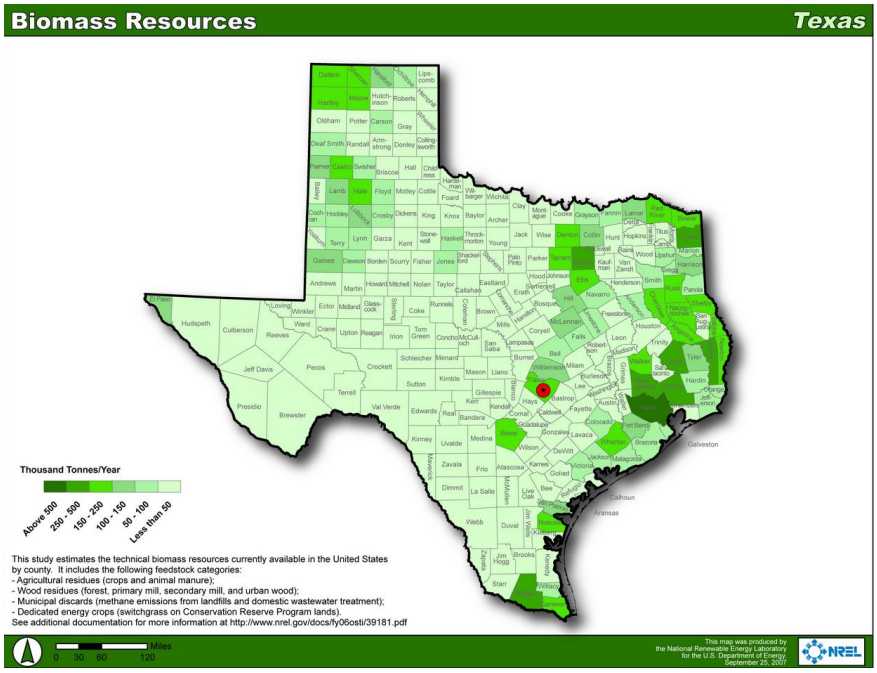


Figure B.11: Biomass Resources in Texas[12].

[12] National Renewable Energy Laboratory: http://en.openei.org/wiki/National_Renewable_Energy_Laboratory

Appendix C: County Classification

Table C.1: County Ratings Based on Resource Type

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Anderson	EAST	H	H	L	No	H	1	5.5	H	H	M
Andrews	FAR WEST	H	VL	L	No	H	2	6.5	L	NA	L
Angelina	EAST	H	L	L	No	M	1	5.5	H	H	H
Aransas	SOUTH	H	VL	L	No	M	3	5.5	L	H	L
Archer	NORTH	L	L	L	No	H	2	5.5	H	NA	L
Atascosa	SOUTH	H	L	L	No	H	1	5.5	L	NA	L
Austin	SOUTH CENTRAL	H	H	L	No	M	1	5.5	H	H	L
Bandera	SOUTH CENTRAL	H	VL	L	No	H	1	5.5	M	NA	L
Bastrop	SOUTH CENTRAL	H	H	L	No	H	1	5.5	M	NA	L
Baylor	NORTH	L	L	L	No	H	3	5.5	H	NA	L
Bee	SOUTH	H	VL	L	No	M	1	5.5	L	M	L
Bell	NORTH CENTRAL	H	L	L	No	H	1	5.5	H	NA	M
Bexar	SOUTH CENTRAL	H	H	H	Yes	H	1	5.5	H	NA	H

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Blanco	SOUTH CENTRAL	M	VL	L	No	H	1	5.5	M	NA	L
Borden	FAR WEST	L	VL	L	No	H	3	6	M	NA	L
Bosque	NORTH CENTRAL	H	L	L	No	H	1	5.5	M	NA	L
Brazoria	COAST	H	H	L	Yes	M	2	5.5	H	H	M
Brazos	EAST	H	H	L	No	H	1	5.5	H	NA	L
Brewster	FAR WEST	VL	M	L	No	VH	2	6.75	L	M	L
Briscoe	NORTH	L	L	L	No	H	4	6	M	NA	L
Brooks	SOUTH	H	VL	L	No	M	2	5.5	L	M	L
Brown	NORTH CENTRAL	M	M	L	No	H	2	5.5	H	NA	L
Burleson	SOUTH CENTRAL	M	H	L	No	H	1	5.5	H	NA	L
Burnet	SOUTH CENTRAL	M	L	L	No	H	1	5.5	H	NA	L
Caldwell	SOUTH CENTRAL	H	M	L	No	H	1	5.5	M	NA	L
Calhoun	COAST	H	L	L	No	M	2	5.5	L	M	L
Callahan	NORTH CENTRAL	H	L	L	No	H	2	5.5	L	NA	L
Cameron	SOUTH	H	H	L	No	M	2	5.5	M	H	L

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Chambers	COAST	H	M	L	Yes	M	2	5.5	H	M	L
Cherokee	EAST	H	H	L	No	H	1	5.5	H	H	H
Childress	NORTH	M	M	L	No	H	4	5.75	M	NA	L
Clay	NORTH	M	L	L	No	H	2	5.5	H	NA	L
Coke	WEST	M	VL	L	No	H	3	5.75	H	NA	L
Coleman	WEST	M	M	L	No	H	2	5.5	M	NA	L
Collin	NORTH CENTRAL	H	H	L	Yes	H	1	5.5	H	NA	M
Colorado	SOUTH CENTRAL	H	H	L	No	M	1	5.5	H	H	M
Comal	SOUTH CENTRAL	M	M	L	No	H	1	5.5	H	NA	L
Comanche	NORTH CENTRAL	M	M	L	No	H	1	5.5	H	NA	L
Concho	WEST	M	VL	L	No	H	1	5.5	M	NA	L
Cooke	NORTH	M	L	L	No	H	1	5.5	H	NA	L
Coryell	NORTH CENTRAL	L	L	L	No	H	1	5.5	M	NA	L
Cottle	NORTH	L	L	L	No	H	4	5.75	L	NA	L
Crane	FAR WEST	H	L	L	No	H	2	6.5	L	NA	L
Crockett	FAR WEST	H	VL	L	No	H	2	5.75	L	NA	L

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Crosby	NORTH	L	VL	L	No	H	3	6	M	NA	L
Culberson	FAR WEST	M	M	L	No	VH	2	6.75	L	M	L
Dallas	NORTH CENTRAL	H	H	H	Yes	H	1	5.5	H	M	H
Dawson	FAR WEST	H	L	L	No	H	3	6.5	L	NA	L
Delta	NORTH CENTRAL	H	L	L	No	H	1	5.5	H	M	L
Denton	NORTH CENTRAL	H	H	L	Yes	H	1	5.5	H	NA	H
DeWitt	SOUTH CENTRAL	H	L	L	No	H	1	5.5	M	H	L
Dickens	NORTH	VL	VL	L	No	H	3	5.75	L	NA	L
Dimmit	SOUTH	M	L	L	No	H	2	5.5	M	NA	L
Duval	SOUTH	H	L	L	No	M	2	5.5	L	H	L
Eastland	NORTH CENTRAL	H	L	L	No	H	2	5.5	L	NA	L
Ector	FAR WEST	H	L	L	No	H	2	5.5	L	NA	L
Edwards	WEST	L	VL	L	No	H	2	5.5	H	NA	L
Ellis	NORTH CENTRAL	H	H	L	Yes	H	1	5.5	M	M	H
Erath	NORTH CENTRAL	H	L	L	No	H	1	5.5	L	NA	L

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Falls	NORTH CENTRAL	H	L	L	No	H	1	5.5	M	NA	M
Fannin	NORTH	H	M	L	No	H	1	5.5	M	NA	M
Fayette	SOUTH CENTRAL	H	H	L	No	H	1	5.5	M	NA	L
Fisher	WEST	H	M	L	No	H	3	5.75	M	NA	L
Floyd	NORTH	L	H	L	No	H	4	6	L	NA	L
Foard	NORTH	L	L	L	No	H	3	5.5	M	NA	L
Fort Bend	COAST	H	H	L	Yes	M	1	5.5	H	H	M
Franklin	EAST	H	H	L	No	H	1	5.5	H	M	L
Freestone	EAST	H	H	L	No	H	1	5.5	M	M	L
Frio	SOUTH	M	L	L	No	H	2	5.5	M	NA	L
Galveston	COAST	H	H	L	Yes	M	2	5.5	M	H	L
Garza	NORTH	L	L	L	No	H	3	6	H	NA	L
Gillespie	WEST	M	VL	L	No	H	1	5.5	M	NA	L
Glasscock	FAR WEST	H	VL	L	No	H	3	6	L	NA	L
Goliad	SOUTH	H	VL	L	No	M	1	5.5	M	M	L
Gonzales	SOUTH CENTRAL	H	L	L	No	H	1	5.5	M	NA	L
Gray	NORTH	H	M	L	No	H	4	6	L	NA	L
Grayson	NORTH	H	H	L	No	H	1	5.5	H	NA	M

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Grimes	EAST	H	H	L	No	M	1	5.5	H	NA	L
Guadalupe	SOUTH CENTRAL	H	L	L	No	H	1	5.5	H	NA	L
Hall	NORTH	L	M	L	No	H	4	5.75	M	NA	L
Hamilton	NORTH CENTRAL	M	VL	L	No	H	1	5.5	M	NA	L
Hardeman	NORTH	M	H	L	No	H	3	5.5	M	NA	L
Harris	COAST	H	H	H	Yes	M	1	5.5	M	M	H
Haskell	NORTH	M	M	L	No	H	3	5.75	H	NA	L
Hays	SOUTH CENTRAL	M	M	L	No	H	1	5.5	M	NA	L
Henderson	EAST	H	M	L	No	H	1	5.5	H	M	L
Hidalgo	SOUTH	H	M	L	No	M	2	5.5	M	H	H
Hill	NORTH CENTRAL	H	M	L	No	H	1	5.5	M	NA	M
Hood	NORTH CENTRAL	H	M	L	No	H	1	5.5	M	NA	L
Hopkins	EAST	H	M	L	No	H	1	5.5	H	M	L
Houston	EAST	H	L	L	No	H	1	5.5	H	M	L
Howard	FAR WEST	H	L	L	No	H	3	6	L	NA	L

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Hunt	NORTH CENTRAL	H	H	L	No	H	1	5.5	H	M	L
Irion	WEST	M	L	L	No	H	2	5.75	L	NA	L
Jack	NORTH CENTRAL	L	VL	L	No	H	2	5.5	L	NA	L
Jackson	COAST	H	H	L	No	M	2	5.5	H	M	M
Jeff Davis	FAR WEST	L	M	L	No	VH	4	6.75	L	M	L
Jim Hogg	SOUTH	H	L	L	No	M	2	5.5	L	M	L
Jim Wells	SOUTH	H	L	L	No	M	1	5.5	L	M	L
Johnson	NORTH CENTRAL	H	H	L	Yes	H	1	5.5	M	NA	L
Jones	WEST	H	M	L	No	H	3	5.5	H	NA	L
Karnes	SOUTH CENTRAL	H	VL	L	No	H	1	5.5	M	M	L
Kaufman	NORTH CENTRAL	H	L	L	Yes	H	1	5.5	H	M	L
Kendall	SOUTH CENTRAL	L	VL	L	No	H	1	5.5	M	NA	L
Kenedy	SOUTH	M	L	L	No	M	2	5.5	L	H	L
Kent	NORTH	M	VL	L	No	H	3	5.75	H	NA	L
Kerr	WEST	M	VL	L	No	H	1	5.5	M	NA	L
Kimble	WEST	M	VL	L	No	H	1	5.5	L	NA	L

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
King	NORTH	VL	VL	L	No	H	3	5.75	M	NA	L
Kinney	WEST	L	M	L	No	H	2	5.5	M	NA	L
Kleberg	SOUTH	H	L	L	No	M	2	5.5	L	H	L
Knox	NORTH	M	M	L	No	H	3	5.5	H	NA	L
La Salle	SOUTH	M	M	L	No	H	2	5.5	H	NA	L
Lamar	NORTH	H	M	L	No	H	1	5.5	H	NA	M
Lampasas	WEST	M	M	L	No	H	1	5.5	M	NA	L
Lavaca	SOUTH CENTRAL	H	L	L	No	M	1	5.5	L	M	L
Lee	SOUTH CENTRAL	L	M	L	No	H	1	5.5	M	NA	L
Leon	EAST	H	M	L	No	H	1	5.5	H	NA	L
Limestone	NORTH CENTRAL	H	M	L	No	H	1	5.5	M	NA	M
Live Oak	SOUTH	H	L	L	No	M	1	5.5	H	H	L
Llano	WEST	L	L	L	No	H	1	5.5	M	NA	L
Loving	FAR WEST	M	VL	L	No	VH	2	6.5	L	M	L
Madison	EAST	H	L	L	No	H	1	5.5	H	NA	L
Martin	FAR WEST	H	L	L	No	H	3	6.5	L	NA	L
Mason	WEST	L	VL	L	No	H	1	5.5	L	NA	L

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Matagorda	COAST	H	H	L	No	M	2	5.5	H	H	M
Maverick	SOUTH	M	L	L	No	H	2	5.5	M	NA	L
McCulloch	WEST	L	L	L	No	H	1	5.5	M	NA	L
McLennan	NORTH CENTRAL	H	H	L	No	H	1	5.5	H	NA	M
McMullen	SOUTH	H	VL	L	No	H	2	5.5	H	M	L
Medina	SOUTH CENTRAL	M	M	L	No	H	1	5.5	M	NA	L
Menard	WEST	L	VL	L	No	H	1	5.5	L	NA	L
Midland	FAR WEST	H	L	L	No	H	2	6.5	L	NA	L
Milam	SOUTH CENTRAL	M	H	L	No	H	1	5.5	H	NA	L
Mills	NORTH CENTRAL	L	L	L	No	H	1	5.5	M	NA	L
Mitchell	WEST	H	L	L	No	H	3	5.75	M	NA	L
Montague	NORTH	H	M	L	No	H	2	5.5	M	NA	L
Montgomery	COAST	H	H	L	Yes	M	1	5.5	H	H	H
Motley	NORTH	VL	VL	L	No	H	4	6	L	NA	L
Nacogdoches	EAST	H	L	L	No	H	1	5.5	H	H	H

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Navarro	NORTH CENTRAL	H	H	L	No	H	1	5.5	H	M	M
Nolan	WEST	H	M	L	No	H	3	5.75	L	NA	L
Nueces	SOUTH	H	H	L	No	M	2	5.5	M	H	H
Palo Pinto	NORTH CENTRAL	M	L	L	No	H	2	5.5	H	NA	L
Parker	NORTH CENTRAL	H	M	L	Yes	H	2	5.5	M	NA	L
Pecos	FAR WEST	H	L	L	No	H	3	6.5	L	M	L
Presidio	FAR WEST	VL	M	L	No	VH	2	7	L	M	L
Rains	EAST	H	VL	L	No	H	1	5.5	H	M	L
Reagan	FAR WEST	H	L	L	No	H	2	6	L	NA	L
Real	WEST	L	VL	L	No	H	1	5.5	H	NA	L
Red River	NORTH	M	L	L	No	H	1	5.5	H	M	H
Reeves	FAR WEST	H	M	L	No	VH	2	6.5	L	M	L
Refugio	SOUTH	H	L	L	No	M	2	5.5	L	M	L
Robertson	EAST	H	H	L	No	H	1	5.5	H	NA	L
Rockwall	NORTH CENTRAL	H	M	L	Yes	H	1	5.5	M	M	L
Runnels	WEST	M	L	L	No	H	2	5.5	M	NA	L

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Rusk	EAST	H	M	L	No	H	1	5.5	H	H	H
San Patricio	SOUTH	H	H	L	No	M	2	5.5	M	H	M
San Saba	WEST	L	L	L	No	H	1	5.5	M	NA	L
Schleicher	WEST	H	VL	L	No	H	1	5.5	L	NA	L
Scurry	WEST	H	M	L	No	H	3	6	M	NA	L
Shackelford	NORTH CENTRAL	M	VL	L	No	H	3	5.5	M	NA	L
Smith	EAST	H	H	L	No	H	1	5.5	H	M	M
Somervell	NORTH CENTRAL	M	L	L	No	H	1	5.5	M	NA	L
Starr	SOUTH	H	L	L	No	M	2	5.5	M	M	L
Stephens	NORTH CENTRAL	L	VL	L	No	H	2	5.5	H	NA	L
Sterling	WEST	M	VL	L	No	H	3	6	L	NA	L
Stonewall	NORTH	VL	VL	L	No	H	3	5.75	H	NA	L
Sutton	WEST	H	VL	L	No	H	1	5.5	L	NA	L
Tarrant	NORTH CENTRAL	H	H	H	Yes	H	1	5.5	H	NA	H
Taylor	WEST	H	H	L	No	H	3	5.5	L	NA	L
Terrell	FAR WEST	M	L	L	No	H	2	6	L	M	L

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Throckmorton	NORTH CENTRAL	L	VL	L	No	H	3	5.5	H	NA	L
Titus	EAST	H	H	L	No	H	1	5.5	H	M	L
Tom Green	WEST	M	L	L	No	H	2	5.5	L	NA	L
Travis	SOUTH CENTRAL	M	H	H	No	H	1	5.5	H	NA	H
Upton	FAR WEST	H	L	L	No	H	3	6.5	L	NA	L
Uvalde	WEST	L	M	L	No	H	2	5.5	H	NA	L
Val Verde	WEST	VL	L	L	No	H	2	5.75	H	M	L
Van Zandt	EAST	M	L	L	No	H	1	5.5	H	M	L
Victoria	COAST	H	H	L	No	M	1	5.5	H	M	M
Waller	COAST	H	H	L	Yes	M	1	5.5	H	M	L
Ward	FAR WEST	H	M	L	No	H	2	6.5	L	M	L
Washington	SOUTH CENTRAL	H	M	L	No	M	1	5.5	H	NA	L
Webb	SOUTH	H	M	L	No	H	2	5.5	L	M	L
Wharton	COAST	H	M	L	No	M	1	5.5	H	M	H
Wichita	NORTH	H	H	L	No	H	3	5.5	H	NA	L
Wilbarger	NORTH	M	L	L	No	H	3	5.5	M	NA	L
Willacy	SOUTH	H	L	L	No	M	2	5.5	L	H	L

County	Weather Zone	Gas Pipeline Density/Capacity	Railroad Density	Urban Density	Non-Att. Zone	Solar PV	Wind Cond.	Solar Thermal Cond.	Surface Water	Geothermal	Biomass
		High, Medium, Low, Very Low	High, Medium, Low, Very Low	Very High (H), Medium-Low (L)	Yes/No	Very High, High, Medium	Poor (1) – Very Good (7)	Good (6.75,7); Average (6.5); Below Average (5.75,6); Poor (5.5)	High, Medium, Low	High, Medium, Not Applicable	High, Medium, Low
Williamson	SOUTH CENTRAL	M	H	L	No	H	1	5.5	H	NA	M
Wilson	SOUTH CENTRAL	H	VL	L	No	H	1	5.5	M	NA	L
Winkler	FAR WEST	H	L	L	No	H	2	6.5	L	NA	L
Wise	NORTH CENTRAL	H	M	L	Yes	H	2	5.5	H	NA	L
Young	NORTH CENTRAL	M	VL	L	No	H	2	5.5	H	NA	L
Zapata	SOUTH	H	VL	L	No	M	2	5.5	H	H	L
Zavala	SOUTH	H	L	L	No	H	2	5.5	M	NA	L

*Table displays only those counties within the ERCOT system.

Table C.2: Suitability of County for Technology Type*

County	Weather Zone	County Suitability for Generation Type (Good, Avg., RO=Replacement Only, NA=Not Available)								
		Wind	Solar Thermal	Nat Gas CT	Nat Gas CC	Coal	Biomass	Nuclear	Geo-Thermal	Solar PV
Anderson	EAST	NA	NA	Good	Good	Good	NA	Good	Good	Good
Andrews	FAR WEST	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Angelina	EAST	NA	NA	Good	Good	NA	Good	Good	Good	Avg.
Aransas	SOUTH	Good	NA	Good	NA	NA	NA	NA	Good	Avg.
Archer	NORTH	Avg.	NA	NA	NA	NA	NA	Good	NA	Good
Atascosa	SOUTH	NA	NA	Good	NA	NA	NA	NA	NA	Good
Austin	SOUTH CENTRAL	NA	NA	Good	Good	Good	NA	Good	Good	Avg.
Bandera	SOUTH CENTRAL	NA	NA	Good	Good	NA	NA	NA	NA	Good
Bastrop	SOUTH CENTRAL	NA	NA	Good	Good	Good	NA	NA	NA	Good
Baylor	NORTH	Good	NA	NA	NA	NA	NA	Good	NA	Good
Bee	SOUTH	NA	NA	Good	NA	NA	NA	NA	NA	Avg.
Bell	NORTH CENTRAL	NA	NA	Good	Good	NA	NA	Good	NA	Good
Bexar	SOUTH CENTRAL	NA	NA	NA	NA	NA	NA	NA	NA	Good
Blanco	SOUTH CENTRAL	NA	NA	Avg.	Avg.	NA	NA	NA	NA	Good
Borden	FAR WEST	Good	NA	NA	NA	NA	NA	NA	NA	Good
Bosque	NORTH CENTRAL	NA	NA	Good	Good	NA	NA	NA	NA	Good
Brazoria	COAST	Avg.	NA	RO	RO	NA	NA	Good	Good	Avg.
Brazos	EAST	NA	NA	Good	Good	Good	NA	Good	NA	Good
Brewster	FAR WEST	Avg.	NA	NA	NA	NA	NA	NA	NA	Good

County	Weather Zone	County Suitability for Generation Type (Good, Avg., RO=Replacement Only, NA=Not Available)								
		Wind	Solar Thermal	Nat Gas CT	Nat Gas CC	Coal	Biomass	Nuclear	Geo-Thermal	Solar PV
Briscoe	NORTH	Good	NA	NA	NA	NA	NA	NA	NA	Good
Brooks	SOUTH	Avg.	NA	Good	NA	NA	NA	NA	NA	Avg.
Brown	NORTH CENTRAL	Avg.	NA	Avg.	Avg.	Good	NA	Good	NA	Good
Burleson	SOUTH CENTRAL	NA	NA	Avg.	Avg.	Good	NA	Good	NA	Good
Burnet	SOUTH CENTRAL	NA	NA	Avg.	Avg.	NA	NA	Good	NA	Good
Caldwell	SOUTH CENTRAL	NA	NA	Good	Good	Good	NA	NA	NA	Good
Calhoun	COAST	Avg.	NA	Good	NA	NA	NA	NA	NA	Avg.
Callahan	NORTH CENTRAL	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Cameron	SOUTH	Avg.	NA	Good	Good	Good	NA	NA	Good	Avg.
Chambers	COAST	Avg.	NA	RO	RO	NA	NA	Good	NA	Avg.
Cherokee	EAST	NA	NA	Good	Good	Good	Good	Good	Good	Good
Childress	NORTH	Good	NA	Avg.	Avg.	Good	NA	NA	NA	Good
Clay	NORTH	Avg.	NA	Avg.	Avg.	NA	NA	Good	NA	Good
Coke	WEST	Good	NA	Avg.	Avg.	NA	NA	Good	NA	Good
Coleman	WEST	Avg.	NA	Avg.	Avg.	Good	NA	NA	NA	Good
Collin	NORTH CENTRAL	NA	NA	RO	RO	NA	NA	Good	NA	Good
Colorado	SOUTH CENTRAL	NA	NA	Good	Good	Good	NA	Good	Good	Avg.
Comal	SOUTH CENTRAL	NA	NA	Avg.	Avg.	Good	NA	Good	NA	Good
Comanche	NORTH CENTRAL	NA	NA	Avg.	Avg.	Good	NA	Good	NA	Good

County	Weather Zone	County Suitability for Generation Type (Good, Avg., RO=Replacement Only, NA=Not Available)								
		Wind	Solar Thermal	Nat Gas CT	Nat Gas CC	Coal	Biomass	Nuclear	Geo-Thermal	Solar PV
Concho	WEST	NA	NA	Avg.	Avg.	NA	NA	NA	NA	Good
Cooke	NORTH	NA	NA	Avg.	Avg.	NA	NA	Good	NA	Good
Coryell	NORTH CENTRAL	NA	NA	N	NA	NA	NA	NA	NA	Good
Cottle	NORTH	Good	NA	N	NA	NA	NA	NA	NA	Good
Crane	FAR WEST	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Crockett	FAR WEST	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Crosby	NORTH	Good	NA	N	NA	NA	NA	NA	NA	Good
Culberson	FAR WEST	Avg.	NA	Avg.	NA	NA	NA	NA	NA	Good
Dallas	NORTH CENTRAL	NA	NA	N	NA	NA	NA	NA	NA	Good
Dawson	FAR WEST	Good	Avg.	Good	NA	NA	NA	NA	NA	Good
Delta	NORTH CENTRAL	NA	NA	Good	Good	NA	NA	Good	NA	Good
Denton	NORTH CENTRAL	NA	NA	RO	RO	NA	Good	Good	NA	Good
DeWitt	SOUTH CENTRAL	NA	NA	Good	Good	NA	NA	NA	Good	Good
Dickens	NORTH	Good	NA	N	NA	NA	NA	NA	NA	Good
Dimmit	SOUTH	Avg.	NA	Avg.	Avg.	NA	NA	NA	NA	Good
Duval	SOUTH	Avg.	NA	Good	NA	NA	NA	NA	Good	Avg.
Eastland	NORTH CENTRAL	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Ector	FAR WEST	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Edwards	WEST	Avg.	NA	N	NA	NA	NA	Good	NA	Good
Ellis	NORTH CENTRAL	NA	NA	RO	RO	NA	Good	NA	NA	Good

County	Weather Zone	County Suitability for Generation Type (Good, Avg., RO=Replacement Only, NA=Not Available)								
		Wind	Solar Thermal	Nat Gas CT	Nat Gas CC	Coal	Biomass	Nuclear	Geo-Thermal	Solar PV
Erath	NORTH CENTRAL	NA	NA	Good	NA	NA	NA	NA	NA	Good
Falls	NORTH CENTRAL	NA	NA	Good	Good	NA	NA	NA	NA	Good
Fannin	NORTH	NA	NA	Good	Good	Good	NA	NA	NA	Good
Fayette	SOUTH CENTRAL	NA	NA	Good	Good	Good	NA	NA	NA	Good
Fisher	WEST	Good	NA	Good	Good	Good	NA	NA	NA	Good
Floyd	NORTH	Good	NA	NA	NA	NA	NA	NA	NA	Good
Foard	NORTH	Good	NA	NA	NA	NA	NA	NA	NA	Good
Fort Bend	COAST	NA	NA	RO	RO	NA	NA	Good	Good	Avg.
Franklin	EAST	NA	NA	Good	Good	Good	NA	Good	NA	Good
Freestone	EAST	NA	NA	Good	Good	Good	NA	NA	NA	Good
Frio	SOUTH	Avg.	NA	Avg.	Avg.	NA	NA	NA	NA	Good
Galveston	COAST	Avg.	NA	RO	RO	NA	NA	NA	Good	Avg.
Garza	NORTH	Good	NA	NA	NA	NA	NA	Good	NA	Good
Gillespie	WEST	NA	NA	Avg.	Avg.	NA	NA	NA	NA	Good
Glasscock	FAR WEST	Good	NA	Good	NA	NA	NA	NA	NA	Good
Goliad	SOUTH	NA	NA	Good	Good	NA	NA	NA	NA	Avg.
Gonzales	SOUTH CENTRAL	NA	NA	Good	Good	NA	NA	NA	NA	Good
Gray	NORTH	Good	NA	Good	NA	NA	NA	NA	NA	Good
Grayson	NORTH	NA	NA	Good	Good	Good	NA	Good	NA	Good
Grimes	EAST	NA	NA	Good	Good	Good	NA	Good	NA	Avg.
Guadalupe	SOUTH CENTRAL	NA	NA	Good	Good	NA	NA	Good	NA	Good
Hall	NORTH	Good	NA	N	NA	Good	NA	NA	NA	Good

County	Weather Zone	County Suitability for Generation Type (Good, Avg., RO=Replacement Only, NA=Not Available)								
		Wind	Solar Thermal	Nat Gas CT	Nat Gas CC	Coal	Biomass	Nuclear	Geo-Thermal	Solar PV
Hamilton	NORTH CENTRAL	NA	NA	Avg.	Avg.	NA	NA	NA	NA	Good
Hardeman	NORTH	Good	NA	Avg.	Avg.	Good	NA	NA	NA	Good
Harris	COAST	NA	NA	NA	NA	NA	NA	NA	NA	Avg.
Haskell	NORTH	Good	NA	Avg.	Avg.	Good	NA	Good	NA	Good
Hays	SOUTH CENTRAL	NA	NA	Avg.	Avg.	Good	NA	NA	NA	Good
Henderson	EAST	NA	NA	Good	Good	Good	NA	Good	NA	Good
Hidalgo	SOUTH	Avg.	NA	Good	Good	Good	Good	NA	Good	Avg.
Hill	NORTH CENTRAL	NA	NA	Good	Good	Good	NA	NA	NA	Good
Hood	NORTH CENTRAL	NA	NA	Good	Good	Good	NA	NA	NA	Good
Hopkins	EAST	NA	NA	Good	Good	Good	NA	Good	NA	Good
Houston	EAST	NA	NA	Good	Good	NA	NA	Good	NA	Good
Howard	FAR WEST	Good	NA	Good	NA	NA	NA	NA	NA	Good
Hunt	NORTH CENTRAL	NA	NA	Good	Good	Good	NA	Good	NA	Good
Irion	WEST	Avg.	NA	Avg.	NA	NA	NA	NA	NA	Good
Jack	NORTH CENTRAL	Avg.	NA	NA	NA	NA	NA	NA	NA	Good
Jackson	COAST	Avg.	NA	Good	Good	Good	NA	Good	NA	Avg.
Jeff Davis	FAR WEST	Good	Good	NA	NA	NA	NA	NA	NA	Good
Jim Hogg	SOUTH	Avg.	NA	Good	NA	NA	NA	NA	NA	Avg.
Jim Wells	SOUTH	NA	NA	Good	NA	NA	NA	NA	NA	Avg.
Johnson	NORTH CENTRAL	NA	NA	RO	RO	NA	NA	NA	NA	Good
Jones	WEST	Good	NA	Good	Good	Good	NA	Good	NA	Good

County	Weather Zone	County Suitability for Generation Type (Good, Avg., RO=Replacement Only, NA=Not Available)								
		Wind	Solar Thermal	Nat Gas CT	Nat Gas CC	Coal	Biomass	Nuclear	Geo-Thermal	Solar PV
Karnes	SOUTH CENTRAL	NA	NA	Good	Good	NA	NA	NA	NA	Good
Kaufman	NORTH CENTRAL	NA	NA	RO	RO	NA	NA	Good	NA	Good
Kendall	SOUTH CENTRAL	NA	NA	NA	NA	NA	NA	NA	NA	Good
Kenedy	SOUTH	Avg.	NA	Avg.	NA	NA	NA	NA	Good	Avg.
Kent	NORTH	Good	NA	Avg.	Avg.	NA	NA	Good	NA	Good
Kerr	WEST	NA	NA	Avg.	Avg.	NA	NA	NA	NA	Good
Kimble	WEST	NA	NA	Avg.	NA	NA	NA	NA	NA	Good
King	NORTH	Good	NA	N	NA	NA	NA	NA	NA	Good
Kinney	WEST	Avg.	NA	N	NA	Good	NA	NA	NA	Good
Kleberg	SOUTH	Avg.	NA	Good	NA	NA	NA	NA	Good	Avg.
Knox	NORTH	Good	NA	Avg.	Avg.	Good	NA	Good	NA	Good
La Salle	SOUTH	Avg.	NA	Avg.	Avg.	Good	NA	Good	NA	Good
Lamar	NORTH	NA	NA	Good	Good	Good	NA	Good	NA	Good
Lampasas	WEST	NA	NA	Avg.	Avg.	Good	NA	NA	NA	Good
Lavaca	SOUTH CENTRAL	NA	NA	Good	NA	NA	NA	NA	NA	Avg.
Lee	SOUTH CENTRAL	NA	NA	N	NA	Good	NA	NA	NA	Good
Leon	EAST	NA	NA	Good	Good	Good	NA	Good	NA	Good
Limestone	NORTH CENTRAL	NA	NA	Good	Good	Good	NA	NA	NA	Good
Live Oak	SOUTH	NA	NA	Good	Good	NA	NA	Good	Good	Avg.
Llano	WEST	NA	NA	N	NA	NA	NA	NA	NA	Good
Loving	FAR WEST	Avg.	NA	Avg.	NA	NA	NA	NA	NA	Good
Madison	EAST	NA	NA	Good	Good	NA	NA	Good	NA	Good

County	Weather Zone	County Suitability for Generation Type (Good, Avg., RO=Replacement Only, NA=Not Available)								
		Wind	Solar Thermal	Nat Gas CT	Nat Gas CC	Coal	Biomass	Nuclear	Geo-Thermal	Solar PV
Martin	FAR WEST	Good	Avg.	Good	NA	NA	NA	NA	NA	Good
Mason	WEST	NA	NA	N	NA	NA	NA	NA	NA	Good
Matagorda	COAST	Avg.	NA	Good	Good	Good	NA	Good	Good	Avg.
Maverick	SOUTH	Avg.	NA	Avg.	Avg.	NA	NA	NA	NA	Good
McCulloch	WEST	NA	NA	N	NA	NA	NA	NA	NA	Good
McLennan	NORTH CENTRAL	NA	NA	Good	Good	Good	NA	Good	NA	Good
McMullen	SOUTH	Avg.	NA	Good	Good	NA	NA	Good	NA	Good
Medina	SOUTH CENTRAL	NA	NA	Avg.	Avg.	Good	NA	NA	NA	Good
Menard	WEST	NA	NA	N	NA	NA	NA	NA	NA	Good
Midland	FAR WEST	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Milam	SOUTH CENTRAL	NA	NA	Avg.	Avg.	Good	NA	Good	NA	Good
Mills	NORTH CENTRAL	NA	NA	N	NA	NA	NA	NA	NA	Good
Mitchell	WEST	Good	NA	Good	Good	NA	NA	NA	NA	Good
Montague	NORTH	Avg.	NA	Good	Good	Good	NA	NA	NA	Good
Montgomery	COAST	NA	NA	RO	RO	NA	Good	Good	Good	Avg.
Motley	NORTH	Good	NA	N	NA	NA	NA	NA	NA	Good
Nacogdoches	EAST	NA	NA	Good	Good	NA	Good	Good	Good	Good
Navarro	NORTH CENTRAL	NA	NA	Good	Good	Good	NA	Good	NA	Good
Nolan	WEST	Good	NA	Good	NA	NA	NA	NA	NA	Good
Nueces	SOUTH	Avg.	NA	Good	Good	Good	Good	NA	Good	Avg.
Palo Pinto	NORTH CENTRAL	Avg.	NA	Avg.	Avg.	NA	NA	Good	NA	Good

County	Weather Zone	County Suitability for Generation Type (Good, Avg., RO=Replacement Only, NA=Not Available)								
		Wind	Solar Thermal	Nat Gas CT	Nat Gas CC	Coal	Biomass	Nuclear	Geo-Thermal	Solar PV
Parker	NORTH CENTRAL	Avg.	NA	RO	RO	NA	NA	NA	NA	Good
Pecos	FAR WEST	Good	Avg.	Good	NA	NA	NA	NA	NA	Good
Presidio	FAR WEST	Avg.	NA	NA	NA	NA	NA	NA	NA	Good
Rains	EAST	NA	NA	Good	Good	NA	NA	Good	NA	Good
Reagan	FAR WEST	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Real	WEST	NA	NA	NA	NA	NA	NA	Good	NA	Good
Red River	NORTH	NA	NA	Avg.	Avg.	NA	Good	Good	NA	Good
Reeves	FAR WEST	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Refugio	SOUTH	Avg.	NA	Good	NA	NA	NA	NA	NA	Avg.
Robertson	EAST	NA	NA	Good	Good	Good	NA	Good	NA	Good
Rockwall	NORTH CENTRAL	NA	NA	RO	RO	NA	NA	NA	NA	Good
Runnels	WEST	Avg.	NA	Avg.	Avg.	NA	NA	NA	NA	Good
Rusk	EAST	NA	NA	Good	Good	Good	Good	Good	Good	Good
San Patricio	SOUTH	Avg.	NA	Good	Good	Good	NA	NA	NA	Avg.
San Saba	WEST	NA	NA	NA	NA	NA	NA	NA	NA	Good
Schleicher	WEST	NA	NA	Good	NA	NA	NA	NA	NA	Good
Scurry	WEST	Good	NA	Good	Good	Good	NA	NA	NA	Good
Shackelford	NORTH CENTRAL	Good	NA	Avg.	Avg.	NA	NA	NA	NA	Good
Smith	EAST	NA	NA	Good	Good	Good	NA	Good	NA	Good
Somervell	NORTH CENTRAL	NA	NA	Avg.	Avg.	NA	NA	NA	NA	Good
Starr	SOUTH	Avg.	NA	Good	Good	NA	NA	NA	NA	Avg.
Stephens	NORTH CENTRAL	Avg.	NA	NA	NA	NA	NA	Good	NA	Good

County	Weather Zone	County Suitability for Generation Type (Good, Avg., RO=Replacement Only, NA=Not Available)								
		Wind	Solar Thermal	Nat Gas CT	Nat Gas CC	Coal	Biomass	Nuclear	Geo-Thermal	Solar PV
Sterling	WEST	Good	NA	Avg.	NA	NA	NA	NA	NA	Good
Stonewall	NORTH	Good	NA	NA	NA	NA	NA	Good	NA	Good
Sutton	WEST	NA	NA	Good	NA	NA	NA	NA	NA	Good
Tarrant	NORTH CENTRAL	NA	NA	NA	NA	NA	NA	NA	NA	Good
Taylor	WEST	Good	NA	Good	NA	NA	NA	NA	NA	Good
Terrell	FAR WEST	Avg.	NA	Avg.	NA	NA	NA	NA	NA	Good
Throckmorton	NORTH CENTRAL	Good	NA	NA	NA	NA	NA	Good	NA	Good
Titus	EAST	NA	NA	Good	Good	Good	NA	Good	NA	Good
Tom Green	WEST	Avg.	NA	Avg.	NA	NA	NA	NA	NA	Good
Travis	SOUTH CENTRAL	NA	NA	NA	NA	NA	NA	NA	NA	Good
Upton	FAR WEST	Good	Avg.	Good	NA	NA	NA	NA	NA	Good
Uvalde	WEST	Avg.	NA	NA	NA	Good	NA	Good	NA	Good
Val Verde	WEST	Avg.	NA	NA	NA	NA	NA	Good	NA	Good
Van Zandt	EAST	NA	NA	Avg.	Avg.	NA	NA	Good	NA	Good
Victoria	COAST	NA	NA	Good	Good	Good	NA	Good	NA	Avg.
Waller	COAST	NA	NA	RO	RO	NA	NA	Good	Good	Avg.
Ward	FAR WEST	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Washington	SOUTH CENTRAL	NA	NA	Good	Good	Good	NA	Good	NA	Avg.
Webb	SOUTH	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Wharton	COAST	NA	NA	Good	Good	Good	Good	Good	NA	Avg.
Wichita	NORTH	Good	NA	Good	Good	Good	NA	Good	NA	Good
Wilbarger	NORTH	Good	NA	Avg.	Avg.	NA	NA	NA	NA	Good
Willacy	SOUTH	Avg.	NA	Good	NA	NA	NA	NA	Good	Avg.

County	Weather Zone	County Suitability for Generation Type (Good, Avg., RO=Replacement Only, NA=Not Available)								
		Wind	Solar Thermal	Nat Gas CT	Nat Gas CC	Coal	Biomass	Nuclear	Geo-Thermal	Solar PV
Williamson	SOUTH CENTRAL	NA	NA	Avg.	Avg.	Good	NA	Good	NA	Good
Wilson	SOUTH CENTRAL	NA	NA	Good	Good	NA	NA	NA	NA	Good
Winkler	FAR WEST	Avg.	NA	Good	NA	NA	NA	NA	NA	Good
Wise	NORTH CENTRAL	Avg.	NA	RO	RO	NA	NA	Good	NA	Good
Young	NORTH CENTRAL	Avg.	NA	Avg.	Avg.	NA	NA	Good	NA	Good
Zapata	SOUTH	Avg.	NA	Good	Good	NA	NA	Good	Good	Avg.
Zavala	SOUTH	Avg.	NA	Good	Good	NA	NA	NA	NA	Good

*Table displays only those counties within the ERCOT system.