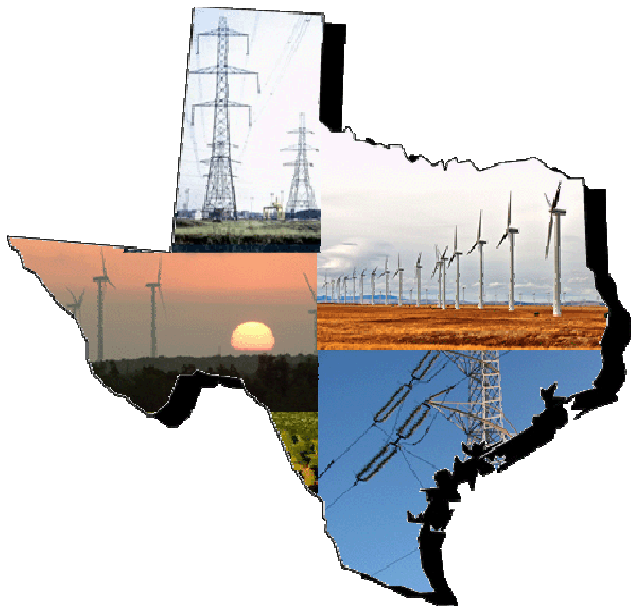

Winds of Prosperity

May 2010

The Impact of the Competitive Renewable Energy Zone (CREZ) Investment in Transmission Infrastructure and the Potential Effects on Renewable Generation, Electricity Cost Savings, and Economic Development



THE PERRYMAN GROUP

510 N. Valley Mills Dr., Suite 300

Waco, TX 76710

ph. 254.751.9595, fax 254.751.7855

info@perrymangroup.com

www.perrymangroup.com



Table of Contents

Introduction	1
HIGHLIGHTS OF STUDY FINDINGS	4
THE PERRYMAN GROUP'S PERSPECTIVE	9
Growth in Wind Power and the "Green" Energy Sector	11
WIND CAPACITY GROWTH IN TEXAS	14
FUTURE GROWTH IN WIND POWER AND THE NEED FOR TRANSMISSION INFRASTRUCTURE	15
OVERVIEW OF THE CREZ INVESTMENT	17
IMPLICATIONS OF THE CREZ INVESTMENT FOR WIND POWER IN TEXAS	19
EFFECT OF CREZ TRANSMISSION INVESTMENTS ON ELECTRICITY PRICES	20
Impact of the CREZ Transmission Investment and Associated Wind Power Development	24
METHODOLOGY OVERVIEW	26
ECONOMIC IMPACT OF WIND POWER DEVELOPMENT PRIOR TO THE CREZ INITIATIVE	27
Case I: Average Fuel Prices Over the 2003-2009 Period	28
Case II: Average Fuel Prices During 2008	31
IMPACT OF CONSTRUCTION AND DEVELOPMENT ASSOCIATED WITH THE CREZ TRANSMISSION INVESTMENT	34
IMPACT OF ONGOING OPERATIONS AND MAINTENANCE ASSOCIATED WITH THE CREZ TRANSMISSION INVESTMENT	39
IMPACT OF ROYALTIES ASSOCIATED WITH THE CREZ TRANSMISSION INVESTMENT	40
ECONOMIC COST SAVINGS OF FUEL DIVERSITY	42
Case I: Average Fuel Prices Over the 2003-2009 Period	42
Case II: Average Fuel Prices During 2008	43
TOTAL ONGOING EFFECTS OF THE CREZ TRANSMISSION INVESTMENT	44
Total Effects Under Case I Assumptions	45
Total Effects Under Case II Assumptions	49
ECONOMIC DEVELOPMENT EFFECTS	53
Conclusion	57
APPENDICES	60
APPENDIX A: US Multi-Regional Impact Assessment System Methodology	61
APPENDIX B: US Multi-Regional Industry-Occupation System Methodology	66
APPENDIX C: Detailed Sectoral Results	68
Economic Impact of Wind Power Development Prior to the CREZ Initiative	69
Construction Prior to the CREZ Initiative: Occupational Profile	71
Ongoing Operations (Existing Wind Turbines and Related Activity)	89

Royalties (Existing Wind Turbines)	91
Fuel Diversity (Existing Wind Turbines): Commercial (Case I).....	93
Fuel Diversity (Existing Wind Turbines): Industrial (Case I)	95
Fuel Diversity (Existing Wind Turbines): Residential (Case I)	97
Fuel Diversity (Existing Wind Turbines): Total (Case I)	99
Fuel Diversity (Existing Wind Turbines): Commercial (Case II)	101
Fuel Diversity (Existing Wind Turbines): Industrial (Case II).....	103
Fuel Diversity (Existing Wind Turbines): Residential (Case II).....	105
Fuel Diversity (Existing Wind Turbines): Total (Case II).....	107
TOTAL Ongoing Effects (Existing Wind Turbines): (Case I)	109
TOTAL Ongoing Effects (Existing Wind Turbines): (Case II).....	111
Ongoing Annual Operations Prior to the CREZ Initiative: Occupational Profile (Case I)	113
Ongoing Annual Operations Prior to the CREZ Initiative: Occupational Profile (Case II)	133
Construction: New Power Transmission Facilities	151
Construction: New Wind Turbines	153
Construction: Total New.....	155
Construction (New): Occupational Profile	157
Ongoing Operations: New Power Transmission Facilities	175
Ongoing Operations: New Wind Turbines	177
Ongoing Operations: Total New	179
Royalties (New Development).....	181
Fuel Diversity Savings (New Development): Commercial (Case I)	183
Fuel Diversity Savings (New Development): Industrial (Case I)	185
Fuel Diversity Savings (New Development): Residential (Case I).....	187
Fuel Diversity Savings (New Development): Total (Case I).....	189
Fuel Diversity Savings (New Development): Commercial (Case II)	191
Fuel Diversity Savings (New Development): Industrial (Case II).....	193
Fuel Diversity Savings (New Development): Residential (Case II)	195
Fuel Diversity Savings (New Development): Total (Case II)	197
TOTAL Ongoing Effects (New Development): Case I.....	199
TOTAL Ongoing Effects (New Development): Occupational Profile (Case I)	201
TOTAL Ongoing Effects (New Development): Case II	219
TOTAL Ongoing Effects (New Development): Occupational Profile (Case II).....	221
Potential Economic Development	239
Potential Economic Development: Occupational Profile	243



Introduction



Introduction

- Over the past decade, **clean energy has taken on new importance as a social and economic priority**. The industry cluster has already experienced considerable growth, particularly in the area of wind power. In fact, **the US is now the world leader in wind capacity, and Texas is by far the largest wind-producing state in the nation**.
- **Wind capacity grew quickly in Texas** from just 116 MW in 2000 to over 9,400 MW of wind generation installed as of yearend 2009 (according to the American Wind Energy Association—AWEA), with the most recent estimates reaching 10,000 MW. The industry and related sectors have **enormous potential** for the future.
- However, **expansion of wind generation has outpaced the capacity of transmission lines** within the state, and investment in infrastructure is now needed to assure ongoing development.
- The 79th Texas Legislature set forth plans for developing transmission infrastructure to meet growing demands in Senate Bill 20 (SB 20) with the identification of Competitive Renewable Energy Zones (CREZ). These geographic areas of the state represent those regions with the highest wind potential. The Public Utility Commission of Texas (PUC) then formulated a specific set of guidelines regarding both the level of wind transmission development and the process for awarding contracts. The construction and development process is now underway. While it is anticipated that wind generation will be the primary



source of renewable energy, many of the areas in the zones are also well suited for solar development.

- Increased **transmission infrastructure connecting CREZ with the ERCOT (Electric Reliability Council of Texas) grid will allow for greater development and utilization of the state's wind energy** resources.
- As the **diversity in fuels used to generate electric power is enhanced, electricity savings will be realized** due to the ability to switch among input fuels depending on relative prices and demand conditions. Such savings to consumers increase economic activity and contribute to economic competitiveness.
- In addition, as Texas continues to solidify its presence as a center for wind power and other clean energy sectors, **substantial growth in the clean energy manufacturing cluster** is likely.
- The positive effects of the CREZ investment **benefit communities across the state and persons in all walks of life.**
- The Perryman Group (TPG) was recently asked to quantify the economic contributions of wind generation and transmission investment resulting from Texas' CREZ project in a comprehensive manner. This report presents the results of TPG's analysis.



HIGHLIGHTS OF STUDY FINDINGS

- The **“clean energy” economy has grown considerably across the US over the past decade and has enormous future potential.** An important aspect of recent growth has been in the wind power industry.
- Texas has been the site of much of the new development and now **surpasses all other states in terms of total wind capacity.** These investments have led to a notable stimulus to business activity in the state.
 - The Perryman Group estimated the total impact of construction associated with these gains in wind capacity prior to the initial implementation of the CREZ initiative to include (in constant 2009 dollars) \$26.1 billion in total spending, \$12.6 billion in output (gross product), and 157,728 person-years of employment (full-time equivalent jobs during the build-out period).
 - Ongoing operations of these facilities lead to gains of \$1.6 billion in annual total spending, \$530.9 million in output each year, and 3,876 permanent jobs.
- However, installation of wind generation has outpaced transmission capacity in recent years, and the situation is likely to worsen without substantial investment in transmission.
- To **alleviate current constraints and accommodate future growth, ERCOT is reviewing several proposed transmission projects** spanning the next five years; one component of this expansion is the recommended CREZ transmission investments with an estimated cost of around \$5 billion specifically addressing the transmission of power from wind-intensive regions of the state to population centers with growing needs for



power. Obviously, all generation capacity, irrespective of fuel source, must be integrated into the power grid through transmission and distribution facilities. Improving transmission resources can help maximize utilization of the state's renewable power capacity.

- Texas has **immense capacity to increase energy production from wind as well as solar and biomass fuel**. The state's combination of (1) available resources and capacity for clean energy production, (2) a strong and growing presence in related industries, and (3) an enlightened policy framework yields the potential for substantial future growth in the sector.
- As an outgrowth of this expansion, the **state's position at the forefront of installing wind power will encourage development of wind turbine manufacturing businesses** (which are already beginning to locate in Texas) as well as other related maintenance operations and associated firms.
- In addition, **as the mix of fuels used for power generation in Texas becomes more diverse, cost savings can be expected**. Economic competitiveness and, thus, development is also enhanced.
- **The build-out of CREZ is predicted to conserve approximately 17 billion gallons of water annually and lead to reductions in emissions including up to 16% in CO₂ and up to 13% in NO_x**.
- These **benefits are realized across the entire ERCOT region**, both near the transmission route and elsewhere. They are also enjoyed by Texans in many occupations far removed from power generation.



-
- The Perryman Group found **sizable positive economic impacts of the CREZ transmission investment on business activity.** Impacts were measured for
 - construction and development of the new transmission infrastructure and the wind turbines required to achieve the newly expanded capacity;
 - ongoing maintenance of the transmission facilities and wind turbines, royalty payments to landowners, and cost savings stemming from improved fuel diversity; and
 - potential economic development benefits associated with solidifying Texas' position at the forefront of renewable energy were also evaluated.
 - The **combined construction impact of new power transmission facilities as well as wind turbine construction following the initial implementation of the CREZ initiative on business activity in Texas is projected to total \$30.6 billion in output (gross product) and some 383,972 person-years of employment.** This economic activity leads to **notable incremental tax receipts over the development period; TPG estimates the gains to include about \$1.6 billion for the State and \$329.1 million for various local governments.**
 - The three major categories of **ongoing effects stemming from the CREZ transmission investment** (operations of the transmission facilities and wind farms, royalties, and net cost savings) can be summed to obtain the total gains in business activity the investment will generate. Two scenarios were formulated by The Perryman Group to illustrate the potential gains from fuel diversity with varying assumptions regarding natural gas prices.



-
- Under Case I assumptions regarding fuel diversity (**average generation fuel prices over the 2003-2009 period**), the **total ongoing impact of the CREZ transmission investment is some \$12.5 billion in total spending, \$5.3 billion in output, and 61,682 jobs.**
 - Under Case II assumptions regarding generation fuel gas prices (**average of 2008**), the fuel diversity benefits (and, thus, overall effects) rise substantially. For the state as a whole, the **total ongoing effect of the CREZ investment includes an estimated \$23.6 billion in annual total spending, \$10.5 billion in output (gross product) each year, and 125,915 permanent jobs.**
 - It should be noted that, due to the growth in power demand in the state and the emerging use of other fuels in alternative contexts, the implementation of CREZ is not expected to have a notable effect on the demand for other types of energy produced in Texas.
 - The increased business activity includes billions in total spending and output as well as tens of thousands of jobs. To put these in perspective, The Perryman Group calculated the percentage increment to projected economic activity at project maturity (approximately 2017) the CREZ-related investments would entail. Depending on the assumptions related to overall generation prices, **the total ongoing effect of the CREZ transmission investment includes a 0.3 to 0.6% addition to Texas output and income and a 0.4 to 0.8% increase in Texas jobs. The Case I level is roughly equivalent to the current size of the air transportation in the state, while Case II is about as large as the computer and electronics sectors.** If associated manufacturing and related activity surfaces (as is likely), these impacts will be correspondingly larger.



-
- Another perspective is on a per-customer basis. Depending on the levels of overall generation fuel prices, **the typical residential customer at project maturity will save between \$160.93 and \$354.94 per year (fully adjusted for the associated transmission costs)**, resulting in a stimulus to the economy of \$454.44 to \$995.60 in total spending and \$216.76 to \$478.03 in gross product.
 - These sizable economic benefits are **spread through communities across the state**. In addition, **this economic activity contributes an estimated \$365.8 million to \$758.0 million annually to the State and \$160.4 million to \$330.3 million each year to local governments in the form of tax and other fiscal receipts at maturity**.
 - In addition, the **current contribution of the wind, solar, and renewables production cluster** was measured to include **\$1.0 billion in total annual spending, \$456.8 million in output (gross product) each year, and 5,226 jobs** (virtually all of this activity is presently attributable to wind). Texas has seen significant growth in these facilities in recent years, but has not yet attained the average “market share” it enjoys in other sectors.
 - It should also be noted that, **when these effects are combined with those described above regarding wind turbine operations and royalties, the overall industry is responsible for approximately 10,000 jobs apart from those associated with power costs savings**.
 - The CREZ transmission investment will also help solidify Texas’ position at the forefront of wind power, renewables, and associated industries. **Incremental gains in the cluster**



stemming from the CREZ transmission investment could be expected under reasonable assumptions to include \$8.6 billion in total annual spending, \$3.8 billion in output (gross product) per annum, and 41,181 jobs.

- **Clearly, this ambitious and enlightened investment stands to pay notable dividends to Texans across a broad spectrum and will permit the state to enjoy the “winds of prosperity” for generations to come.**

THE PERRYMAN GROUP’S PERSPECTIVE

- TPG is an economic research and analysis firm based in Waco, Texas. The firm has more than 25 years of experience in assessing the economic impact of corporate expansions, regulatory changes, real estate developments, public policy initiatives, and myriad other factors affecting business activity. TPG has conducted hundreds of impact analyses for the US and Texas economies as well as all Texas metro areas and regions. Impact studies have been performed for hundreds of clients including many of the largest corporations in the world, governmental entities at all levels, educational institutions, major health care systems, utilities, and economic development organizations. Many of these have included analysis at the industrial and occupational level.
- Moreover, the firm has completed numerous studies related to the electric power industry including measurement of the economic impact of investments in generating and transmission capacity and the interplay of the supply of power and growth in the Texas economy. These analyses have included coal, nuclear, and wind capacity. TPG has also completed assessments of fuel diversity,



electric competition, alternative rate designs, future power requirements, and price responses. These studies have been used extensively by the US Department of Energy, the Public Utility Commission of Texas (PUC), the Congress of the United States, the Texas Legislature, and other regulatory and legislative entities. TPG has performed benefit and impact studies for new generation, transmission, and distribution facilities as well as public policy assessments for a variety of initiatives. In particular, the firm was extensively involved in the passage of the Texas Electric Choice Act, and has performed several subsequent assessments of its effects on business activity and market development.

- TPG has performed numerous studies involving wind and other renewable energy sources, including impact analysis of several large-scale generation projects. The firm also performed a fifty-state analysis of the Apollo Project, a major “green” energy initiative.



Growth in Wind Power and the “Green” Energy Sector



Growth in Wind Power and the “Green” Energy Sector

- The “clean energy” economy has grown considerably across the US over the past decade and has enormous future potential. In 2007, the US had over 770,400 clean energy jobs; 55,600 of these were located in Texas. From 2006 to 2008, the nation saw about \$12.6 billion in venture capital for clean technology, with Texas receiving roughly \$716.9 million according to the Pew Charitable Trust. (It should be noted that the definitions used by the Pew Charitable Trust in this analysis do not include the manufacture of components for wind and solar facilities.)
- Like other energy sectors, growth in renewables receives various federal, state, and local incentives. The government provides subsidies to energy producers and purchasers to encourage development and production which promotes long-term energy security; for example, such subsidies have existed on the federal level to promote drilling for oil since 1916. Energy subsidies come in the form of tax incentives, direct spending, research and development funds and other support mechanisms.
- According to *The Energy Report* released by the Texas Comptroller of Public Accounts in May 2008, **in Fiscal Year (FY) 2006 federal subsidies for energy totaled \$13.6 billion, with 34.6% going to ethanol, 25.7% to oil and gas, 20.2% to coal, 8.7% to nuclear, and 3.4% to wind. Solar, hydroelectric power, biomass, biodiesel and geothermal made up the remaining amounts.**

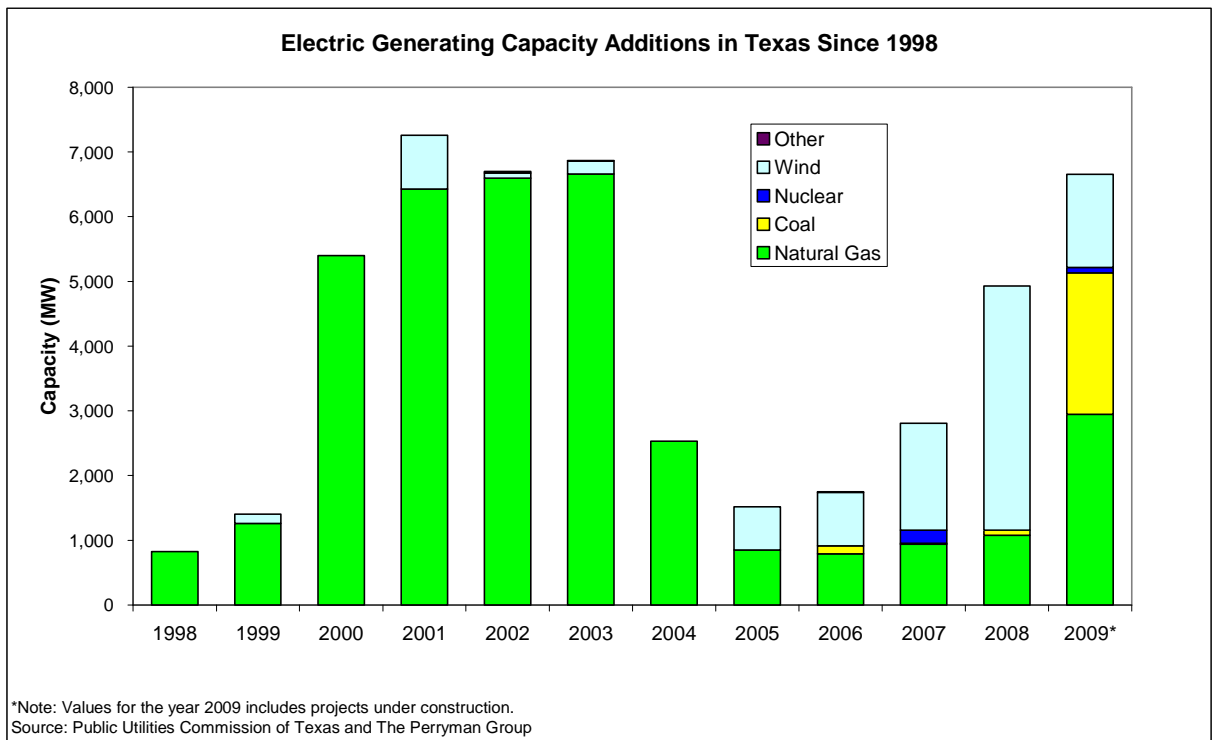


-
- In Texas, state and local energy subsidies totaled \$1.4 billion in FY2006, the majority of which (99.6%) went to oil and gas activity. State and local wind subsidies totaled some \$1.5 million in the form of various tax benefits. To put it another way, **direct state and local subsidies account for 1.5 cents of every dollar Texas consumers spend on fossil fuel-derived energy, compared to 0.2 cents for renewable energy.**
 - **An important aspect of recent growth in clean energy has been in the wind power industry.** In 2009, nearly 10,000 MW of new wind power capacity was added across the US, pushing the total to over 35,000 MW, enough to provide for 9.7 million households. In 2008, the US, for the first time, surpassed Germany as the country with the largest amount of wind power capacity installed. The US is ahead of the anticipated schedule for achieving a goal of the US Department of Energy for attaining a 20% share of electric generation capacity for wind energy by 2030.
 - While wind capacity continues to rise throughout the country, recent news reports have noted that wind turbine manufacturing jobs decreased in 2009. This pattern merely reflects the overall economic situation and is a temporary phenomenon, as demand for power will begin to rise as the current recovery gains momentum. In fact, the **wind industry performed relatively well given an economically turbulent year** when electric power demand uncharacteristically fell across the country and the manufacturing sector shed thousands of jobs. One factor in this relative stability is an inflow of funds through the American Recovery and Reinvestment Act (ARRA) which encouraged clean job creation; greater certainty regarding federal energy policy would help create long-term, stable demand for wind power and attract manufacturing facilities.



WIND CAPACITY GROWTH IN TEXAS

- Senate Bill 7 (SB 7) opened the doors of electric power competition in Texas in 1999. In addition, it promoted the growth of renewable energy by establishing the Texas Renewable Portfolio Standard (RPS). The original RPS goal was 2,000 MW of additional, new renewable resource generation in Texas by 2009; Texas surpassed that level by 2006.
- **New wind capacity comprises a significant component of total electric generation capacity additions since 2005.**

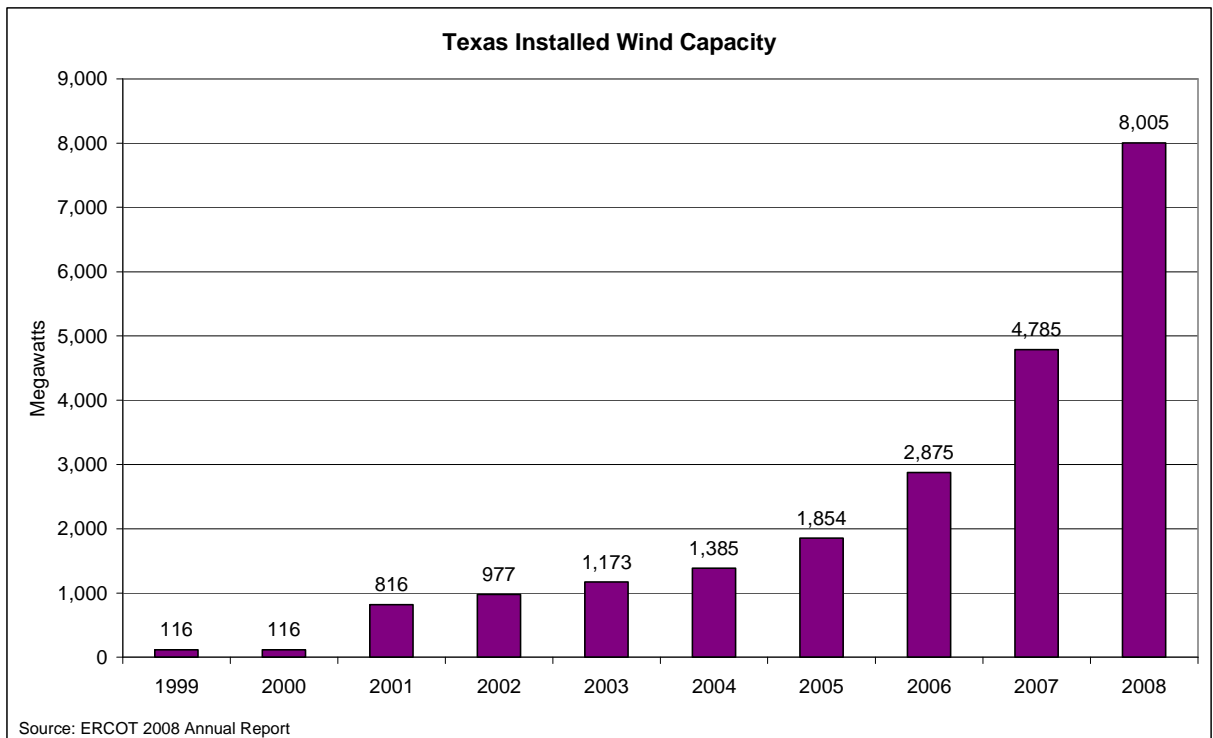


- As a result of this growth, **Texas now surpasses all other states in terms of total wind capacity.** By 2008, Texas had over 8,000 MW of installed wind generation, and more new wind capacity was



added in Texas in 2008 than in any country except the US and China. In fact, if Texas were a country it would rank sixth in the world for total wind generation capacity.

- Growth has been particularly impressive in recent years, and the American Wind Energy Association's Year End 2009 Market Report indicates that Texas had over 9,400 MW of installed capacity; more recent estimates reach **10,000 MW**.



FUTURE GROWTH IN WIND POWER AND THE NEED FOR TRANSMISSION INFRASTRUCTURE

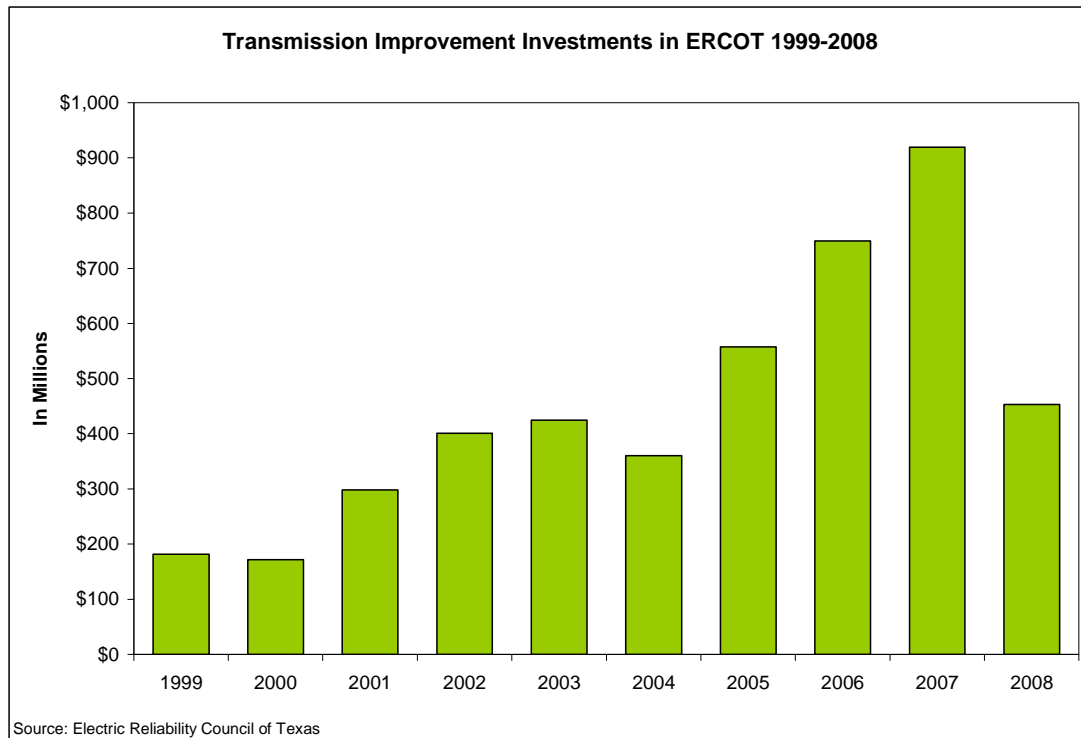
- Support for continued growth of the state's wind resources includes action by the Texas Legislature to **increase the state's Renewable Portfolio Standard** to 5,880 MW of electricity from



renewable energy sources by 2015 and 10,000 MW by 2025. These targets have already been reached.

- However, these Bills did not include provisions for transmission to interconnect renewable resources. Senate Bill 20 addresses the lack of transmission infrastructure to fully capitalize on renewable energy, particularly wind. About 10% of installed capacity in ERCOT is wind energy; another 3% is solar, biomass, and other renewables. However, only 7% of energy produced in ERCOT in 2008 was from renewable sources. **Improving transmission resources can help maximize utilization of the state's renewable power capacity.**
- **Installation of wind generation has outpaced transmission capacity in recent years, and the situation is likely to worsen without substantial investment in transmission.** Of the almost 100,000 MW of generation requests under review by ERCOT, nearly half are wind projects. However, the current transmission system accommodates 4,500 MW of wind energy transfer from the windy segments of West Texas to the high demand areas throughout ERCOT.
- Wind farms can be built far faster than transmission lines, creating an inequality in generation capacity and transmission infrastructure. **A lack of transmission infrastructure can deter wind power developers** from building in certain locations, and, in turn, utilities are reluctant to install transmission facilities where power generators are not already established.
- In recent years, **transmission and distribution utilities within ERCOT have invested billions of dollars in transmission upgrades** to support all types of power generation and, hence, economic growth over the past decade, but constraints remain.





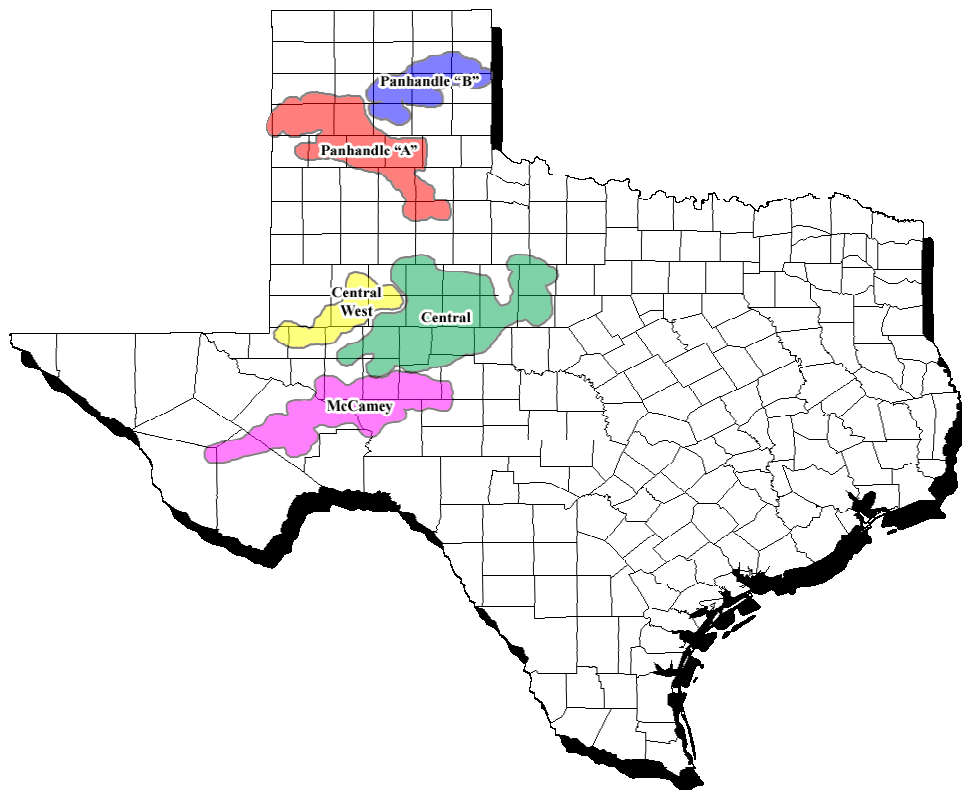
OVERVIEW OF THE CREZ INVESTMENT

- **To alleviate current constraints and accommodate future growth, ERCOT is reviewing several proposed transmission projects** spanning the next five years; one component of this expansion is the recommended CREZ transmission investments with an estimated cost of around \$5 billion specifically addressing the transmission of power from wind-intensive regions of the state to population centers with growing needs for power.
- Obviously, all generation capacity, irrespective of fuel source, must be integrated into the power grid through transmission and distribution facilities. **Improving transmission resources can help maximize utilization of the state's renewable power capacity.**



-
- **Transmission plans set forth in SB 20 call for developing large transmission lines to accommodate the current wind industry as well as future generation needs, thus encouraging future wind development.**

Competitive Renewable Energy Zones



- In 2008, after studying multiple scenarios provided by ERCOT, the PUC selected one that would support 18,456 MW of wind capacity development throughout CREZ. Current estimates indicate that transmission needs to accommodate the chosen scenario will cost approximately \$5 billion and include about 2,334 miles of new right-of-way over roughly five years.

Obviously, actual costs and mileage will vary as projects are developed.

- **Texas has immense capacity to increase energy production from wind as well as solar and biomass fuel.** Energy is a top economic development priority, with funds available through the Texas Emerging Technology Fund (with a current budget of \$200 million) and property tax abatements available through the Texas Economic Development Act program.
- **The state's combination of (1) available resources and capacity for clean energy production, (2) a strong and growing presence in related industries, and (3) an enlightened policy framework yields the potential for substantial future growth in the sector.**

IMPLICATIONS OF THE CREZ INVESTMENT FOR WIND POWER IN TEXAS

- **Clearly, additional transmission infrastructure will facilitate utilization of current wind capacity and progression toward mandates to increase the state's renewable portfolio.**
- **As an outgrowth of this expansion, the state's position at the forefront of installing wind power will encourage development of wind turbine manufacturing businesses** (which are already beginning to locate in Texas) as well as other related maintenance operations and associated firms.
- **In addition, as the mix of fuels used for power generation in Texas becomes more diverse, cost savings can be expected** (as



explained subsequently). Economic competitiveness and, thus, development is also enhanced.

- **These benefits are realized across the entire ERCOT region, both near the transmission route and elsewhere. They are also enjoyed by Texans in many occupations far removed from power generation.**
- **In addition, the build-out of CREZ is predicted to conserve approximately 17 billion gallons of water annually and lead to reductions in emissions including up to 16% in CO₂ and up to 13% in NO_x.**
- While generating energy from wind uses no water, an estimated 350 gallons of water are required per MWh generated in a natural gas-fired plant and 800 gallons of water per MWh from a coal-fueled plant according to documents provided by the Public Utilities Commission of Texas.

EFFECT OF CREZ TRANSMISSION INVESTMENTS ON ELECTRICITY PRICES

- A highly relevant consideration is the effect of improved transmission and associated renewable generation capacity additions on the state's fuel diversity (mix of input fuels used for electric power generation).
- **More fuel diversity in ERCOT would allow the energy system to shift between multiple sources in response to changes in price, resulting in long-term cost savings.**



-
- Currently, Texas' generation capacity is weighted towards natural gas. Modern gas-fired plants are cheap to construct and are highly fuel efficient relative to earlier technologies, producing a stable source of energy. However, **due to the volatility of natural gas prices, reliance on such generation facilities often leads to notable fluctuations in electricity costs.** Moreover, their cost effectiveness diminishes as natural gas prices rise. This pattern was particularly evident both in the aftermath of Hurricane Katrina in 2005 and in the rapid price run-up in the summer of 2008.
 - **A more diverse mix of power sources provides relatively lower overall energy costs by allowing flexibility to shift among generation resources in response to relative price changes.** Lower energy costs not only benefit local economies through savings to customers (who can then spend that money in other ways throughout the local area), but also provide a competitive environment for corporate relocations and expansions.
 - Texas is the leading producer and consumer of natural gas in the nation. Natural gas is an important part Texas electric generation, and expected growth in the demand for electricity will continue to drive a significant component of the natural gas market. Natural gas is also exported; Texas is connected to an expansive network of interstate natural gas pipelines from coast to coast. Additionally, natural gas is used for numerous other applications throughout the nation including industrial, vehicle fuel, commercial, and residential use. Many of these segments are expected to grow substantially in the future. Thus, **the expansion of wind and other renewable power sources in Texas is not likely to notably affect the demand for natural gas or other forms of energy produced within the state.**



-
- The ERCOT service region is characterized by wholesale electric competition and much of it is also subject to retail competition. **In a competitive market, prices are set by marginal cost, i.e., the cost of the last unit purchased.** Wind has a variable cost of zero and is presently subject to production tax credits. Thus, **wind power is typically offered on the grid at a zero price. As more wind is added to the fuel mix, this pricing will be available as the marginal unit more often, thus lowering overall power costs** and permitting reductions in rates for residential, commercial, and industrial customers which exceed the long-term cost of the CREZ investments.
 - Lower prices are already occurring in the West Texas wholesale area, a trend that is expected to continue into larger urban markets once CREZ transmission capacity is in place. In fact, in the 12 months ending in May 2009, **West Texas' wholesale electricity prices dropped to zero** 11% of the time due to wind.
 - In the regulated segments of Texas, electric rates reflect the actual cost to generate power based on all input fuel in the utility's generation fleet. The same method is used for cooperatives and municipal utilities. Because there is competition in the market for wholesale power and some municipal utilities and cooperatives buy power from providers across the state, prices within ERCOT (and, therefore, potential cost savings) can influence rates in non-ERCOT areas.
 - A 2008 GE Energy study conducted for ERCOT indicates, in general, that **adding wind power production to the grid will result in savings between \$53/MWh and \$55/MWh** over different wind generation capacity scenarios. TPG utilized the parameters of this study (which reflected 2006 fuel prices) to



estimate cost savings under alternative pricing conditions and quantities of generation (with an appropriate capacity factor) to estimate overall potential savings. The capacity factor for new facilities is estimated at about 40% going forward based on the lower end of industry information and simulations from the GE study; lower values are used in the analysis of current resources based on historical experience.



Impact of the CREZ Transmission Investment and Associated Wind Power Development



Impact of the CREZ Transmission Investment and Associated Wind Power Development

- As a part of this analysis, The Perryman Group measured the impact on the Texas economy of
 - wind power development that occurred before the new transmission program was implemented and
 - the CREZ transmission investment and additional wind development (related to CREZ) above and beyond the amounts developed prior to the beginning of the initiative.
- Impacts were measured for
 - construction and development of the **new transmission infrastructure**, and
 - construction and development of the **wind turbines** required to achieve the newly expanded capacity.
- Ongoing impacts were quantified for
 - **ongoing maintenance** of the transmission facilities and wind turbines,
 - **royalty payments** to landowners, and
 - **cost savings** stemming from improved fuel diversity.
- The **potential economic development** benefits associated with solidifying Texas' position at the forefront of renewable energy were also illustrated.



METHODOLOGY OVERVIEW

- The methods used in this study include dynamic input-output assessment, which essentially uses extensive survey data, industry information, and a variety of corroborative source materials to create a matrix describing the various goods and services (known as resources or inputs) required to produce one unit (a dollar's worth) of output for a given sector. Once the base information is compiled, it can be mathematically simulated to generate evaluations of the magnitude of successive rounds of activity involved in the overall production process.
- Impacts are expressed in terms of key measures of business activity (described more fully in the methodological appendices). In essence, total expenditures (or total spending) measures every dollar that changes hands in the local area as a result of the stimulus. Gross product (or output) is the amount of new production of goods and services that will come about locally as a result of the activity. Personal income is dollars that end up in the hands of people in the area; the vast majority of this derives from the earnings of employees, but payments such as interest and rents are also included. Job gains are expressed in either person-years of employment (for a temporary effect such as construction) or permanent jobs (for an ongoing impact).
- The Person-Years of Employment measure reveals the full-time equivalent jobs generated by an activity. A person-year is simply the equivalent of a person working for a year. As an example, it could be a carpenter employed for five months, a mason for three months, and a painter for four months. In the case of a construction project, these are typically spread over the course of the construction and development phase. It should be noted that, unlike the dollar values described above, Permanent Jobs is a



“stock” rather than a “flow.” In other words, if an area produces \$1 million in output in 2007 and \$1 million in 2008, it is appropriate to say that \$2 million was achieved in the 2007-2008 period. If the same area has 100 people working in 2007 and 100 in 2008, it only has 100 Permanent Jobs. When a flow of jobs is measured, such as in a construction project or a cumulative assessment over multiple years, it is appropriate to measure employment in Person-Years (the equivalent of a person working full time for a year). This concept is distinct from Permanent Jobs, which anticipates that the relevant positions will be maintained on a continuing basis.

- A detailed explanation of the methods and terms used in this study, including the pertinent input-output system and the computation of relevant inputs, may be found in Appendix A.

ECONOMIC IMPACT OF WIND POWER DEVELOPMENT PRIOR TO THE CREZ INITIATIVE

- The **economic impact of wind power developed to date has been substantial**, and continues to yield positive economic effects through ongoing operations and market effects such as cost savings.
- The Perryman Group measured the **total effect of construction and development of wind facilities as prior to the initiation of CREZ to include \$26.1 billion in total spending, \$12.6 billion in output (gross product), and 157,728 person-years of employment.** (The person-years measure reflects the number of full-time equivalent jobs that occur over the life of a construction project.)

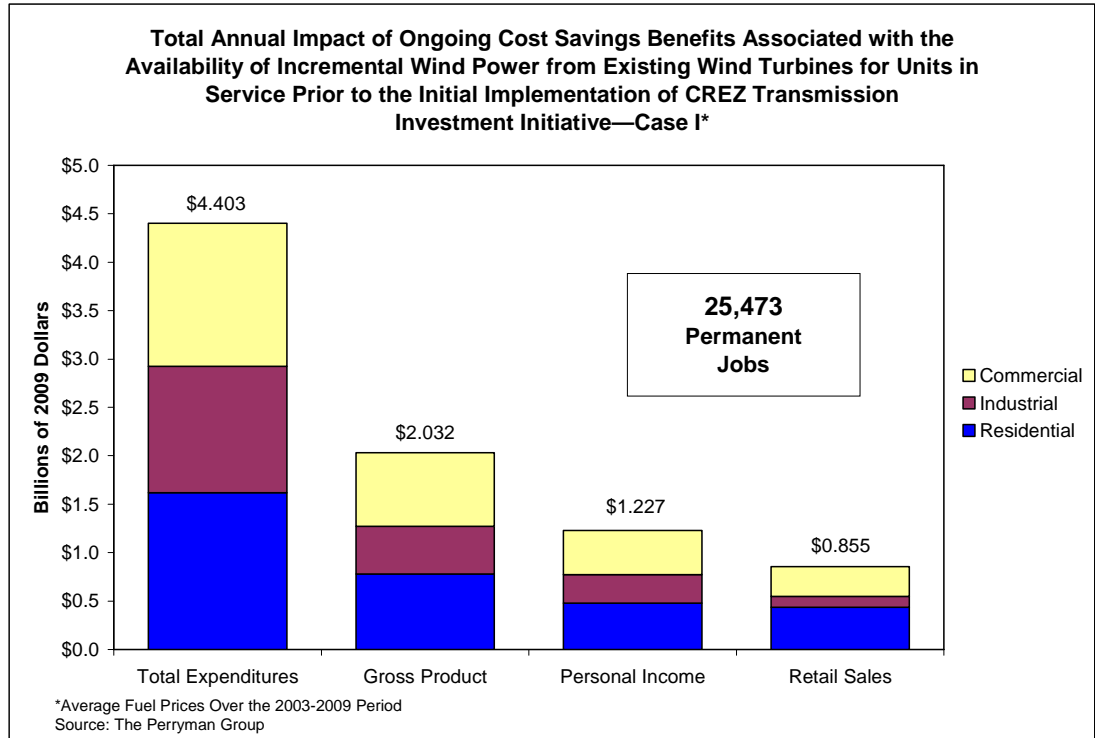


-
- During the course of this development, the **State received \$660.9 million in fiscal revenues, while local governments saw an increment of \$134.9 million.**
 - **Operations of the facilities** continue to contribute to business activity in the state. TPG estimated ongoing effects to include **\$1.6 billion in annual total spending, \$530.9 million in output each year, and 3,876 permanent jobs.**
 - Two scenarios were formulated by The Perryman Group to illustrate the **gains to date from fuel diversity** with varying assumptions regarding natural gas prices.
 - The **first scenario (Case I)** represents the impact for **average fuel prices over the 2003 to 2009 period.**
 - The **second scenario (Case II)** demonstrates the impact for average fuel prices during **2008**, a period of generally high costs.

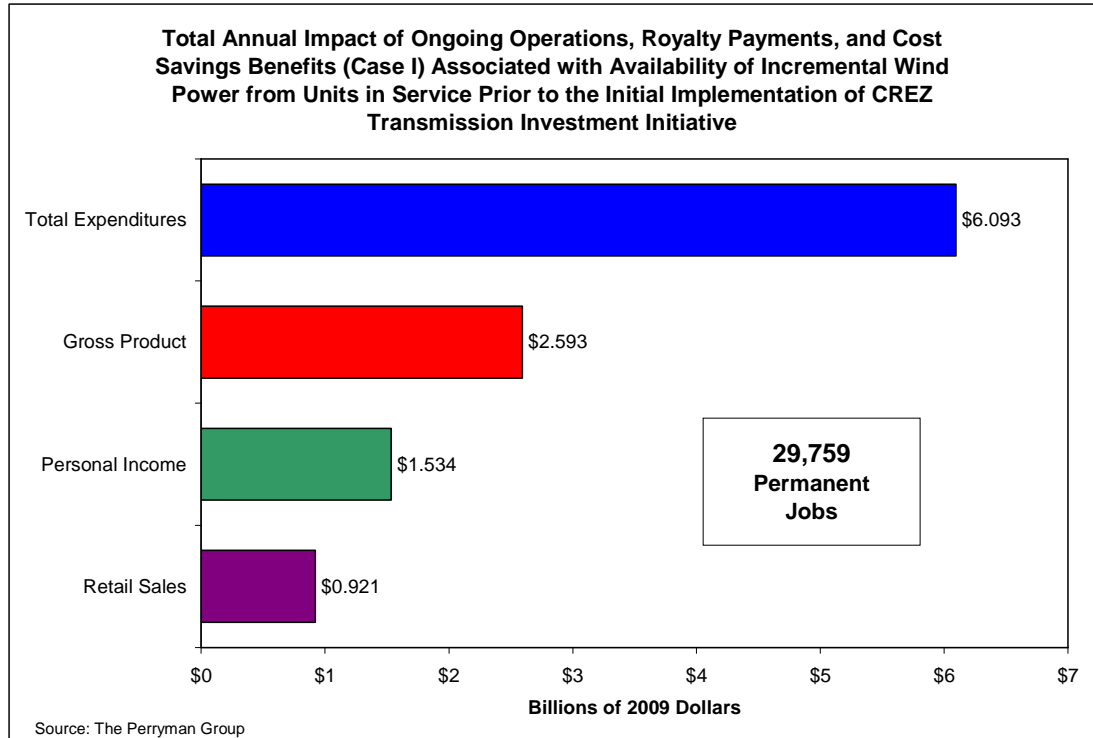
Case I: Average Fuel Prices Over the 2003-2009 Period

- The current annual cost savings benefit for Texas under **Case I**, totals **25,473 permanent jobs, roughly \$2.0 billion in output (gross product), and \$4.4 billion in total expenditures** (residential, industrial, and commercial sectors combined).





- The total annual impact of **ongoing annual operations for Case I (ongoing operations, royalties, cost savings benefits)** includes nearly **\$6.1 billion** in total expenditures, **\$2.6 billion** in output (gross product) and **29,759 permanent jobs**.



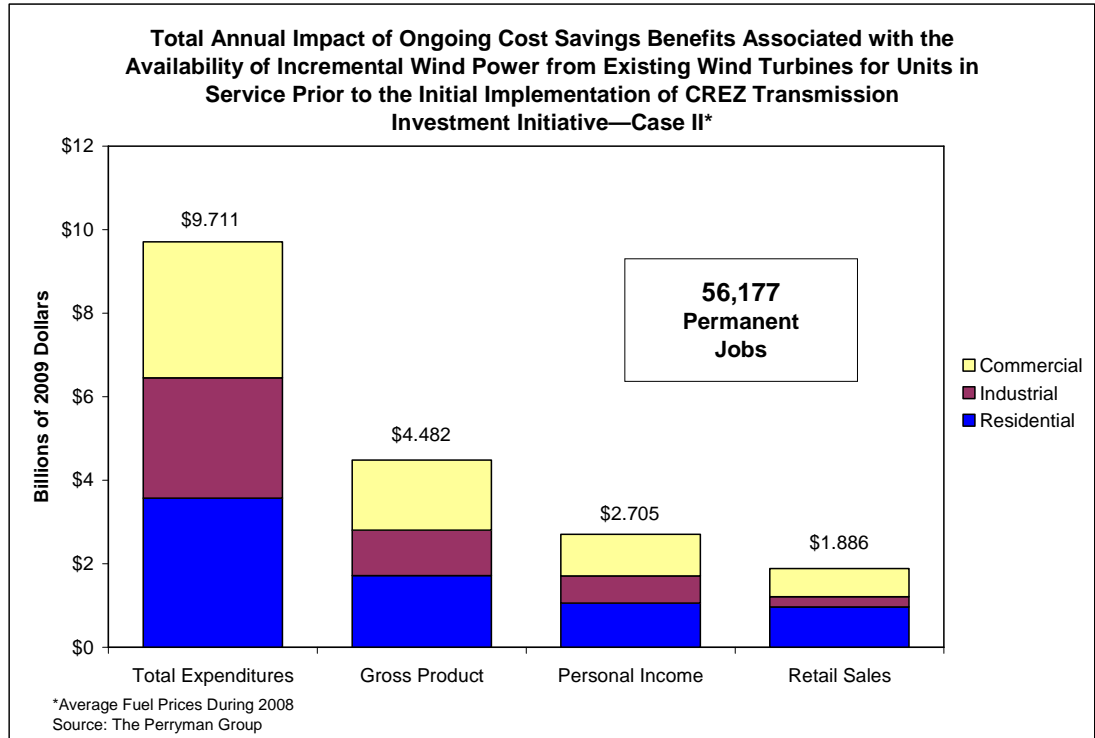
- Annual **State fiscal revenues under these conditions include \$176.1 million to the State and \$77.3 million to various local governmental entities.**
- Job gains span a variety of occupations, as noted in the following table.

Occupational Profile for the Total Annual Impact of Ongoing Annual Operations, Royalty Payments, and Cost Savings Benefits (Case I) Associated with the Availability of Incremental Wind Power from Existing Wind Turbines for Units in Service Prior to the Initial Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas

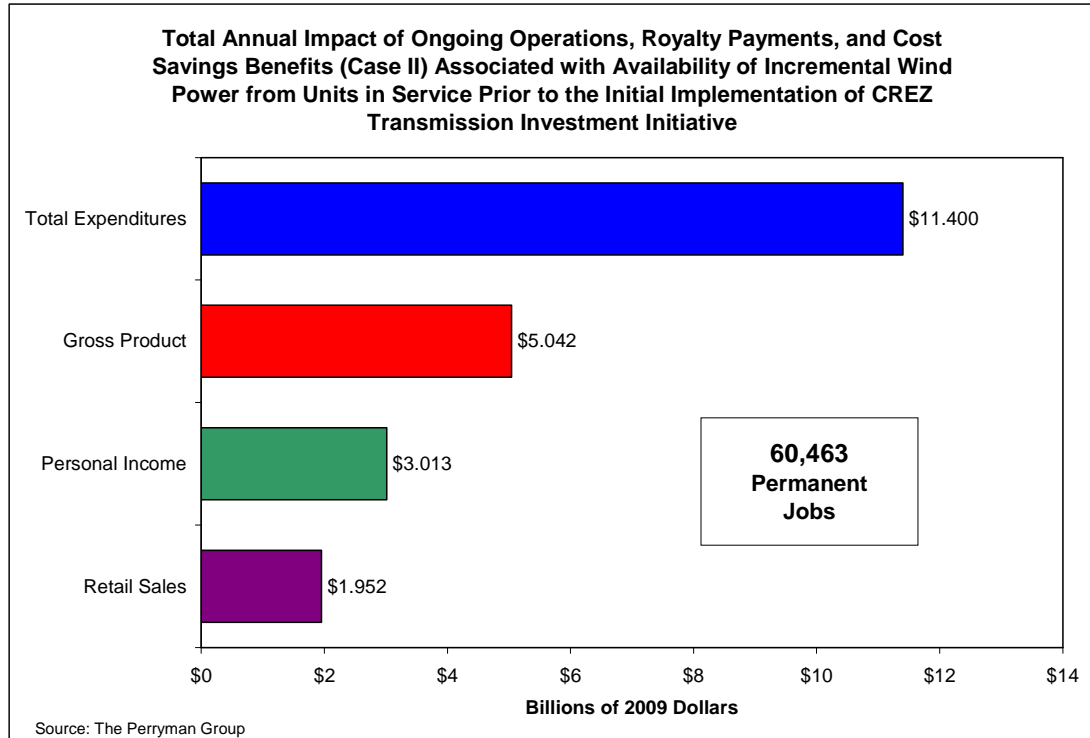
OCCUPATIONS	NUMBER OF EMPLOYEES
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	2,164
ENGINEERS, ARCHITECTS, AND SURVEYORS	146
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	97
SOCIAL SCIENTISTS	23
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	127
LAWYERS AND JUDGES	19
TEACHERS, LIBRARIANS, AND COUNSELORS	613
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	683
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	247
TECHNICIAN OCCUPATIONS	670
ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	52
MARKETING AND SALES OCCUPATIONS	3,567
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL SERVICE WORKERS	3,308
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	6,504
BLUE COLLAR WORKER SUPERVISORS	428
CONSTRUCTION TRADES	108
EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	1,373
MECHANICS, INSTALLERS, AND REPAIRERS	929
PRECISION PRODUCTION OCCUPATIONS	2,208
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	1,290
HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	1,544
PLANT AND SYSTEM OCCUPATIONS	646
PLANT AND SYSTEM OCCUPATIONS	93
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	973
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	1,946
 TOTAL, ALL OCCUPATIONS	 29,759

Case II: Average Fuel Prices During 2008

- Cost savings under Case II are even greater with **some 56,177 permanent jobs, roughly \$4.5 billion in annual output (gross product), and \$9.7 billion in total expenditures** (residential, industrial, and commercial sectors combined) realized across the state.



- Combined with ongoing operations, and royalties, total ongoing annual impacts under Case II consist of **60,463 permanent jobs**, **\$5.0 billion in output (gross product)**, and **\$11.4 billion in total expenditures** (residential, industrial, and commercial sectors combined) realized across the state.



- In addition, this economic activity leads to notable fiscal gains to various taxing entities. The Perryman Group estimates the annual incremental tax receipts in this scenario to include \$363.6 million to the State and \$158.5 million to local governments.
- Employment effects are spread through many occupational categories as noted in the following table.

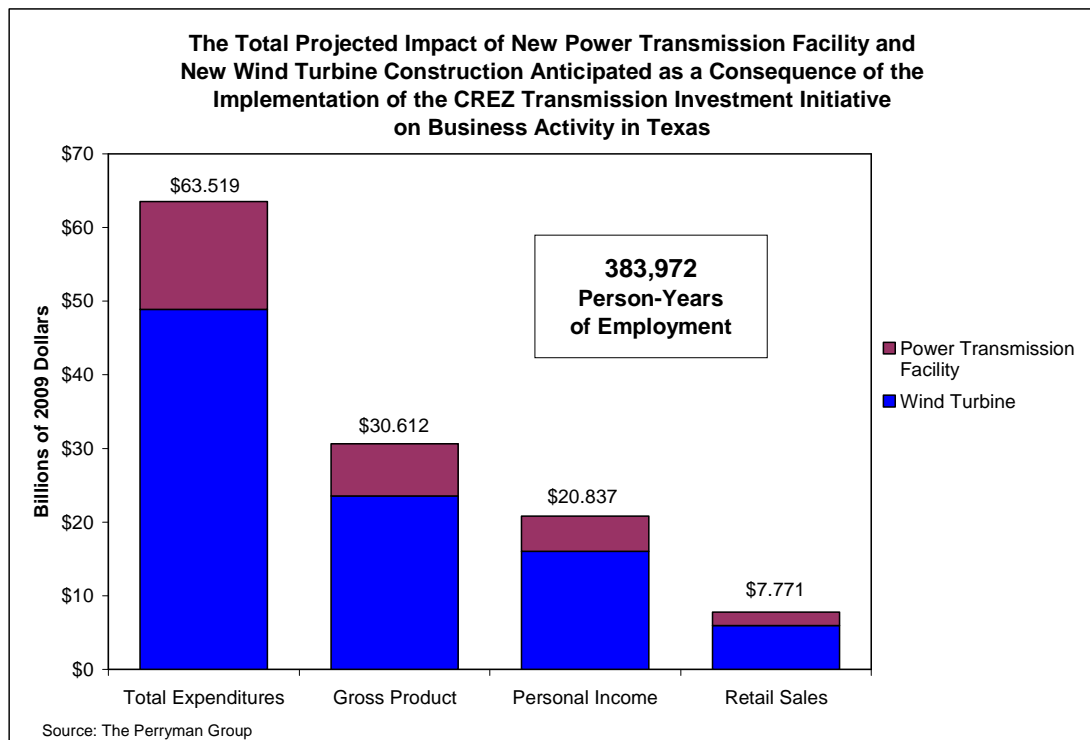
Occupational Profile for The Total Annual Impact of Ongoing Annual Operations, Royalty Payments, and Cost Savings Benefits (Case II) Associated with the Availability of Incremental Wind Power from Existing Wind Turbines for Units in Service Prior to the Initial Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas

OCCUPATIONS	NUMBER OF EMPLOYEES
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	4,397
ENGINEERS, ARCHITECTS, AND SURVEYORS	296
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	197
SOCIAL SCIENTISTS	47
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	258
LAWYERS AND JUDGES	39
TEACHERS, LIBRARIANS, AND COUNSELORS	1,246
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	1,389
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	502
TECHNICIAN OCCUPATIONS	1,361
ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	105
MARKETING AND SALES OCCUPATIONS	7,247
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL	6,722
SERVICE WORKERS	13,214
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	871
BLUE COLLAR WORKER SUPERVISORS	220
CONSTRUCTION TRADES	2,790
EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	1,887
MECHANICS, INSTALLERS, AND REPAIRERS	4,486
PRECISION PRODUCTION OCCUPATIONS	2,622
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	3,137
HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	1,313
PLANT AND SYSTEM OCCUPATIONS	188
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	1,977
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	3,953
 TOTAL, ALL OCCUPATIONS	 60,463

IMPACT OF CONSTRUCTION AND DEVELOPMENT ASSOCIATED WITH THE CREZ TRANSMISSION INVESTMENT

- New power transmission facility construction** as a result of the CREZ transmission investment initiative is anticipated to contribute nearly **\$14.6 billion in total expenditures, \$7.1 billion in output (gross product), and 88,736 person-years of employment** in Texas.

- Additionally, the impact of anticipated **wind turbine construction** is projected to include a total of **295,236 person-years of employment with total output (gross product) in the state of over \$23.5 billion.** (A detailed listing of the job gains by occupation is located in the Appendices.)
- The **combined construction impact of new power transmission facilities as well as wind turbine construction** on business activity in Texas is projected to **total \$30.6 billion in output (gross product) and some 383,972 person-years of employment.**



- These **job gains would be realized across many occupations.** The Perryman Group’s analysis indicates particularly strong gains in service workers, as noted in the following table. (See Appendix C for further detail.)

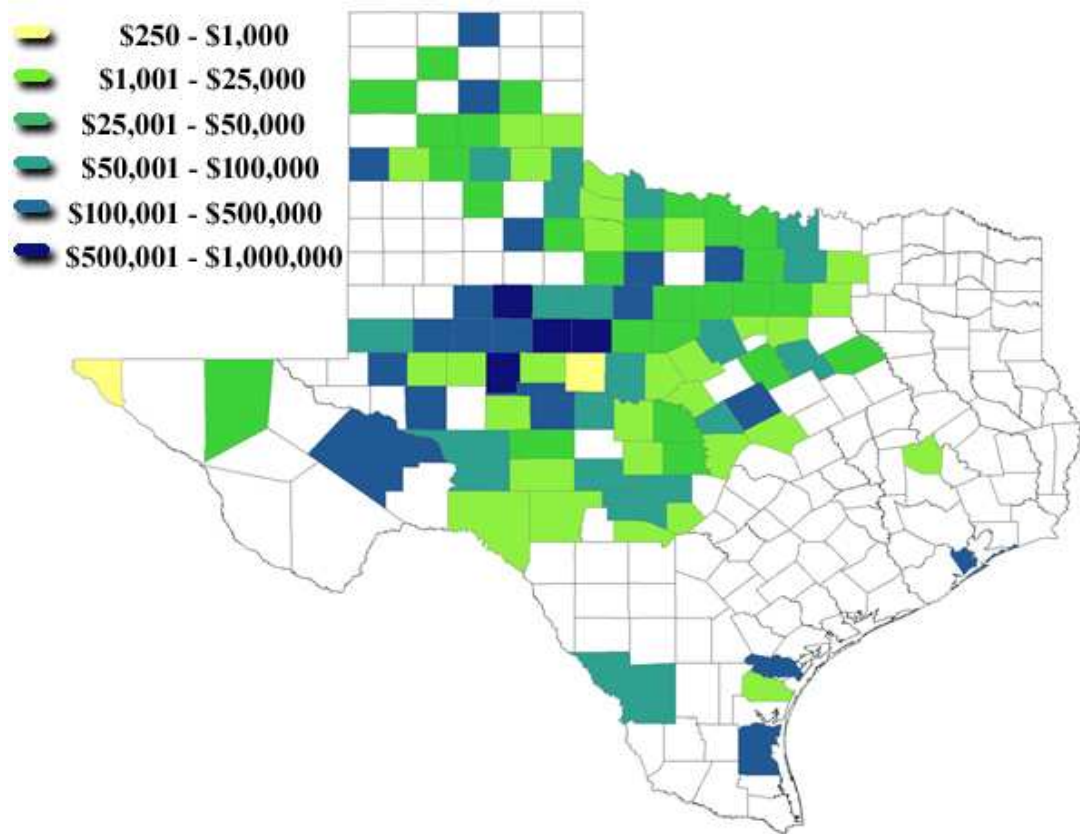
Occupational Profile for the Total Projected Impact of New Power Transmission Facility and New Wind Turbine Construction Anticipated as a Consequence of the Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas

OCCUPATIONS	NUMBER OF EMPLOYEES
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	31,712
ENGINEERS, ARCHITECTS, AND SURVEYORS	5,216
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	1,291
SOCIAL SCIENTISTS	220
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	1,155
LAWYERS AND JUDGES	222
TEACHERS, LIBRARIANS, AND COUNSELORS	6,016
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	5,709
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	2,871
TECHNICIAN OCCUPATIONS	7,786
ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	751
MARKETING AND SALES OCCUPATIONS	32,896
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL	38,870
SERVICE WORKERS	55,527
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	3,481
BLUE COLLAR WORKER SUPERVISORS	3,589
CONSTRUCTION TRADES	36,664
EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	20,245
MECHANICS, INSTALLERS, AND REPAIRERS	23,136
PRECISION PRODUCTION OCCUPATIONS	16,824
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	21,254
HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	9,177
PLANT AND SYSTEM OCCUPATIONS	1,381
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	22,176
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	35,800
TOTAL, ALL OCCUPATIONS	383,972

- **A total of 100 counties are impacted by either construction of transmission or wind turbines associated with CREZ, a significant impact across the state. The following maps show the widespread construction impacts throughout Texas.**
- Incremental output (gross product) across counties ranges from \$334,314 in Runnels County to \$873.0 million in Taylor County. (Note that the distribution below assumes wind power

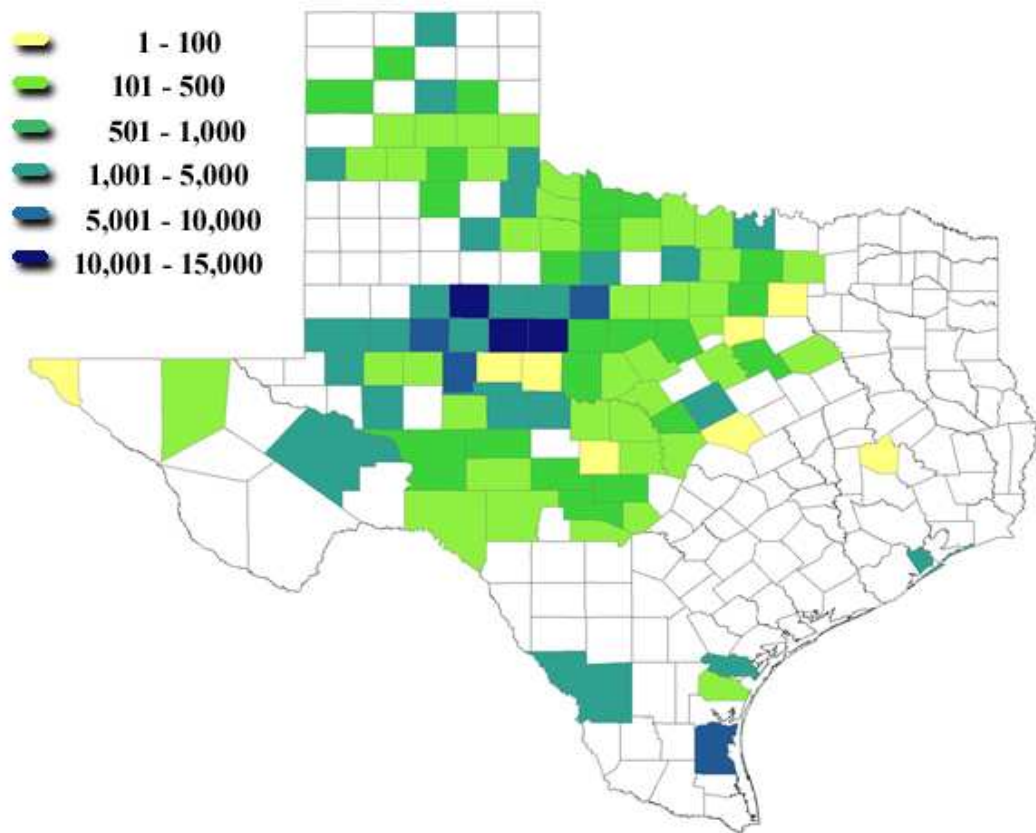
development will follow past patterns, ongoing projects, and announcements).

**Total Projected Impact of New Power Transmission Facilities and New Wind Turbine Construction Anticipated as a Consequence of the Implementation of the CREZ Transmission Investment Initiative on Gross Product in Texas by County
(In Thousands)**



- **Job gains are also spread across a large geographic area.** Runnels County would realize the lowest number of jobs (4), while Taylor County is projected to gain the most (11,441).

Total Projected Impact of New Power Transmission Facilities and New Wind Turbine Construction Anticipated as a Consequence of the Implementation of the CREZ Transmission Investment Initiative on Employment in Texas by County

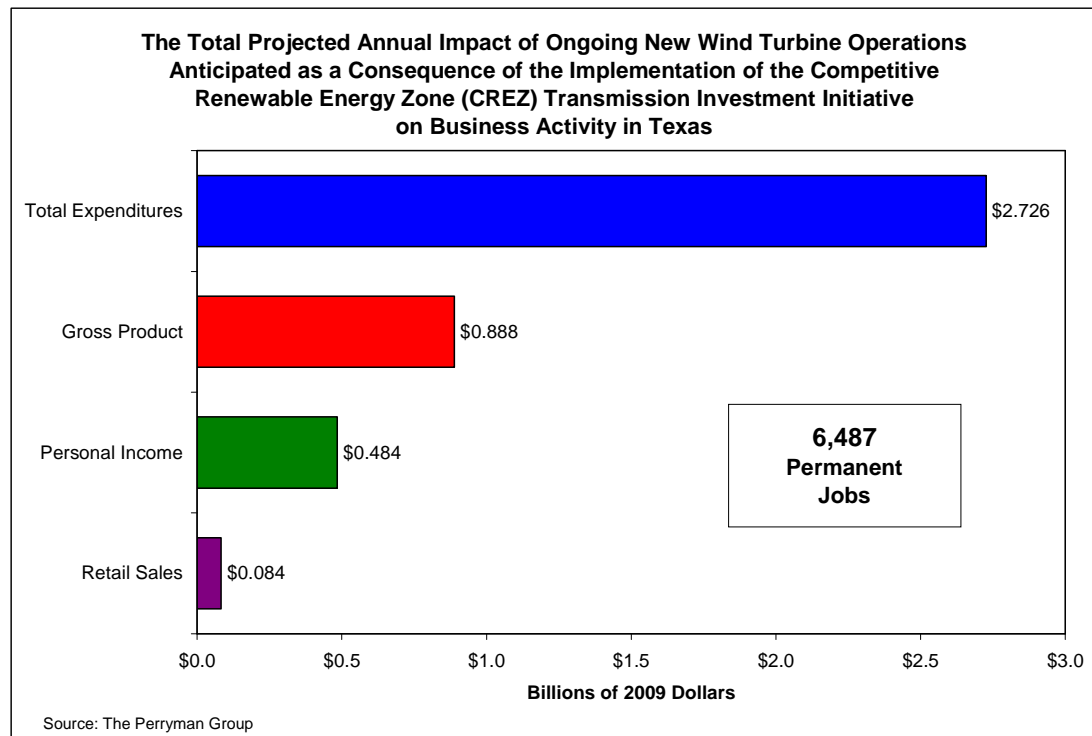


- **Construction and development of this infrastructure also generates tax receipts to the State and local governments. The Perryman Group found this incremental revenue to include over \$1.6 billion for the State and \$329.1 million for local governments.**

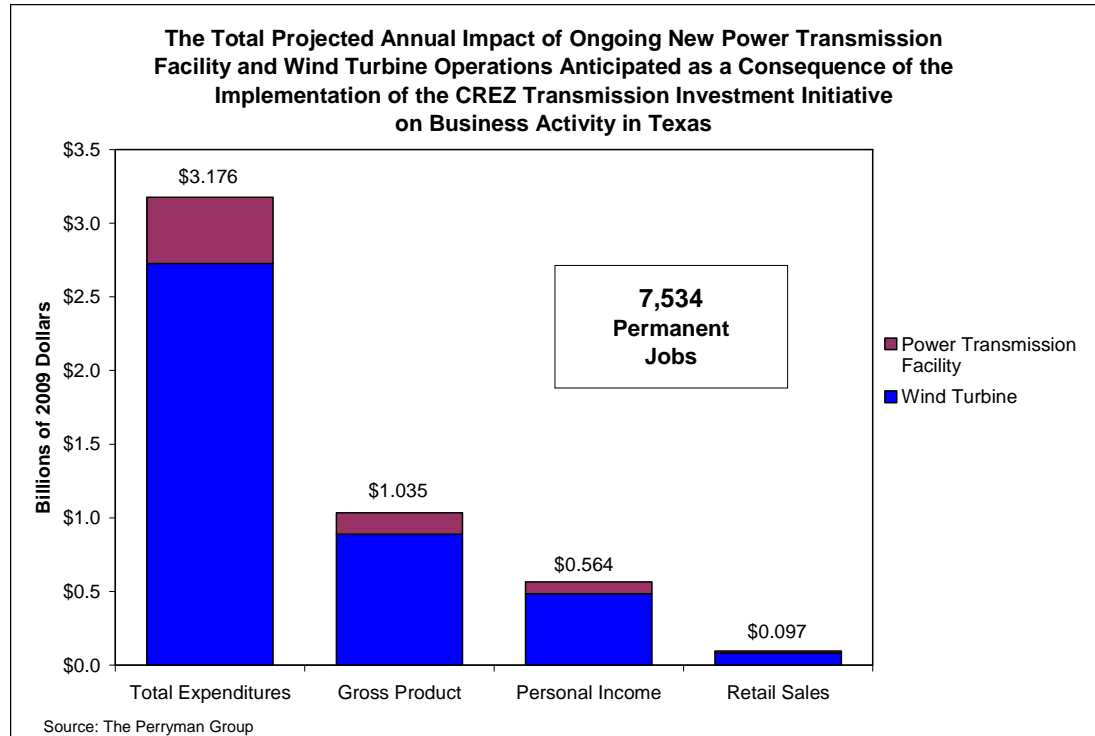


IMPACT OF ONGOING OPERATIONS AND MAINTENANCE ASSOCIATED WITH THE CREZ TRANSMISSION INVESTMENT

- **Ongoing operations associated with new power transmission facilities** anticipated in Texas as a result of the CREZ transmission investment initiative are expected to produce a total of **1,048 jobs in a variety of industries as well as \$146.6 million in output (gross product)**. **Total expenditures (including multiplier/spinoff effects) are projected to total over \$449.8 million for the state.**
- Moreover, anticipated **ongoing wind turbine operations** resulting from the CREZ transmission investment initiative are significant, including an estimated **6,487 jobs and \$2.7 billion in total expenditures** in Texas.



- The combined impact of ongoing operations associated with new power transmission and wind turbine operations as a result of the CREZ transmission investment total some **\$3.2 billion in total expenditures**. **Jobs created throughout the state would reach 7,534** and **output of \$1.0 billion** would be realized in the Lone Star State.



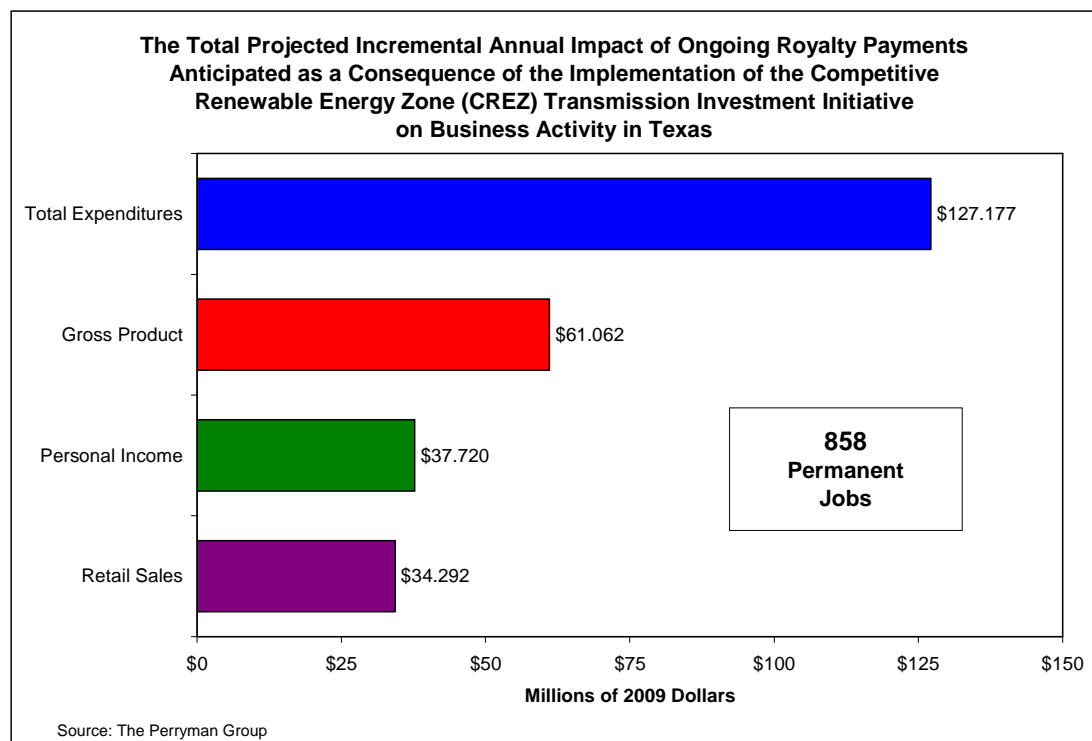
IMPACT OF ROYALTIES ASSOCIATED WITH THE CREZ TRANSMISSION INVESTMENT

- Another component of the ongoing impact of the CREZ transmission investment is the wind farm development it enables. Such wind farms involve notable royalties to landowners. As these payments are spent in communities across the state, they then generate positive business activity not only in those regions, but also elsewhere. The entire state is impacted by the continued



growth in wind energy through electricity prices; the flow of royalty money to Texas brings yet another layer of economic stimulus.

- The standard royalty paid to those with wind turbines on their land in June 2009 was roughly 4% to 4.5% of gross revenues, with variations depending on many factors (according to the Texas Comptroller's office). A one-time payment is usually offered to landowners with transmission towers and lines passing across their property.
- Based on generally expected patterns, **royalties** associated with the CREZ transmission investment and related wind-farm development would lead to gains in business activity of an **estimated \$127.2 million in total spending, \$61.1 million in output (gross product), and 858 permanent jobs.**



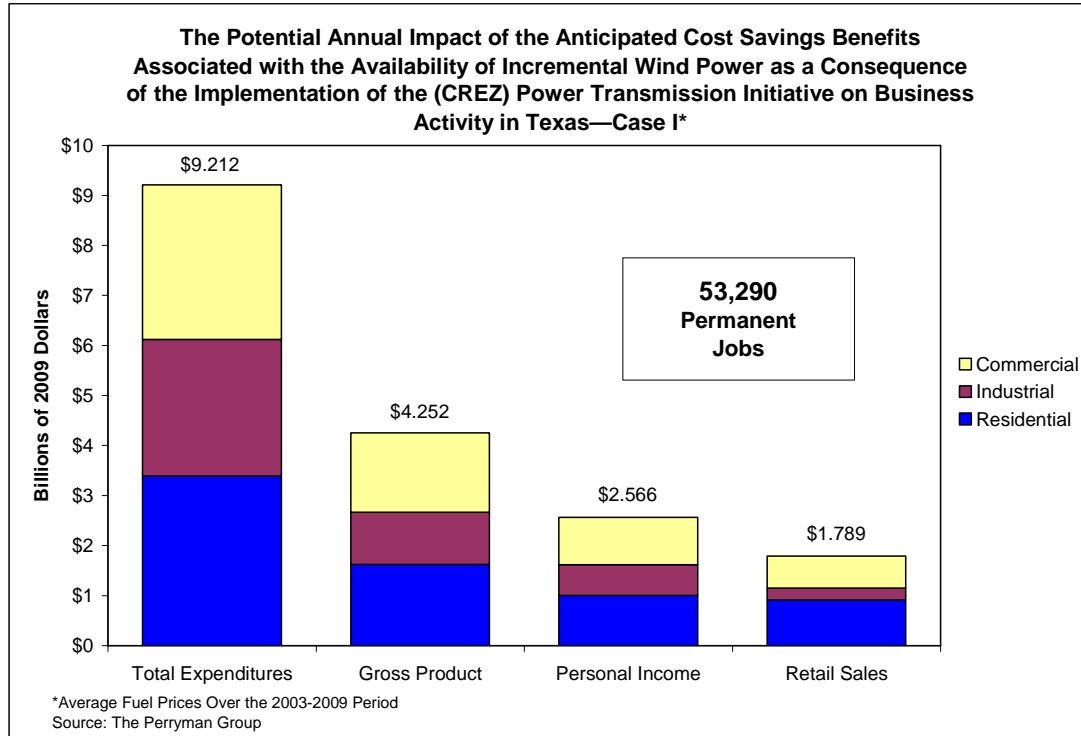
ECONOMIC COST SAVINGS OF FUEL DIVERSITY

- Two scenarios were formulated by The Perryman Group to illustrate the **potential gains from fuel diversity** with varying assumptions regarding natural gas prices.
 - The **first scenario (Case I)** represents the potential impact for **average fuel prices over the 2003 to 2009 period**.
 - The **second scenario (Case II)** demonstrates the impact for average fuel prices during **2008**, a period of generally high costs.

Case I: Average Fuel Prices Over the 2003-2009 Period

- Under **Case I**, the anticipated cost savings benefit for Texas would include **53,290 permanent jobs, roughly \$4.3 billion in output (gross product), and \$9.2 billion in total expenditures** (residential, industrial, and commercial sectors combined).

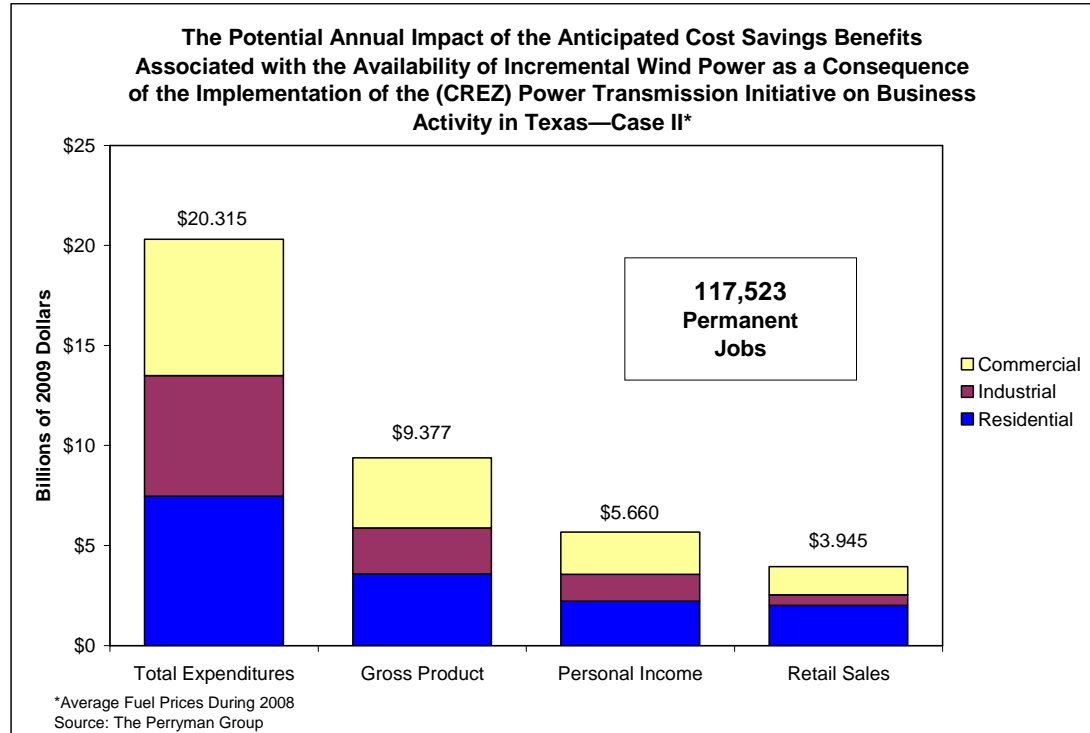




Case II: Average Fuel Prices During 2008

- Case II represents cost savings under average fuel prices during 2008. **The cost savings realized across the state under Case II are projected to be even more significant, totaling 117,523 permanent jobs, roughly \$9.4 billion in output (gross product), and \$20.3 billion in total expenditures (residential, industrial, and commercial sectors combined).**





TOTAL ONGOING EFFECTS OF THE CREZ TRANSMISSION INVESTMENT

- **The three major categories of ongoing effects stemming from the CREZ transmission investment (operations of the transmission facilities and wind farms, royalties, and cost savings) can be summed to obtain the total gains in business activity and associated tax receipts the investment will generate.**
- The increased business activity includes billions in total spending and output as well as tens of thousands of jobs. To put these in perspective, The Perryman Group calculated the percentage increment to projected economic activity at project maturity (approximately 2017) the CREZ-related investments would entail. Depending on the assumptions related to overall generation prices, **the total ongoing effect of the CREZ**



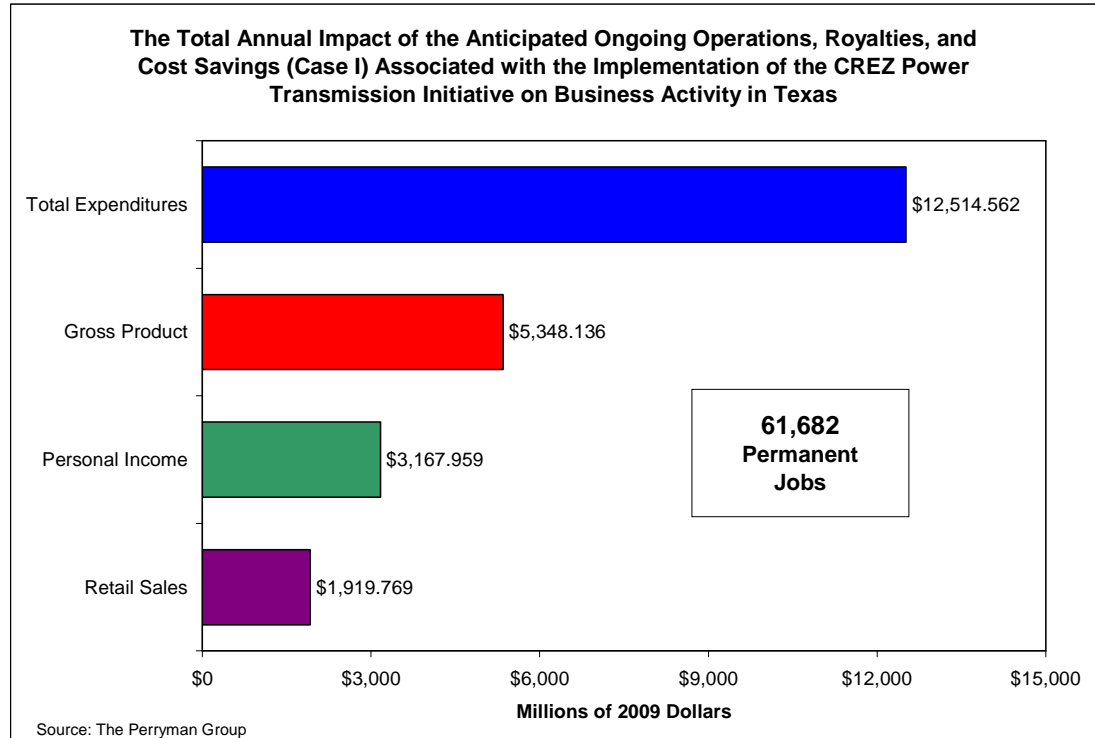
transmission investment includes a 0.3 to 0.6% addition to Texas output and income and a 0.4 to 0.8% increase in Texas jobs. The Case I level is roughly equivalent to current size of the air transportation industry in the state, while Case II is about as large as the computer and electronics sectors. If associated manufacturing and related activity surfaces (as is likely), these impacts will be correspondingly larger.

- Another perspective is on a per-customer basis. The Perryman Group divided the overall effects for each scenario by the estimated number of residential customers within ERCOT. Depending on the levels of overall generation fuel prices, **the typical residential customer at project maturity will save between \$160.93 and \$354.94 per year (fully adjusted for associated transmission costs)**, resulting in a stimulus to the economy of \$454.44 to \$995.60 in total spending and \$216.76 to \$478.03 in gross product.

Total Effects Under Case I Assumptions

- Under Case I assumptions regarding fuel diversity (average fuel prices over the 2003-2009 period), the total ongoing impact of the CREZ transmission investment is some **\$12.5 billion in annual total spending, \$5.3 billion in output, and 61,682 jobs.**





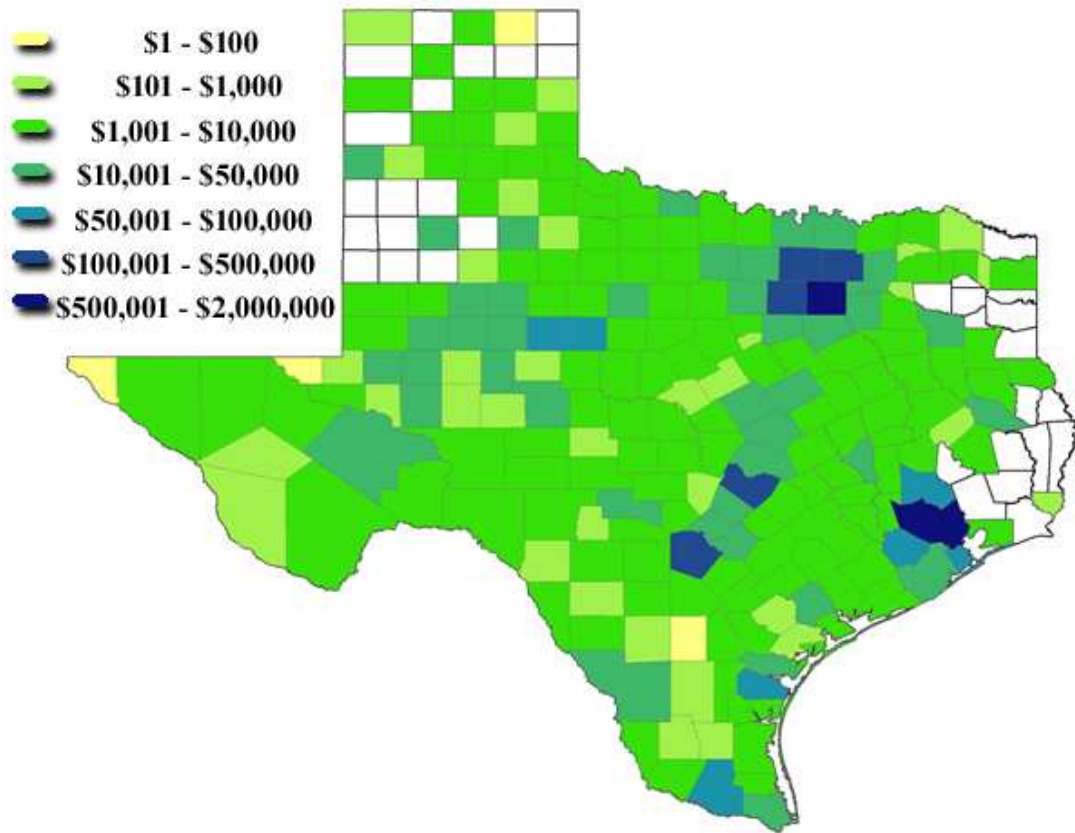
- The occupational breakout of these job gains reveals that **many employment categories (particularly service workers) are positively affected.** (See Appendix C for further detail.)

**Occupational Profile for the Total Potential Annual Impact of
Ongoing Operations, Royalties, and Cost Savings (Case I)
Associated with the Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment
Initiative on Business Activity in Texas**

OCCUPATIONS	NUMBER OF EMPLOYEES
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	4,484
ENGINEERS, ARCHITECTS, AND SURVEYORS	303
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	201
SOCIAL SCIENTISTS	47
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	264
LAWYERS AND JUDGES	40
TEACHERS, LIBRARIANS, AND COUNSELORS	1,277
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	1,415
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	513
TECHNICIAN OCCUPATIONS	1,389
ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	108
MARKETING AND SALES OCCUPATIONS	7,381
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL SERVICE WORKERS	6,860 13,467
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	887
BLUE COLLAR WORKER SUPERVISORS	225
CONSTRUCTION TRADES	2,848
EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	1,925
MECHANICS, INSTALLERS, AND REPAIRERS	4,573
PRECISION PRODUCTION OCCUPATIONS	2,681
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	3,212
HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	1,344
PLANT AND SYSTEM OCCUPATIONS	192
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	2,016
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	4,029
 TOTAL, ALL OCCUPATIONS	 61,682

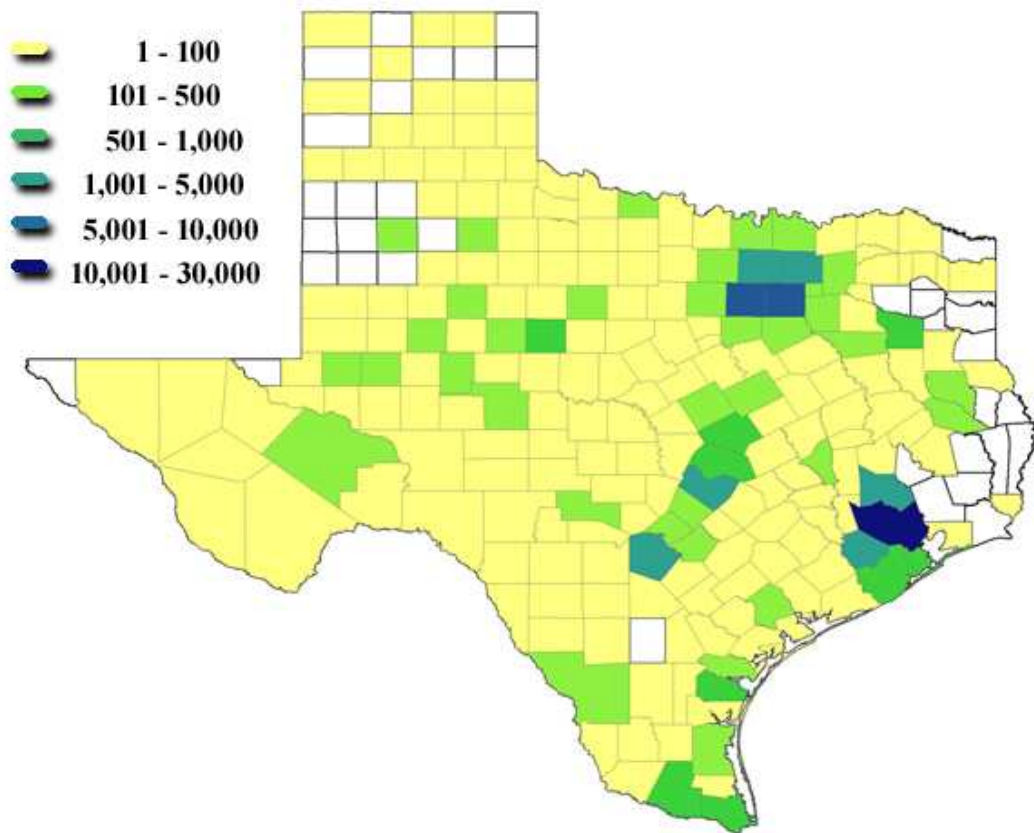
- These impacts are **widespread across the state**, impacting 220 counties directly. The total effect on gross product of these combined impacts ranges from \$2,538 in Loving County to \$1.2 billion in Harris County.

The Potential Annual Impact of the Anticipated Ongoing Operations, Royalties, and Cost Savings (Case I) Associated with the Implementation of the CREZ Power Transmission Initiative on Gross Product in Texas by County (In Thousands)



- Under this (Case I) scenario, a total of 61,682 incremental jobs would be gained in **communities across Texas**, as represented by the following map.

The Potential Annual Impact of the Anticipated Ongoing Operations, Royalties, and Cost Savings (Case I) Associated with the Implementation of the CREZ Power Transmission Initiative on Employment in Texas by County

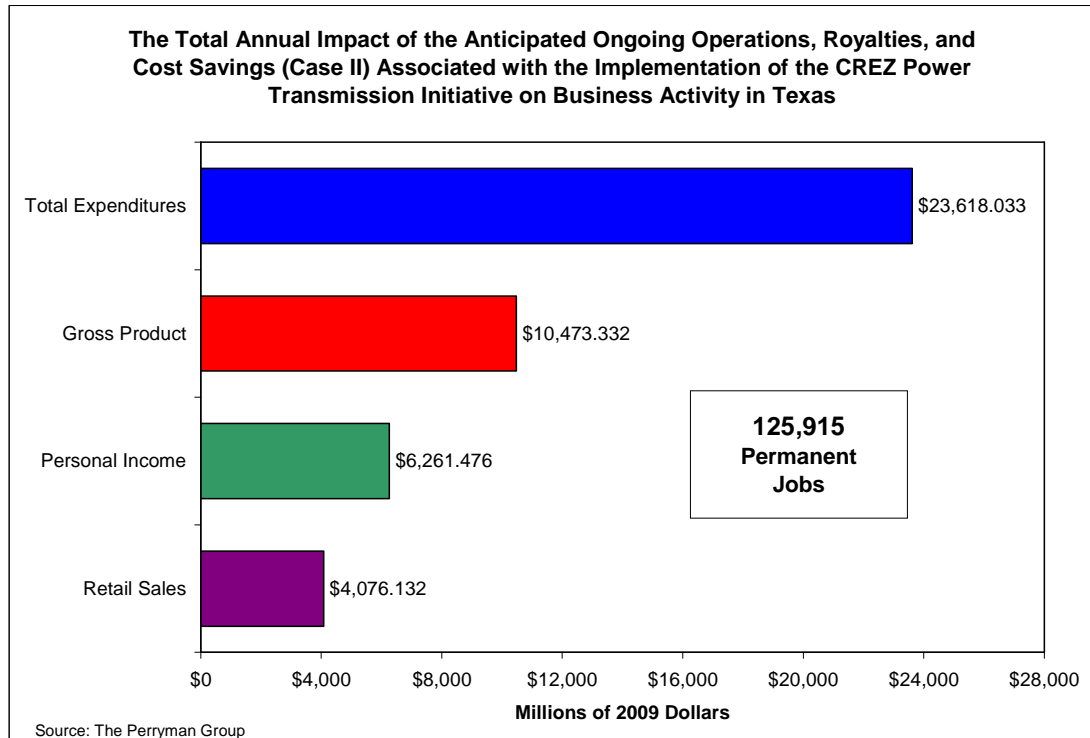


- **The total positive effect on fiscal receipts to the State stemming from this incremental business activity is estimated to be \$365.8 million per year, with \$160.4 million per annum in gains to local governments.**

Total Effects Under Case II Assumptions

- **Under Case II assumptions regarding fuel prices (average of 2008), the fuel diversity benefits (and, thus, overall effects)**

rise substantially. For the state as a whole, the total ongoing effect of the CREZ investment includes an estimated **\$23.6 billion in annual total spending, \$10.5 billion in output (gross product) each year, and 125,915 permanent jobs.**



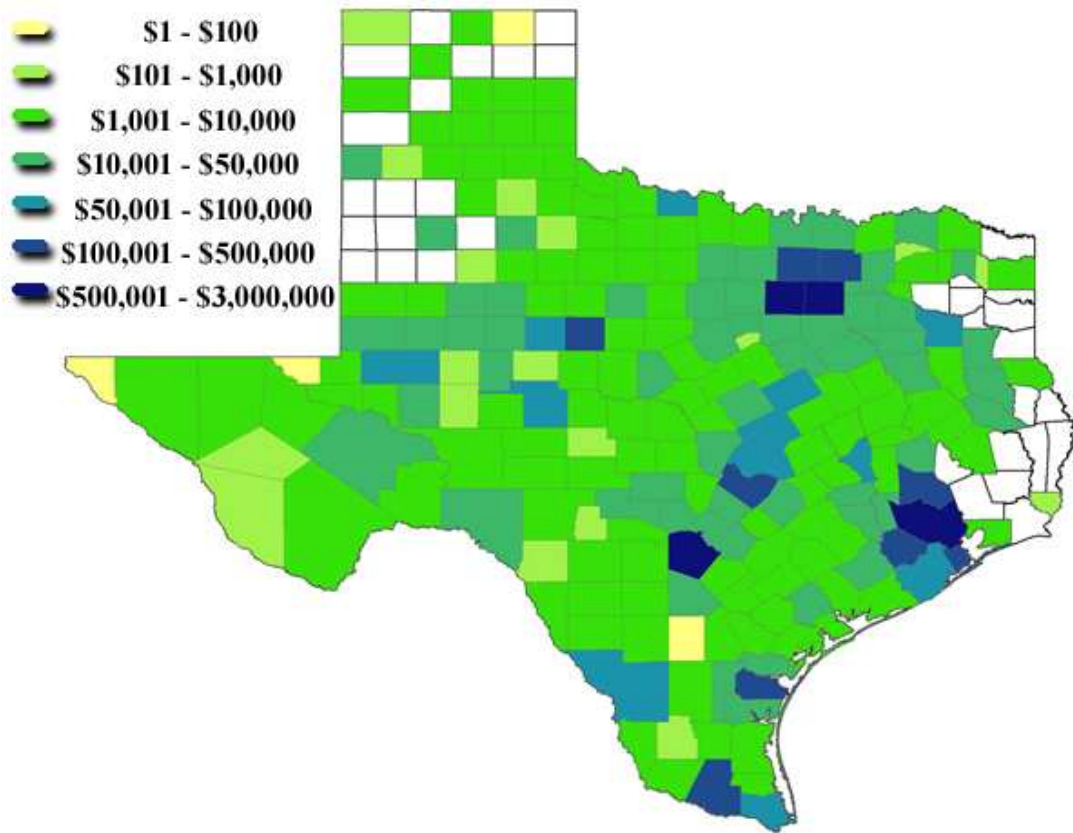
- In terms of occupations, **service workers would see strong gains**, with many others experiencing positive effects. (See Appendix C for further detail.)

**Occupational Profile for the Total Potential Annual Impact of
Ongoing Operations, Royalties, and Cost Savings (Case II)
Associated with the Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment
Initiative on Business Activity in Texas**

OCCUPATIONS	NUMBER OF EMPLOYEES
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	9,230
ENGINEERS, ARCHITECTS, AND SURVEYORS	613
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	408
SOCIAL SCIENTISTS	93
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	505
LAWYERS AND JUDGES	75
TEACHERS, LIBRARIANS, AND COUNSELORS	2,549
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	2,849
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	1,029
TECHNICIAN OCCUPATIONS	2,774
ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	216
MARKETING AND SALES OCCUPATIONS	15,529
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL SERVICE WORKERS	13,732
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	27,456
BLUE COLLAR WORKER SUPERVISORS	1,752
CONSTRUCTION TRADES	454
EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	5,867
MECHANICS, INSTALLERS, AND REPAIRERS	3,988
PRECISION PRODUCTION OCCUPATIONS	9,300
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	5,508
HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	6,422
PLANT AND SYSTEM OCCUPATIONS	2,656
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	377
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	4,119
	8,411
 TOTAL, ALL OCCUPATIONS	 125,915

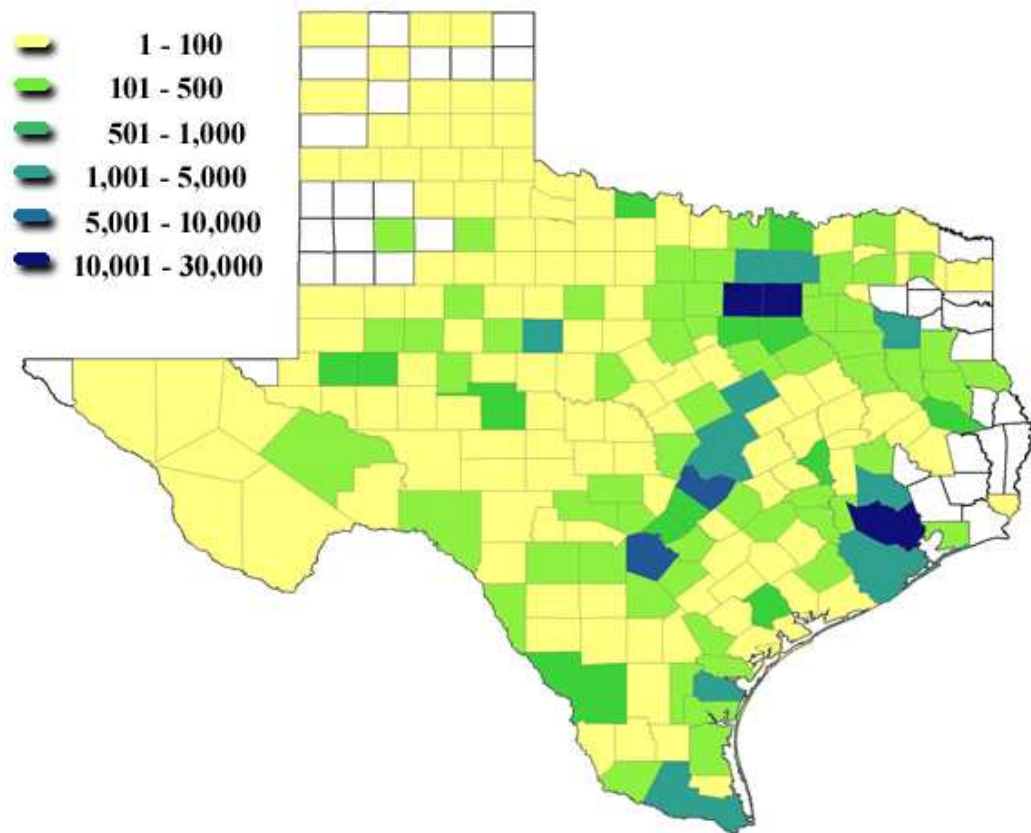
- As indicated by the following maps, the total impact when Case II is added to annual impacts of ongoing operations and royalties are significant in much of the state. The total effect on gross product of these combined impacts would be nearly \$10.5 billion across the state ranging from \$5,597 in Loving County to \$2.6 billion in Harris County.

The Potential Annual Impact of the Anticipated Ongoing Operations, Royalties, and Cost Savings (Case II) Associated with the Implementation of the CREZ Power Transmission Initiative on Gross Product in Texas by County (In Thousands)



- In addition, the combination of ongoing operations, royalties, and cost savings under Scenario II represents some 125,915 jobs across most of the state.

The Potential Annual Impact of the Anticipated Ongoing Operations, Royalties, and Cost Savings (Case II) Associated with the Implementation of the CREZ Power Transmission Initiative on Employment in Texas by County



- **The increased economic activity leads to additional fiscal receipts to the State of an estimated \$758.0 million per year, with \$330.2 million to local governments.**

ECONOMIC DEVELOPMENT EFFECTS

- **As noted, the CREZ transmission investment will help solidify Texas' position at the forefront of wind power, renewables, and associated industries. The state would then be more likely**

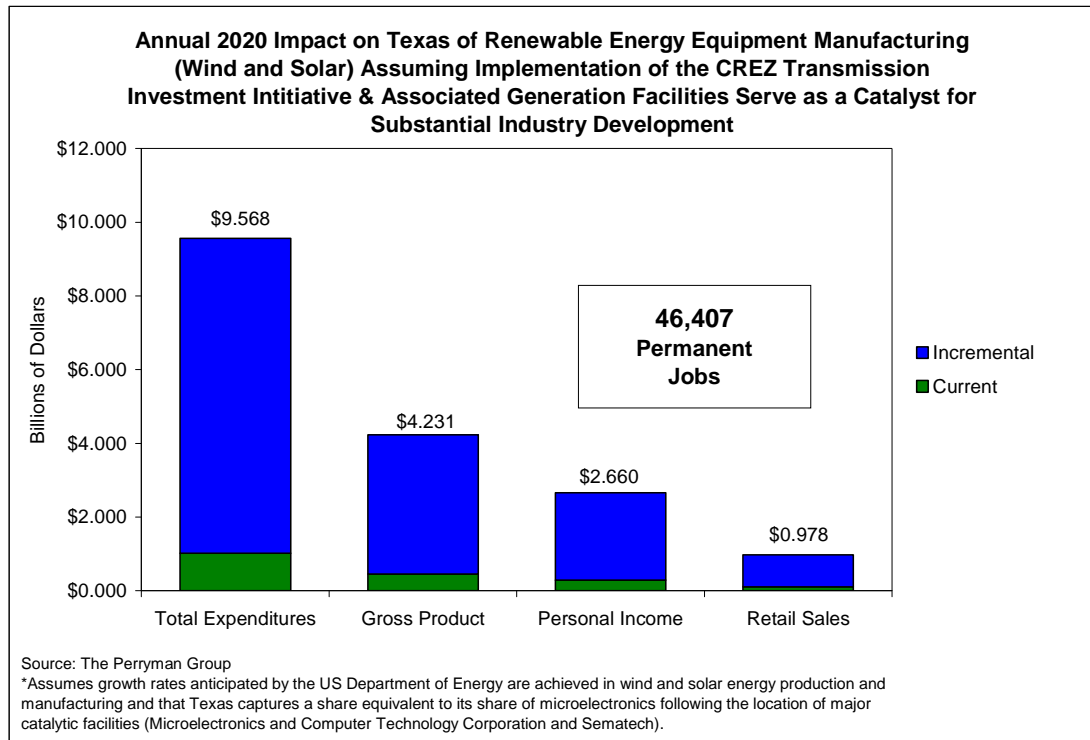


to capture an additional share of future growth in the manufacturing component of this industry cluster.

- The Perryman Group estimated the potential gains from this industry growth assuming that the investment leads Texas to capture a portion of wind and solar manufacturing by 2020 (based on national levels anticipated by the US Department of Energy and consistent with current patterns) equivalent to the state's share in electronics after key locations (Sematech, Microelectronics and Computer Technology Corporation (MCC), and others) led the Lone Star State to become the national leader in that industry cluster.
- As a point of reference, the **current contribution of the wind, solar, and renewables production cluster** was measured to include **\$1.0 billion in total annual spending, \$456.8 million in output (gross product) each year, and 5,226 jobs** (virtually all of this activity is presently attributable to wind). Texas has seen significant growth in these facilities in recent years, but has not yet attained the average “market share” it enjoys in other sectors.
- It should also be noted that, **when these effects are combined with those described above regarding wind turbine operations and royalties, the overall industry is responsible for approximately 10,000 jobs apart from those associated with power costs savings.**
- Under the illustrative assumptions outlined above, **incremental gains in the cluster stemming from the CREZ transmission investment** could be expected to include \$8.6 billion in total annual spending, \$3.8 billion in output (gross product) per annum, and 41,181 jobs.



- Summing current and incremental activity yields an estimate of the **future (2020) gains in business activity stemming from the state’s enhanced position in the wind, solar, and renewables cluster of some \$9.6 billion in total spending per year, \$4.2 billion in annual output (gross product), and 46,407 jobs.**



- These job gains are spread across a **variety of occupations**, particularly service workers as illustrated in the following table. (For further detail, see Appendix C.)

Occupational Profile for the Total Annual Impact of Renewable Energy Equipment Manufacturing (Wind and Solar) Assuming that the Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative and Associated Generation Facilities Serve as a Catalyst for Substantial Industry Development on Business Activity in Texas

OCCUPATIONS	NUMBER OF EMPLOYEES
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	3,171
ENGINEERS, ARCHITECTS, AND SURVEYORS	537
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	187
SOCIAL SCIENTISTS	26
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	137
LAWYERS AND JUDGES	27
TEACHERS, LIBRARIANS, AND COUNSELORS	672
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	769
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	565
TECHNICIAN OCCUPATIONS	1,035
ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	90
MARKETING AND SALES OCCUPATIONS	4,368
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL SERVICE WORKERS	5,517
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	7,166
BLUE COLLAR WORKER SUPERVISORS	504
CONSTRUCTION TRADES	424
EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	2,127
MECHANICS, INSTALLERS, AND REPAIRERS	1,517
PRECISION PRODUCTION OCCUPATIONS	2,965
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	3,512
HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC	4,664
PLANT AND SYSTEM OCCUPATIONS	2,338
PLANT AND SYSTEM OCCUPATIONS	178
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	1,338
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	2,574
TOTAL, ALL OCCUPATIONS	46,407

Conclusion



Conclusion

- **Texas' growing population and economy has expanded (and will continue to expand) the need for electric power, and investment in generation capacity and transmission is essential.**
- **Development of renewable generation capacity offers notable benefits** including protecting the environment, improving fuel diversity, and helping reduce electric prices and volatility.
- In response to the potential for new renewable energy resources, the Public Utility Commission of Texas has initiated a Competitive Renewable Energy Zone program that will notably enhance the capability to move electricity to major urban markets.
- **Transmission and related investment in wind generation involve substantial gains in business activity** in communities across the state.
 - **Construction and development** of the new transmission facilities as well as anticipated wind turbine development is estimated to lead to gains in business activity in the state totaling **\$30.6 billion in output (gross product) and 383,972 person-years of employment.**
 - Significant **ongoing impacts** due to operations, royalties, and cost savings due to fuel diversity would also be realized.
 - Using average fuel prices over the 2003-2009 period (Case I assumptions), results in cost savings totaling nearly \$4.3 billion in output across the state and



53,290 permanent jobs. When combined with other ongoing operations and maintenance as well as expected royalties, the results include **\$5.3 billion in output (gross product) and 61,682 jobs.**

- The second scenario (Case II) presented includes even greater impacts. Using the fuel prices in 2008 as a base, cost savings associated with the implementation of CREZ would total some \$9.4 billion in output (gross product) and 117,523 jobs. Again when combined with other ongoing activities listed above this would reach nearly **\$10.4 billion in output (gross product) and 125,915 permanent jobs.**

- **Job gains involve a spectrum of industries**, with expansion in occupations ranging from teachers to nurses to engineers.

- The CREZ **transmission infrastructure improvement helps address the future electricity needs of the state while simultaneously improving Texas' competitive position** for future economic development. In addition, the associated growth in wind and solar energy helps establish Texas as a leading site for future expansion in the renewable energy cluster.

- **Clearly, this ambitious and enlightened investment stands to pay notable dividends to Texans across a broad spectrum and will permit the state to enjoy the “winds of prosperity” for generations to come.**



APPENDICES

APPENDIX A: US Multi-Regional Impact Assessment System Methodology



US Multi-Regional Impact Assessment System

- The basic modeling technique employed in this study is known as dynamic input-output analysis. This methodology essentially uses extensive survey data, industry information, and a variety of corroborative source materials to create a matrix describing the various goods and services (known as resources or inputs) required to produce one unit (a dollar's worth) of output for a given sector. Once the base information is compiled, it can be mathematically simulated to generate evaluations of the magnitude of successive rounds of activity involved in the overall production process.
- There are two essential steps in conducting an input-output analysis once the system is operational. The first major endeavor is to accurately define the levels of direct activity to be evaluated. This process is described below. The second step is the simulation of the input-output system to measure overall economic effects.
- For the construction effects, the cost of the CREZ investments were based on the best available current estimates for facility costs and locations; these amounts were then fully adjusted for the items that will be purchased outside the state. The purchases of major materials within the state are incorporated in the state totals but not attributed to individual counties along the route. A similar approach is used with respect to generation facilities using current cost estimates with appropriate allocations for out of state components. The location of the additional capacity, while not certain, could be closely estimated based on ongoing and announced projects and past investment patterns.
- The ongoing operations outlays were based on standard industry patterns for transmission and wind generation facilities, while royalty payments were based on typical lease arrangements and anticipated revenues. The resulting spending was assumed to occur in accordance with standard patterns as reflected by recent surveys by ACCRA and the US Department of Labor. The amounts were fully adjusted for anticipated taxes, savings, and out-of-area spending.
- The price effects were determined by developing a model of price responses analogous to that used by the PUC in developing the CREZ program, then calibrating it to comparable outcomes and simulating it to reflect (1) the level of expected wind power development, (2) the appropriate capacity factor, and (3) two alternative scenarios for fuel pricing. The resulting direct cost savings were then allocated across residential, commercial, and industrial users on a detailed (more than 500 categories) sectoral basis using the relevant direct requirements coefficients from the impact (input output) model described below.
- The current level of wind and solar manufacturing was based on employment levels in existing facilities for towers, wind turbines, blades, photovoltaic cells, and solar panels. To account for the economic development potential that could arise from the CREZ investment, a scenario was developed in which Texas established a position as a major producer of the products and achieved a market share equivalent to that attained in microelectronics following the location of major



-
- research and applications consortia (MCC and Sematech). Results were measured as of 2020 to account for the stabilized US manufacturing levels anticipated by the US Department of Energy and were allocated across components based on anticipated industry needs.
- Once the direct input values were determined (as described within the report), the present study was conducted within the context of the US Multi-Regional Impact Assessment System (USMRIAS) which was developed and is maintained by The Perryman Group. This model has been used in hundreds of diverse applications across the country and has an excellent reputation for accuracy and credibility. In addition, the model has been in operation and continually updated for over two decades. The systems used in the current simulations reflect the unique industrial structures and characteristics of the economies of Texas and relevant local areas (over 200 counties) within the state.
 - The USMRIAS is somewhat similar in format to the Input-Output Model of the United States and the Regional Input-Output Modeling System, both of which are maintained by the US Department of Commerce. The model developed by TPG, however, incorporates several important enhancements and refinements. Specifically, the expanded system includes (1) comprehensive 500-sector coverage for any county, multi-county, or urban region; (2) calculation of both total expenditures and value-added by industry and region; (3) direct estimation of expenditures for multiple basic input choices (expenditures, output, income, or employment); (4) extensive parameter localization; (5) price adjustments for real and nominal assessments by sectors and areas; (6) measurement of the induced impacts associated with payrolls and consumer spending; (7) embedded modules to estimate multi-sectoral direct spending effects; (8) estimation of retail spending activity by consumers; and (9) comprehensive linkage and integration capabilities with a wide variety of econometric, real estate, occupational, and fiscal impact models. The models used for the present investigation have been thoroughly tested for reasonableness and historical reliability.
 - As noted earlier, the impact assessment (input-output) process essentially estimates the amounts of all types of goods and services required to produce one unit (a dollar's worth) of a specific type of output. For purposes of illustrating the nature of the system, it is useful to think of inputs and outputs in dollar (rather than physical) terms. As an example, the construction of a new building will require specific dollar amounts of lumber, glass, concrete, hand tools, architectural services, interior design services, paint, plumbing, and numerous other elements. Each of these suppliers must, in turn, purchase additional dollar amounts of inputs. This process continues through multiple rounds of production, thus generating subsequent increments to business activity. The initial process of building the facility is known as the *direct effect*. The ensuing transactions in the output chain constitute the *indirect effect*.
 - Another pattern that arises in response to any direct economic activity comes from the payroll dollars received by employees at each stage of the production cycle. As workers are compensated, they use some of their income for taxes, savings,



and purchases from external markets. A substantial portion, however, is spent locally on food, clothing, healthcare services, utilities, housing, recreation, and other items. Typical purchasing patterns in the relevant areas are obtained from the *ACCRA Cost of Living Index*, a privately compiled inter-regional measure which has been widely used for several decades, and the *Consumer Expenditure Survey* of the US Department of Labor. These initial outlays by area residents generate further secondary activity as local providers acquire inputs to meet this consumer demand. These consumer spending impacts are known as the *induced effect*. The USMRIAS is designed to provide realistic, yet conservative, estimates of these phenomena.

- Sources for information used in this process include the Bureau of the Census, the Bureau of Labor Statistics, the Regional Economic Information System of the US Department of Commerce, and other public and private sources. The pricing data are compiled from the US Department of Labor and the US Department of Commerce. The verification and testing procedures make use of extensive public and private sources. Note that all monetary values, unless otherwise noted, are given in constant (2009) dollars to eliminate the effects of inflation.
- The USMRIAS generates estimates of the effect on several measures of business activity. The most comprehensive measure of economic activity used in this study is **Total Expenditures**. This measure incorporates every dollar that changes hands in any transaction. For example, suppose a farmer sells wheat to a miller for \$0.50; the miller then sells flour to a baker for \$0.75; the baker, in turn, sells bread to a customer for \$1.25. The Total Expenditures recorded in this instance would be \$2.50, that is, $\$0.50 + \$0.75 + \$1.25$. This measure is quite broad, but is useful in that (1) it reflects the overall interplay of all industries in the economy, and (2) some key fiscal variables such as sales taxes are linked to aggregate spending.
- A second measure of business activity frequently employed in this analysis is that of **Gross Product**. This indicator represents the regional equivalent of Gross Domestic Product, the most commonly reported statistic regarding national economic performance. In other words, the Gross Product of, say, Amarillo is the amount of US output that is produced in that area. It is defined as the value of all final goods produced in a given region for a specific period of time. Stated differently, it captures the amount of value-added (gross area product) over intermediate goods and services at each stage of the production process, that is, it eliminates the double counting in the Total Expenditures concept. Using the example above, the Gross Product is \$1.25 (the value of the bread) rather than \$2.50. Alternatively, it may be viewed as the sum of the value-added by the farmer, \$0.50; the miller, \$0.25 ($\$0.75 - \0.50); and the baker, \$0.50 ($\$1.25 - \0.75). The total value-added is, therefore, \$1.25, which is equivalent to the final value of the bread. In many industries, the primary component of value-added is the wage and salary payments to employees.
- The third gauge of economic activity used in this evaluation is **Personal Income**. As the name implies, Personal Income is simply the income received by

individuals, whether in the form of wages, salaries, interest, dividends, proprietors' profits, or other sources. It may thus be viewed as the segment of overall impacts which flows directly to the citizenry.

- The fourth measure, **Retail Sales**, represents the component of Total Expenditures which occurs in retail outlets (general merchandise stores, automobile dealers and service stations, building materials stores, food stores, drugstores, restaurants, and so forth). Retail Sales is a commonly used measure of consumer activity.
- The final aggregates used are **Permanent Jobs** and **Person-Years of Employment**. The Person-Years of Employment measure reveals the full-time equivalent jobs generated by an activity. A person-year is simply the equivalent of a person working for a year. As an example, it could be a carpenter employed for five months, a mason for three months, and a painter for four months. In the case of a construction project, these are typically spread over the course of the construction and development phase. It should be noted that, unlike the dollar values described above, Permanent Jobs is a "stock" rather than a "flow." In other words, if an area produces \$1 million in output in 2007 and \$1 million in 2008, it is appropriate to say that \$2 million was achieved in the 2007-2008 period. If the same area has 100 people working in 2007 and 100 in 2008, it only has 100 Permanent Jobs. When a flow of jobs is measured, such as in a construction project or a cumulative assessment over multiple years, it is appropriate to measure employment in Person-Years (a person working for a year). This concept is distinct from Permanent Jobs, which anticipates that the relevant positions will be maintained on a continuing basis.



APPENDIX B: US Multi-Regional Industry-Occupation System Methodology

US Multi-Regional Industry-Occupation System Methodology

- The US Multi-Regional Industry-Occupation System translates standard data on employment by industry into estimates of occupational categories at a highly detailed level. The Texas submodel used in the current analysis reflects the specific labor market characteristics of the state economy.
- The modeling process begins with the industry-occupation coefficients compiled by the US Department of Labor based on extensive surveys of operating patterns in thousands of firms and other secondary sources. As an example, a typical tire plant of a given size requires machinists, mechanics, plant managers, administrative staff, custodial staff, shipping personnel, and numerous other types of workers. By compiling this information across the entire economy, a matrix is created which allows the data on employment by industry (which is regularly compiled) to be translated into employment by occupation.
- The Perryman Group takes this basic structure and links it specifically to the economy of the US and the various states, metropolitan areas, regions, and counties. The Texas system accounts for productivity and production patterns in each area. It is also regularly updated to reflect evolving patterns. The system can be fully integrated with historical employment data and the projections obtained from the Texas Econometric Model. It can also be linked to results from the US Multi-Regional Impact Assessment System, as in the current analysis. Thus, the industry-occupation system is a flexible mechanism to allow extensive evaluations of workforce characteristics and patterns. The system is highly detailed, providing results for approximately 700 occupational categories.



APPENDIX C: Detailed Sectoral Results

Economic Impact of Wind Power Development Prior to the CREZ Initiative

**The Total Impact of Wind Turbine Construction Completed Prior to the
Initial Implementation of the Competitive Renewable Energy Zone (CREZ)
Transmission Investment Initiative on Business Activity in Texas
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)*	Gross Product (2009 Dollars)*	Personal Income (2009 Dollars)*	Employment (Permanent Jobs)
Agricultural Products & Services	\$346,321,026	\$92,959,023	\$63,310,273	1,088
Forestry & Fishery Products	\$8,878,047	\$7,295,362	\$2,705,705	37
Coal Mining	\$37,551,660	\$11,151,088	\$11,750,649	85
Crude Petroleum & Natural Gas	\$283,131,211	\$62,718,740	\$28,925,805	153
Miscellaneous Mining	\$44,769,944	\$21,624,191	\$12,711,653	152
New Construction	\$6,723,500,952	\$3,382,709,720	\$2,787,563,495	42,315
Maintenance & Repair Construction	\$380,188,013	\$200,542,085	\$165,259,189	2,508
Food Products & Tobacco	\$741,199,505	\$192,646,456	\$98,413,013	1,771
Textile Mill Products	\$10,448,973	\$2,438,889	\$2,063,510	50
Apparel	\$171,327,700	\$94,903,029	\$48,088,812	1,410
Paper & Allied Products	\$118,642,239	\$52,492,275	\$23,731,377	386
Printing & Publishing	\$161,730,588	\$80,260,616	\$52,387,906	957
Chemicals & Petroleum Refining	\$825,352,732	\$127,230,489	\$59,742,111	475
Rubber & Leather Products	\$120,871,745	\$51,483,945	\$30,097,281	647
Lumber Products & Furniture	\$154,631,243	\$42,671,512	\$30,422,437	681
Stone, Clay, & Glass Products	\$641,283,435	\$311,884,693	\$163,117,030	2,860
Primary Metal	\$456,108,695	\$125,645,586	\$93,524,428	1,513
Fabricated Metal Products	\$1,631,723,484	\$651,100,924	\$420,351,615	7,749
Machinery, Except Electrical	\$138,047,150	\$55,365,321	\$39,553,227	454
Electric & Electronic Equipment	\$159,530,484	\$81,507,530	\$48,727,975	436
Motor Vehicles & Equipment	\$61,713,449	\$13,369,372	\$8,685,614	132
Transp. Equip., Exc. Motor Vehicles	\$31,359,014	\$13,639,307	\$8,912,787	114
Instruments & Related Products	\$32,519,544	\$14,966,607	\$11,375,982	158
Miscellaneous Manufacturing	\$46,714,938	\$18,370,514	\$12,670,357	217
Transportation	\$712,869,469	\$472,045,424	\$312,194,021	4,644
Communication	\$442,257,451	\$273,595,350	\$116,806,642	1,112
Electric, Gas, Water, Sanitary Services	\$935,055,229	\$211,757,664	\$92,405,410	422
Wholesale Trade	\$932,833,522	\$630,886,655	\$363,774,871	4,378
Retail Trade	\$2,220,976,477	\$1,840,310,436	\$1,100,446,797	31,054
Finance	\$306,322,609	\$164,946,748	\$96,048,976	919
Insurance	\$397,286,958	\$237,404,627	\$141,929,844	1,838
Real Estate	\$2,325,191,488	\$325,258,267	\$52,406,167	501
Hotels, Lodging Places, Amusements	\$217,410,636	\$113,230,473	\$74,283,108	1,948
Personal Services	\$432,169,927	\$266,543,762	\$207,375,354	3,762
Business Services	\$1,513,728,944	\$965,187,890	\$787,345,998	10,313
Eating & Drinking Places	\$961,829,696	\$562,858,279	\$299,470,636	14,573
Health Services	\$731,351,593	\$512,136,309	\$433,015,992	7,698
Miscellaneous Services	\$630,205,483	\$261,267,663	\$226,497,306	5,823
Households	\$32,939,030	\$32,939,030	\$32,242,051	2,399
Total	\$26,119,974,280	\$12,579,345,850	\$8,560,335,402	157,728

*Values are fully adjusted to reflect external input purchases.

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Construction Prior to the CREZ Initiative: Occupational Profile

Occupational Profiles for the Total Impact of Wind Turbine Construction Completed Prior to the Initial Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas

TOTAL, ALL OCCUPATIONS	157,728
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	13,027
Managerial and administrative occupations	9,394
Elem. & sec. sch. principals and asst. principals	130
Assistant principals	42
Principals	89
Food service and lodging managers	870
Postmasters and mail superintendents	29
Public admin. chief exec., legis., and gen. admin.	133
All other managers and administrators	8,233
Management support occupations	3,633
Accountants and auditors	612
Assessors	20
Claims examiners, prop. and casual. insurance	69
Compliance and enforce. inspectors, exc. const.	104
Construction and building inspectors	264
Cost estimators	1,275
Personnel specialists and related workers	290
Claims takers, unemployment benefits	0
Employ. interviewers, pvt. or pub. emp. serv.	183
Personnel, training, and labor related spec.	97
Special agents, insurance	10
Purchasing agents and buyers	824
Purchasing agents, exc. wh., ret., and farm pr.	149
Wholesale and retail buyers, exc. farm products	674
Tax examiners, collectors, and revenue agents	12
Tax preparers	63
Underwriters	26
All other management support workers	74
ENGINEERS, ARCHITECTS, AND SURVEYORS	2,143
Engineers	2,026
Aeronautical and astronautical engineers	58
Chemical engineers	109
Civil engineers, including traffic engineers	334
Electrical and electronics engineers	199

Industrial engineers, except safety engineers	60
Mechanical engineers	203
Matallurgists and met., cer., and mat. engineers	28
Mining engineers, inc. mine safety engineers	16
Nuclear engineers	25
Petroleum engineers	710
Other engineers	282
Safety engineers, except mining engineers	28
All other engineers	254
Architects and surveyors	117
Architects, inc. landscape architects	41
Surveyors	76
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	530
Computer systems analysts, electronic data processing	173
Life scientists	144
Agricultural and food scientists	21
Biological scientists	66
Foresters and conservation scientists	12
Medical scientists	29
All other life scientists	16
Mathematical scientists	87
Actuaries	18
Statisticians	28
Mathematicians and all other mathematical scientists	40
Physical scientists	127
Chemists	69
Geologists, geophysicists, and oceanographers	28
Meteorologists	2
Physicists and astronomers	16
All other physical scientists	13
SOCIAL SCIENTISTS	91
Economists	28
Psychologists	31
Sociologists	2
Urban and regional planners	14
All other social scientists	16
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	475
Clergy	184



Directors, religious activities and education	59
Recreation workers	73
Social workers	159
LAWYERS AND JUDGES	91
Judges, magistrates, and other jud. workers	22
Lawyers	70
TEACHERS, LIBRARIANS, AND COUNSELORS	2,471
Teachers, preschool and elementary	209
Teachers, preschool	43
Teachers, kindergarten and elementary	166
Teachers, secondary school	1,063
College and university faculty	686
Other teachers and instructors	445
Farm and home management advisors	24
Graduate assistants, teaching	140
Instructors, adult (nonvocational) education	34
Instructors and coaches, sports and phys. train.	183
Teachers and instructors, voc. ed. and training	28
All other teachers and instructors	35
Librarians, archivists, curators, and related workers	41
Audio-visual specialists	7
Curators, archiv., museum techn., and restorers	3
Librarians, professional	31
Counselors	28
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	2,345
Chiropractors	31
Dentists	57
Dietitians and nutritionists	37
Opticians, dispensing and measuring	177
Optometrists	37
Pharmacists	319
Podiatrists	6
Physician assistants	51
Physicians and surgeons	303
Registered nurses	996
Therapists	311
Occupational therapists	19
Physical therapists	47
Recreational therapists	15

Respiratory therapists	172
Speech pathologists and audiologists	43
All other therapists	15
Veterinarians and veterinary inspectors	20
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	1,179
Artists and commercial artists	164
Athletes, coaches, umpires, and related workers	35
Dancers and choreographers	21
Designers, except interior designers	159
Merchandise displayers and window trimmers	65
Musicians	106
Music dir., singers, composers, and related workers	24
Musicians, instrumental	82
Photographers and camera operators	88
Camera operators, television and motion picture	5
Photographers	82
Producers, directors, actors, and entertainers	50
Public related specialists and publicity writers	40
Radio and TV announcers and newscasters	16
Announcers, radio and television	14
Broadcast news analysts	2
Reporters and correspondents	369
Writers and editors, inc. tech. writers	67
TECHNICIAN OCCUPATIONS	3,198
Health technicians and technologists	1,404
Dental hygienists	72
Dietetic technicians	50
Electrocardiograph technicians/technologists	39
Electroencephalograph technicians/technologists	18
Emergency medical technicians	44
Licensed practical nurses	513
Medical and clinical lab technol. and techn.	212
Medical and clinical laboratory technicians	86
Medical and clinical laboratory technologists	126
Medical records technicians and technologists	32
Radiologic technologists and technicians	233
Surgical technicians	111
All other health prof. and paraprofessionals	81



Engineering and science technicians and technologists	1,322
Engineering technicians	496
Civil engineering technicians and technologists	54
Electrical and electronic technicians/technol.	290
Industrial engineering technicians and technol.	14
Mechanical engineering technicians and technol.	50
All other engineering technicians and technol.	89
Drafters	342
Phys. and life sci. technicians/technologists	484
Petroleum technicians and technologists	334
All other science technicians and technologists	150
Technicians, exc. health and engineering and science	472
Air traffic controllers	22
Broadcast technicians	8
Computer programmers	208
Legal assistants and technicians, exc. clerical	145
Law clerks	20
Paralegal personnel	28
Title examiners, searchers, and clerks	96
Programmers, numerical, tool, and proc. control	9
Radio operators	1
Technical assistants, library	23
All other technicians	57
 ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	 309
 MARKETING AND SALES OCCUPATIONS	 13,513
Cashiers	3,040
Counter and rental clerks	209
Insurance sales workers	69
Real estate agents and brokers	327
Brokers, real estate	10
Sales agents, real estate	316
Real estate appraisers	9
Salespersons, retail	4,415
Securities and financial services sales workers	33
Stock clerks, sales floor	1,642
Travel agents	44
All other sales and related workers	3,726

ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL	15,967
Adjusters and investigators	419
Adjustment clerks	123
Bill and account collectors	80
Ins. adjusters, examiners, and investigators	26
Insurance appraisers, auto damage	127
Insurance claims clerks	11
Insurance examining clerks	3
Insurance policy processing clerks	14
License clerks	7
Welfare eligibility workers and interviewers	28
Communications equipment operators	312
Telephone operators	273
Central office operators	17
Directory assistance operators	7
Switchboard operators	249
Telegraph and teletype operators	1
All other communications equipment operators	38
Computer operators and peripheral equipment operators	210
Computer operators, exc. peripheral equipment	157
Peripheral EDP equipment operators	53
Duplicating, mail, and other office machine operators	90
Duplicating machine operators	23
Transit clerks	4
All other office machine operators	63
Financial records processing occupations	2,167
Billing, cost, and rate clerks	151
Billing, posting, and calc. mach. operators	99
Bookkeeping, accounting, and auditing clerks	1,591
Payroll and timekeeping clerks	326
Information clerks	1,345
Hotel desk clerks	661
New accounts clerks	359
Receptionists and information clerks	288
Reservation & trans. ticket agents & travel clerks	36
Reservation and transportation ticket agents	20
Travel clerks	16
Mail and message distribution workers	720
Mail clerks, exc. mail mach. op. and postal serv.	67
Messengers	67
Postal mail carriers	284
Postal service clerks	302

Mat. rec., sched., disp., and dist. occupations	2,071
Dispatchers	172
Dispatchers, exc. police, fire, and ambulance	144
Dispatchers, police, fire, and ambulance	28
Meter readers, utilities	23
Order fillers, wholesale and retail sales	339
Procurement clerks	38
Production, planning, and expediting clerks	89
Stock clerks, stockroom, warehouse, or yard	677
Traffic, shipping, and receiving clerks	467
Transportation agents	13
Weighers, meas., check., and samp., recordkeep.	59
All other mat. rec., sched., and dist. workers	196
Records processing occupations, exc. financial	883
Advertising clerks	294
Brokerage clerks	26
File clerks	162
Library assistants and bookmobile drivers	54
Order clerks, materials, merch., and service	215
Personnel clerks, exc. payroll and timekeeping	64
Statement clerks	67
Secretaries, stenographers, and typists	2,208
Secretaries	1,726
Stenographers	63
Typists	419
Other clerical and administrative support workers	5,542
Court clerks	44
Credit authorizers	66
Credit checkers	92
Customer service representatives, utilities	14
Data entry keyers, exc. composing	175
Data keyers, composing	705
General office clerks	1,667
Loan and credit clerks	51
Municipal clerks	20
Proofreaders and copy markers	152
Real estate clerks	9
Statistical clerks	81
Teacher aides and educational assistants	76
Tellers	1,641
All other clerical and admin. support workers	749

SERVICE WORKERS	22,809
Clean. and bldg. serv. occup., exc. pvt. hshld.	1,782
Janitors and cleaners, inc. maids/hskpg. clean.	1,676
Pest controllers and assistants	106
Food and beverage prep. and service occupations	11,983
Bakers, bread and pastry	209
Bartenders	704
Cooks, except short order	1,160
Cooks, institution or cafeteria	178
Cooks, restaurant	982
Cooks, sh. order and spec. fast food	907
Din. rm. and cafet. attendants and bar. helpers	503
Food preparation and service workers, fast food	2,784
Food preparation workers	1,577
Hosts and hostesses, rest./lounge/coffee shop	319
Waiters and waitresses	3,075
All other food service workers	743
Health service and related occupations	1,668
Ambulance drivers and attendants, except EMTs	18
Dental assistants	351
Medical assistants	158
Nursing aides and psychiatric aides	885
Nursing aides, orderlies, and attendants	820
Psychiatric aides	65
Occupational therapy assistants and aides	8
Pharmacy assistants	141
Phys. and correct. therapy assistants and aides	106
Personal service occupations	963
Amusement and recreation attendants	188
Baggage porters and bellhops	9
Barbers	55
Child care workers	72
Cosmetologists and related workers	488
Hairdressers, hairstylists, and cosmetologists	355
Manicurists	56
Shampooers	76
Flight attendants	45
Guides	13
Social welfare service aides	57
Ushers, lobby attendants, and ticket takers	37
Private household workers	4,262
Cooks, private household	99



Housekeepers and butlers	184
Child care workers, private household	1,693
Cleaners and servants, private household	2,287
Protective service occupations	1,537
Correction officers and jailers	53
Fire fighting occupations	314
Fire fighters	245
Fire fighting and prevention supervisors	60
Fire inspectors	8
Police and detectives	459
Police and detective supervisors	88
Police detectives and investigators	39
Police patrol officers	332
Sheriffs and other law enforcement workers	39
Bailiffs	6
Fish and game wardens	1
Parking enforcement officers	7
Sheriffs, deputy sheriffs, and U.S. marshalls	25
Other protective service workers	673
Crossing guards	6
Detectives and investigators, except public	91
Guards	516
All other protective service workers	60
All other service occupations	615
Housekeepers, institutional	133
All other service workers	482
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	1,430
Supervisors, farming, forestry, and ag. related occ.	86
Agriculture related occupations	480
Animal caretakers, except farm	47
Gardeners and groundskeepers, except farm	331
Graders and sorters, agricultural products	102
Farm occupations	606
Farm workers	590
Nursery workers	16
Farm operators and managers	97
Farmers	27
Farm managers	70
Fishers, hunters, and trappers	15
Captains and other officers, fishing vessels	2
Fishers, hunters, and trappers	13



Forestry and logging occupations	143
Choke setters	59
Fallers and buckers	3
Forest and conservation workers	20
Logging tractor operators	7
Log graders and scalers	32
Log handling equipment operators	4
All oth. timber cut. and related logging workers	18
All oth. agric., forest., fish., and related wkrs.	5
BLUE COLLAR WORKER SUPERVISORS	1,474
CONSTRUCTION TRADES	15,061
Air hammer operators	222
Bricklayers and stone masons	816
Brick masons	718
Stone masons	97
Carpenters	5,377
Carpet installers	72
Coil. tile installers and acoustical carpenters	50
Concrete and terrazzo finishers	789
Drywall installers and finishers	2,391
Drywall installers	1,403
Tapers	693
Lathers	295
Electricians	677
Fence erectors	222
Glaziers	145
Hard tile setters	29
Highway maintenance workers	104
Insulation workers	100
Painters and paperhangers, const. and maint.	399
Pipelayers	569
Pipelaying fitters	324
Plasterers	415
Plumbers, pipefitters, and steamfitters	855
Rail-track laying and maint. equip. operators	15
Roofers	201
Septic tank servicers and sewer pipe cleaners	17
Structural and reinforcing metal workers	1,088
Reinforcing metal workers	781
Structural metal workers	307
All other construction trades workers	187

EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	8,316
Blasters and explosives workers	31
Continuous mining machine operators	18
Derrick operators, oil and gas extraction	933
Mine cutting and channeling machine operators	77
Roof bolters	15
Rotary drill operators, oil and gas extraction	1,517
Roustabouts	4,994
Service unit operators	684
All other extractive workers, except helpers	47
 MECHANICS, INSTALLERS, AND REPAIRERS	 9,504
Communications equip. mech., install, and rep.	32
Central office and PBX installers and repairers	10
Frame wirers, central office	3
Radio mechanics	12
Signal or track switch maintainers	6
All oth. comm. equip. mech., install., and rep.	1
Electrical and elec. equip. mech./install./rep.	992
Data processing equipment repairers	38
Electrical installers and repairers, tr. equip., mfg.	4
Electrical powerline installers and repairers	4
Electric motor, transformer, and related repairers	104
Electronic home entertainment equip. repairers	139
Electronics repairers, commer. and ind. equip.	19
Station installers and repairers, telephone	24
Tel. and cable TV line installers and repairers	661
Machinery and related mech., install., and rep.	3,983
Industrial machinery mechanics	3,029
Machinery maintenance mechanics, marine equip.	2,593
Machinery maintenance mechanics, sewing mach.	21
Machinery maintenance mechanics, textile mach.	3
Machinery maintenance mechanics, water/power pl.	71
Mine machinery mechanics	74
All other machinery maintenance mechanics	267
Machinery maintenance workers	125
Maintenance repairers, general utility	493
Millwrights	336
Vehicle and mobile equip. mech. and rep.	2,422
Aircraft mechanics and engine specialists	74
Automotive body and related repairers	280
Automotive and motorcycle mechanics	1,147



Bus and truck mechanics and diesel eng. special	268
Farm equipment mechanics	19
Mobile heavy equipment mechanics, exc. engines	558
Rail car repairers	31
Small engine specialists	46
Other mechanics, installers, and repairers	2,075
Bicycle repairers	77
Coin and vending mach. servicers and repairers	113
Electric meter installers and repairers	3
Electromedical and biomedical equip. repairers	13
Heat., a/c, and refrig. mechanics and installers	119
Home appliance and power tool repairers	200
Locksmiths and safe repairers	8
Mech. cont. and valve installers and repairers	6
Menders, garments, linens, and related	28
Mobile home repairers	88
Musical instrument repairers and tuners	55
Office machine and cash register servicers	630
Precision instrument repairers	74
Riggers	123
Tire repairers and changers	372
Watchmakers	48
All other mechanics, installers, and repairers	118
PRECISION PRODUCTION OCCUPATIONS	6,911
Precision food workers	1,383
Bakers, manufacturing	432
Butchers and meat cutters	622
Food batchmakers	227
All other precision food and tobacco workers	102
Precision metal workers	2,554
Boilermakers	92
Etchers and engravers, hand or mach., precision	14
Hand workers, jewelry and related prod., precision	49
Instrument makers, precision	26
Jewelers and silversmiths	118
Layout workers, metal, precision	132
Machinists	169
Pattern and model makers, metal	12
Sheet metal workers	1,708
Shipfitters	74
Tool and die makers	121
All other precision metal workers	39

Precision printing workers	839
Bookbinders	81
Compositors, typesetters, and arrangers, prec.	146
Lithography and photoengraving workers, prec.	500
All other precision printing workers	112
Precision text., app., and furnishings workers	612
Custom tailors and sewers	255
Patternmakers and layout workers, fab. and app.	32
Shoe and leather workers and repairers, prec.	134
Upholsterers	150
All other prec. text., app., and furnish. wkr.	41
Precision woodworkers	584
Cabinetmakers and bench carpenters	283
Furniture finishers	72
Pattern and model makers, wood	8
Wood machinists	217
All other precision woodworkers	4
Inspectors and related occupations	387
Inspectors, testers, and graders, precision	181
Other prod. inspectors, testers, graders, & sorters	206
Other precision workers	552
Dental lab technicians, precision	90
Detail design decorators and painters, prec.	21
Foundry mold and core makers, precision	16
Molders/shapers, exc. jewel and found., prec.	14
Patternmakers, model makers, & related workers, prec.	4
Photographic process workers, precision	45
All other precision workers	362
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	8,731
Num. cont. mach. tool op. and tend., met./plas.	18
Comb. mach. tool set., set-up op., op., and tend.	98
Comb. mach. tool op. and tend., met. and plas.	61
Comb. mach. tool set. and set-up op., met./plas.	37
Mach. tool cut. & form. set./oper./tend., met. & plas.	786
Drill. mach. tool set. and set-up op., met. and pl.	35
Ext. and draw. mach. set. and set-up op., met./pl.	41
Forging mach. set. and set-up op., met./pl.	62
Grinding mach. set. and set-up op., met. and plas.	56
Lathe mach. tool set. and set-up op., met. and pl.	64
Machine forming op. and tend., met. and plas.	197
Mach. tool cut. op. and tend., met. and plas.	121

Milling mach. set. and set-up op., met. and plas.	11
Press mach. set. and set-up op., met. and plas.	55
Punch. mach. set. and set-up op., met. and plas.	85
Rolling mach. set. and set-up op., met. and plas.	14
Sawing mach. tool set. & set-up op., met. & plas.	15
Shear mach. set. and set-up op., met. and plas.	30
Met. fab. mach. set., oper., and related workers	881
Metal fabricators, structural metal products	596
Solder. and braz. mach. operators and tenders	8
Solder. and braz. mach. setters and set-up op.	7
Welding machine operators and tenders	176
Welding machine setters and set-up operators	94
Met. & pl. proc. mach. set., oper., & related workers	341
Elec. plat. mach. oper. and tend., met. and plas.	45
Elec. plat. mach. set. and set-up op., met. and pl.	33
Foundry mold assembly and shakeout workers	61
Furnace operators and tenders	25
Heaters, metal and plastic	5
Heat. equip. set. and set-up oper., met. and plas.	6
Heat treating mach. oper. and tend., met. and plas.	17
Metal molding mach. operators and tenders	18
Met. molding mach. setters and set-up operators	13
Nonel. plat. mach. oper. and tend., met. and plast.	11
Nonel. plat. mach. set. & set-up op., met. & plast.	9
Plastic molding mach. operators and tenders	74
Plas. molding mach. setters and set-up operators	24
All oth. met./pl. mach. set., oper., related workers	88
Printing, binding, and related workers	2,272
Bindery machine operators	280
Bindery machine setters and set-up operators	322
Printing press operators	982
Letterpress setters and set-up operators	211
Offset lithographic press setters and set-up op.	690
Printing press mach. operators and tenders	70
All oth. print. press setters & set-up operators	11
Photoeng. and lithogr. mach. oper. and tend.	29
Photoengraving and lithographing photographers	221
Screen print. mach. setters and set-up operators	25
Typesetting and composing mach. oper. and tend.	390
All other printing, binding, and related wkrs.	22
Text. & related setters, operators, & related workers	1,589
Ext. and forming mach. oper. and tend.. syn. fib.	36
Lau. and drycl. mach. opoer. and tend., exc. press	163

Press. mach. oper. & tend., text., gar. & related	244
Sewing maching operators, garment	742
Sewing maching operators, non-garment	116
Shoe sewing machine operators and tenders	240
Text. bleaching and dyeing mach. oper. and tend.	3
Textile draw-out mach. operators and tenders	7
Textile mach. oper. and tend., winding	31
Textile machine setters and set-up operators	8
Woodworking mach. set., oper., & oth. related workers	70
Head sawyers	4
Sawing machine operators and tenders	14
Sawing machine setters and set-up operators	11
Woodworking machine operators and tenders	29
Woodworking mach. setters and set-up operators	13
Oth. mach. set., set-up oper., oper., and tend.	2,588
Boiler operators and tenders, low pressure	13
Cement, and gluing mach. operators and tenders	14
Chemical equip. controllers and operators	26
Chemical equipment tenders	16
Cooking mach. oper. and tend., food and tobacco	167
Crushing and mixing mach. oper. and tend.	102
Cutting and slicing mach. operators and tenders	40
Dairy process. equip. operators, incl. setters	192
Electronic semiconductor processors	49
Extruding and forming mach. oper. and tend.	35
Furnace, kiln, or kettle operators and tenders	73
Motion picture projectionists	12
Packaging and filling mach. oper. and tend.	277
Painting machine operators and tenders	54
Painters, transportation equipment	281
Paper goods mach. setters and set-up operators	42
Photographic processing mach. oper. and tend.	42
Roasting mach. oper. and tend., food and tob.	143
Separating and still mach. oper. and tend.	39
Tire building machine operators	132
All other machine operators and tenders	757
All other machine setters and set-up operators	83
HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	3,770
Precision assemblers	480
Aircraft assemblers, precision	147
Electrical and electronic equip. assem., prec.	26

Electromechanical equip. assemblers, precision	79
Fitters, structural metal, precision	160
Mach. builders and oth. prec. mach. assemblers	21
Watch & clock assemblers & related workers, prec.	19
All other precision assemblers, metal	28
Oth. hand workers, incl. assemb. and fabricators	3,290
Cannery workers	91
Coil winders, tapers, and finishers	287
Cutters and trimmers, hand	46
Electrical and electronic assemblers	40
Glaziers, manufacturing	12
Machine assemblers	44
Meat, poultry, and fish cutters and trimmers, hand	1,208
Metal pourers and casters, basic shapes	132
Molders and casters, hand	24
Painting, coating, and decorating workers, hand	16
Portable machine cutters	24
Pressers, hand	50
Sewers, hand	28
Welders and cutters	628
All other assemblers and fabricators	496
All other hand workers	165
PLANT AND SYSTEM OCCUPATIONS	567
Auxiliary equipment operators, power	1
Chemical plant and system operators	11
Guagers	126
Petroleum refinery and control panel operators	159
Power distributors and dispatchers	13
Stationary engineers	31
Water and liq. waste treat. pl. and sys. oper.	72
All other plant and system operators	155
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	9,110
Aircraft pilots and flight engineers	40
Motor vehicle operators	2,852
Bus drivers	100
Bus drivers	16
Bus drivers, school	85
Taxi drivers and chauffeurs	56
Truck drivers	2,696

Rail transportation workers	173
Locomotive engineers	16
Locomotive firers	5
Railroad brake, signal, and switch operators	61
Railroad conductors and yardmasters	52
Rail yard engineers, dinkey op., and hostlers	35
Subway and streetcar operators	5
Water transportation and related workers	103
Captains, water vessel	13
Mates and able seamen	24
Ordinary seamen and marine oilers	37
Pilots, ship	2
Ship engineers	27
All other transportation and related workers	906
Parking lot attendants	16
Service station attendants	890
Material moving equipment operators	4,925
Conveyor operators and tenders	89
Hoist, winch, and crane operators	342
Industrial truck and tractor operators	244
Loading machine operators, underground mining	130
Oil pumpers, except well head	828
Operating engineers	2,676
Shuttle car operators	28
Tank car and truck loaders	13
Well head pumpers	575
All other transportation and mat. mov. equip. op.	111
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	14,706
Helpers, construction trades	5,581
Helpers, extractive workers	1,834
Machine feeders and offbearers	195
Freight, stock, and material movers, hand	1,173
Refuse collectors	22
All other freight, stock, and mat. movers, hand	1,151
All other helpers, labor., and mat. movers, hand	5,923
Hand packers and packagers	205
Vehicle washers and equipment cleaners	488
All oth. helpers, labor., and mat. movers, hand	5,230

Ongoing Operations (Existing Wind Turbines and Related Activity)

**The Total Annual Impact of Existing Wind Turbine Operations and Related Activity for Units in Service Prior to the Initial Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$18,918,424	\$6,744,465	\$4,593,356	79
Forestry & Fishery Products	\$373,771	\$357,950	\$132,757	2
Coal Mining	\$1,833,883	\$528,241	\$556,642	4
Crude Petroleum & Natural Gas	\$8,984,360	\$1,971,649	\$909,322	5
Miscellaneous Mining	\$659,914	\$313,365	\$184,211	2
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$9,189,027	\$5,389,549	\$4,441,323	67
Food Products & Tobacco	\$39,295,474	\$10,152,874	\$5,186,574	93
Textile Mill Products	\$468,179	\$127,239	\$107,659	3
Apparel	\$8,038,261	\$4,461,836	\$2,260,883	66
Paper & Allied Products	\$5,619,218	\$2,419,930	\$1,094,031	18
Printing & Publishing	\$8,713,778	\$4,316,291	\$2,817,340	51
Chemicals & Petroleum Refining	\$21,609,219	\$2,279,038	\$1,070,140	8
Rubber & Leather Products	\$4,860,618	\$2,114,795	\$1,236,300	26
Lumber Products & Furniture	\$2,869,174	\$954,053	\$680,188	15
Stone, Clay, & Glass Products	\$3,513,508	\$1,780,112	\$931,006	16
Primary Metal	\$5,478,545	\$1,579,662	\$1,175,823	19
Fabricated Metal Products	\$16,550,281	\$6,915,274	\$4,464,509	82
Machinery, Except Electrical	\$7,605,798	\$3,143,127	\$2,245,461	26
Electric & Electronic Equipment	\$5,012,237	\$2,712,054	\$1,621,358	14
Motor Vehicles & Equipment	\$2,792,974	\$550,228	\$357,464	5
Transp. Equip., Exc. Motor Vehicles	\$2,284,511	\$978,718	\$639,558	8
Instruments & Related Products	\$1,473,692	\$637,811	\$484,795	7
Miscellaneous Manufacturing	\$2,298,136	\$855,817	\$590,270	10
Transportation	\$60,928,994	\$38,755,251	\$25,631,339	381
Communication	\$23,706,691	\$14,579,964	\$6,224,655	59
Electric, Gas, Water, Sanitary Services	\$985,232,138	\$238,503,236	\$104,076,447	474
Wholesale Trade	\$25,452,781	\$17,212,255	\$9,924,737	119
Retail Trade	\$33,548,426	\$27,774,874	\$16,608,486	469
Finance	\$20,740,969	\$11,943,346	\$6,954,644	67
Insurance	\$19,448,138	\$11,624,808	\$6,949,768	90
Real Estate	\$111,202,052	\$17,521,089	\$2,823,025	27
Hotels, Lodging Places, Amusements	\$10,156,983	\$5,265,081	\$3,454,075	90
Personal Services	\$20,675,280	\$12,686,343	\$9,870,179	179
Business Services	\$42,473,878	\$25,637,313	\$20,913,478	274
Eating & Drinking Places	\$16,371,322	\$9,578,922	\$5,096,498	248
Health Services	\$32,997,657	\$23,090,160	\$19,522,945	347
Miscellaneous Services	\$31,932,233	\$13,812,883	\$11,974,619	308
Households	\$15,428,786	\$1,589,562	\$1,555,926	116
Total	\$1,628,739,308	\$530,859,167	\$289,361,792	3,876

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Royalties (Existing Wind Turbines)

**The Total Annual Impact of Ongoing Royalties Associated with Existing
Wind Turbines for Units in Service Prior to the Initial Implementation
of the Competitive Renewable Energy Zone (CREZ) Transmission
Investment Initiative on Business Activity in Texas
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$1,123,864	\$305,571	\$208,111	4
Forestry & Fishery Products	\$28,381	\$29,764	\$11,039	0
Coal Mining	\$151,881	\$43,869	\$46,227	0
Crude Petroleum & Natural Gas	\$813,118	\$177,621	\$81,919	0
Miscellaneous Mining	\$19,562	\$8,408	\$4,942	0
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$1,469,443	\$753,031	\$620,544	9
Food Products & Tobacco	\$2,298,009	\$591,088	\$301,956	5
Textile Mill Products	\$30,216	\$6,891	\$5,830	0
Apparel	\$418,915	\$231,635	\$117,373	3
Paper & Allied Products	\$362,418	\$160,382	\$72,507	1
Printing & Publishing	\$510,126	\$258,305	\$168,602	3
Chemicals & Petroleum Refining	\$1,906,262	\$288,664	\$135,544	1
Rubber & Leather Products	\$276,889	\$119,069	\$69,607	1
Lumber Products & Furniture	\$114,443	\$40,141	\$28,618	1
Stone, Clay, & Glass Products	\$148,655	\$82,390	\$43,090	1
Primary Metal	\$119,711	\$33,119	\$24,653	0
Fabricated Metal Products	\$302,814	\$108,734	\$70,199	1
Machinery, Except Electrical	\$187,158	\$75,022	\$53,596	1
Electric & Electronic Equipment	\$181,446	\$95,542	\$57,118	1
Motor Vehicles & Equipment	\$146,080	\$32,890	\$21,367	0
Transp. Equip., Exc. Motor Vehicles	\$63,481	\$27,174	\$17,757	0
Instruments & Related Products	\$51,081	\$20,948	\$15,922	0
Miscellaneous Manufacturing	\$117,136	\$46,213	\$31,874	1
Transportation	\$1,719,223	\$1,181,843	\$781,629	12
Communication	\$1,792,914	\$1,107,799	\$472,955	5
Electric, Gas, Water, Sanitary Services	\$4,366,569	\$980,202	\$427,734	2
Wholesale Trade	\$1,845,504	\$1,248,856	\$720,101	9
Retail Trade	\$11,431,684	\$9,472,733	\$5,664,392	160
Finance	\$777,634	\$410,707	\$239,156	2
Insurance	\$1,068,255	\$639,381	\$382,247	5
Real Estate	\$10,662,781	\$1,047,343	\$168,750	2
Hotels, Lodging Places, Amusements	\$907,200	\$477,823	\$313,468	8
Personal Services	\$2,529,085	\$1,573,096	\$1,223,894	22
Business Services	\$2,385,255	\$1,404,092	\$1,145,379	15
Eating & Drinking Places	\$4,960,005	\$2,904,786	\$1,545,501	75
Health Services	\$3,167,002	\$2,244,702	\$1,897,917	34
Miscellaneous Services	\$2,264,833	\$886,155	\$768,223	20
Households	\$72,170	\$72,170	\$70,643	5
Total	\$60,791,205	\$29,188,157	\$18,030,385	410

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Fuel Diversity (Existing Wind Turbines): Commercial (Case I)

**The Total Annual Impact of Ongoing Annual Cost Savings Benefits Associated
with the Availability of Incremental Wind Power from Existing Wind Turbines
for Units in Service Prior to the Initial Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment Initiative on
Business Activity in Texas
(Case I: Average Fuel Prices Over the 2003-2009 Period—Commercial)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$26,294,945	\$7,015,476	\$4,777,930	82
Forestry & Fishery Products	\$640,459	\$662,121	\$245,568	3
Coal Mining	\$2,013,772	\$574,817	\$605,723	4
Crude Petroleum & Natural Gas	\$15,344,877	\$3,362,064	\$1,550,580	8
Miscellaneous Mining	\$496,126	\$191,188	\$112,388	1
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$32,352,179	\$16,601,150	\$13,680,385	208
Food Products & Tobacco	\$54,203,825	\$13,924,502	\$7,113,300	128
Textile Mill Products	\$688,220	\$168,221	\$142,330	3
Apparel	\$9,933,488	\$5,498,226	\$2,786,036	82
Paper & Allied Products	\$8,613,294	\$3,817,432	\$1,725,832	28
Printing & Publishing	\$14,172,935	\$7,108,823	\$4,640,090	85
Chemicals & Petroleum Refining	\$43,884,596	\$7,096,087	\$3,332,027	26
Rubber & Leather Products	\$7,110,257	\$3,048,725	\$1,782,271	38
Lumber Products & Furniture	\$2,909,906	\$1,021,163	\$728,031	16
Stone, Clay, & Glass Products	\$3,514,840	\$1,976,100	\$1,033,510	18
Primary Metal	\$2,622,745	\$731,137	\$544,221	9
Fabricated Metal Products	\$6,791,042	\$2,419,160	\$1,561,812	29
Machinery, Except Electrical	\$4,078,006	\$1,655,103	\$1,182,413	14
Electric & Electronic Equipment	\$4,237,922	\$2,222,392	\$1,328,622	12
Motor Vehicles & Equipment	\$3,392,588	\$731,163	\$475,011	7
Transp. Equip., Exc. Motor Vehicles	\$1,515,465	\$642,002	\$419,525	5
Instruments & Related Products	\$1,439,146	\$568,073	\$431,786	6
Miscellaneous Manufacturing	\$3,069,015	\$1,215,125	\$838,087	14
Transportation	\$38,136,713	\$26,213,024	\$17,336,360	258
Communication	\$30,825,407	\$18,992,010	\$8,108,301	77
Electric, Gas, Water, Sanitary Services	\$58,962,415	\$13,478,412	\$5,881,622	27
Wholesale Trade	\$98,210,778	\$66,447,111	\$38,313,999	461
Retail Trade	\$200,387,718	\$166,038,164	\$99,285,516	2,801
Finance	\$37,479,414	\$18,031,304	\$10,499,679	101
Insurance	\$32,495,474	\$20,963,502	\$12,532,806	162
Real Estate	\$287,147,020	\$82,379,501	\$13,273,123	127
Hotels, Lodging Places, Amusements	\$44,708,099	\$22,442,130	\$14,722,811	386
Personal Services	\$32,517,598	\$19,875,337	\$15,463,333	280
Business Services	\$99,174,668	\$63,667,721	\$51,936,545	680
Eating & Drinking Places	\$105,283,240	\$61,647,757	\$32,799,898	1,596
Health Services	\$95,426,060	\$64,386,492	\$54,439,374	968
Miscellaneous Services	\$67,692,137	\$30,777,831	\$26,681,813	686
Households	\$1,812,060	\$1,812,060	\$1,773,718	132
Total	\$1,479,578,449	\$759,402,607	\$454,086,376	9,570

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Fuel Diversity (Existing Wind Turbines): Industrial (Case I)

**The Total Annual Impact of Ongoing Annual Cost Savings Benefits Associated
with the Availability of Incremental Wind Power from Existing Wind Turbines
for Units in Service Prior to the Initial Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment Initiative on
Business Activity in Texas
(Case I: Average Fuel Prices Over the 2003-2009 Period—Industrial)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$51,218,936	\$12,622,217	\$8,596,430	147
Forestry & Fishery Products	\$1,275,928	\$661,071	\$245,177	3
Coal Mining	\$3,339,990	\$961,571	\$1,013,271	6
Crude Petroleum & Natural Gas	\$222,969,256	\$48,869,182	\$22,538,403	118
Miscellaneous Mining	\$4,158,484	\$1,828,374	\$1,074,798	12
New Construction	\$18,350,201	\$7,928,331	\$6,533,436	99
Maintenance & Repair Construction	\$39,921,142	\$21,654,582	\$17,844,730	271
Food Products & Tobacco	\$55,104,343	\$13,143,763	\$6,714,469	120
Textile Mill Products	\$1,229,604	\$301,614	\$255,186	6
Apparel	\$8,661,930	\$4,794,143	\$2,429,257	70
Paper & Allied Products	\$12,785,938	\$5,900,840	\$2,667,728	43
Printing & Publishing	\$10,677,732	\$5,386,984	\$3,516,209	63
Chemicals & Petroleum Refining	\$156,390,938	\$30,224,859	\$14,192,325	113
Rubber & Leather Products	\$13,370,197	\$5,592,080	\$3,269,099	69
Lumber Products & Furniture	\$8,573,258	\$2,950,118	\$2,103,271	46
Stone, Clay, & Glass Products	\$12,497,733	\$6,350,090	\$3,321,122	57
Primary Metal	\$18,049,382	\$4,777,052	\$3,555,804	57
Fabricated Metal Products	\$21,425,973	\$8,158,638	\$5,267,234	96
Machinery, Except Electrical	\$24,019,917	\$9,831,520	\$7,023,682	79
Electric & Electronic Equipment	\$24,208,148	\$13,986,033	\$8,361,324	74
Motor Vehicles & Equipment	\$5,725,300	\$1,400,028	\$909,547	13
Transp. Equip., Exc. Motor Vehicles	\$5,979,963	\$2,987,313	\$1,952,100	24
Instruments & Related Products	\$3,087,023	\$1,369,898	\$1,041,251	13
Miscellaneous Manufacturing	\$3,472,080	\$1,350,423	\$931,404	15
Transportation	\$51,479,767	\$31,523,203	\$20,848,318	310
Communication	\$27,905,016	\$17,166,879	\$7,329,090	69
Electric, Gas, Water, Sanitary Services	\$103,657,640	\$21,909,988	\$9,560,937	42
Wholesale Trade	\$38,715,585	\$26,188,906	\$15,100,757	182
Retail Trade	\$76,292,936	\$63,225,724	\$37,806,966	1,066
Finance	\$13,349,775	\$7,334,552	\$4,270,931	40
Insurance	\$15,232,741	\$9,124,150	\$5,454,773	70
Real Estate	\$106,623,422	\$21,405,568	\$3,448,903	31
Hotels, Lodging Places, Amusements	\$8,017,426	\$4,162,486	\$2,730,729	71
Personal Services	\$15,528,743	\$9,545,566	\$7,426,609	134
Business Services	\$34,760,125	\$20,853,968	\$17,011,488	223
Eating & Drinking Places	\$36,775,453	\$21,541,970	\$11,461,480	557
Health Services	\$25,981,622	\$18,171,903	\$15,364,518	273
Miscellaneous Services	\$23,237,886	\$9,641,976	\$8,358,793	215
Households	\$1,160,756	\$1,160,756	\$1,136,195	84
Total	\$1,305,212,289	\$495,988,317	\$292,667,744	4,982

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Fuel Diversity (Existing Wind Turbines): Residential (Case I)

**The Total Annual Impact of Ongoing Annual Cost Savings Benefits Associated
with the Availability of Incremental Wind Power from Existing Wind Turbines
for Units in Service Prior to the Initial Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment Initiative on
Business Activity in Texas
(Case I: Average Fuel Prices Over the 2003-2009 Period—Residential)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$29,920,725	\$8,135,242	\$5,540,555	95
Forestry & Fishery Products	\$755,602	\$792,404	\$293,889	4
Coal Mining	\$4,043,532	\$1,167,917	\$1,230,709	9
Crude Petroleum & Natural Gas	\$21,647,712	\$4,728,814	\$2,180,924	12
Miscellaneous Mining	\$520,805	\$223,836	\$131,580	1
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$39,121,101	\$20,048,011	\$16,520,809	251
Food Products & Tobacco	\$61,180,101	\$15,736,592	\$8,039,004	145
Textile Mill Products	\$804,452	\$183,450	\$155,217	4
Apparel	\$11,152,807	\$6,166,846	\$3,124,834	92
Paper & Allied Products	\$9,648,695	\$4,269,854	\$1,930,370	32
Printing & Publishing	\$13,581,133	\$6,876,888	\$4,488,700	82
Chemicals & Petroleum Refining	\$50,750,590	\$7,685,116	\$3,608,610	29
Rubber & Leather Products	\$7,371,647	\$3,169,978	\$1,853,155	40
Lumber Products & Furniture	\$3,046,831	\$1,068,671	\$761,906	17
Stone, Clay, & Glass Products	\$3,957,651	\$2,193,465	\$1,147,191	20
Primary Metal	\$3,187,077	\$881,741	\$656,326	11
Fabricated Metal Products	\$8,061,852	\$2,894,842	\$1,868,913	35
Machinery, Except Electrical	\$4,982,717	\$1,997,325	\$1,426,897	16
Electric & Electronic Equipment	\$4,830,651	\$2,543,612	\$1,520,658	14
Motor Vehicles & Equipment	\$3,889,104	\$875,633	\$568,868	9
Transp. Equip., Exc. Motor Vehicles	\$1,690,058	\$723,445	\$472,744	6
Instruments & Related Products	\$1,359,926	\$557,688	\$423,892	6
Miscellaneous Manufacturing	\$3,118,531	\$1,230,335	\$848,574	15
Transportation	\$45,771,026	\$31,464,324	\$20,809,381	310
Communication	\$47,732,911	\$29,493,034	\$12,591,523	120
Electric, Gas, Water, Sanitary Services	\$116,251,566	\$26,096,012	\$11,387,605	52
Wholesale Trade	\$49,133,020	\$33,248,403	\$19,171,325	231
Retail Trade	\$304,346,750	\$252,193,421	\$150,803,601	4,255
Finance	\$20,703,014	\$10,934,287	\$6,367,067	61
Insurance	\$28,440,249	\$17,022,284	\$10,176,592	132
Real Estate	\$283,876,169	\$27,883,515	\$4,492,638	43
Hotels, Lodging Places, Amusements	\$24,152,467	\$12,721,125	\$8,345,498	219
Personal Services	\$67,332,068	\$41,880,678	\$32,583,846	591
Business Services	\$63,502,846	\$37,381,263	\$30,493,531	399
Eating & Drinking Places	\$132,050,655	\$77,334,380	\$41,146,020	2,002
Health Services	\$84,315,379	\$59,760,909	\$50,528,402	898
Miscellaneous Services	\$60,296,857	\$23,592,185	\$20,452,460	526
Households	\$1,921,387	\$1,921,387	\$1,880,732	140
Total	\$1,618,449,665	\$777,078,913	\$480,024,544	10,921

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Fuel Diversity (Existing Wind Turbines): Total (Case I)

**The Total Annual Impact of Ongoing Annual Cost Savings Benefits Associated
with the Availability of Incremental Wind Power from Existing Wind Turbines
for Units in Service Prior to the Initial Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment Initiative on
Business Activity in Texas
(Case I: Average Fuel Prices Over the 2003-2009 Period—Total)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$107,434,606	\$27,772,935	\$18,914,915	324
Forestry & Fishery Products	\$2,671,989	\$2,115,596	\$784,634	10
Coal Mining	\$9,397,295	\$2,704,305	\$2,849,704	20
Crude Petroleum & Natural Gas	\$259,961,845	\$56,960,060	\$26,269,907	137
Miscellaneous Mining	\$5,175,416	\$2,243,398	\$1,318,766	14
New Construction	\$18,350,201	\$7,928,331	\$6,533,436	99
Maintenance & Repair Construction	\$111,394,422	\$58,303,744	\$48,045,924	729
Food Products & Tobacco	\$170,488,269	\$42,804,857	\$21,866,773	393
Textile Mill Products	\$2,722,277	\$653,285	\$552,733	13
Apparel	\$29,748,224	\$16,459,215	\$8,340,127	244
Paper & Allied Products	\$31,047,927	\$13,988,127	\$6,323,929	103
Printing & Publishing	\$38,431,799	\$19,372,695	\$12,644,999	230
Chemicals & Petroleum Refining	\$251,026,123	\$45,006,062	\$21,132,962	168
Rubber & Leather Products	\$27,852,101	\$11,810,783	\$6,904,524	147
Lumber Products & Furniture	\$14,529,995	\$5,039,952	\$3,593,207	80
Stone, Clay, & Glass Products	\$19,970,224	\$10,519,654	\$5,501,823	95
Primary Metal	\$23,859,204	\$6,389,930	\$4,756,351	76
Fabricated Metal Products	\$36,278,867	\$13,472,640	\$8,697,959	160
Machinery, Except Electrical	\$33,080,640	\$13,483,949	\$9,632,992	109
Electric & Electronic Equipment	\$33,276,721	\$18,752,037	\$11,210,603	99
Motor Vehicles & Equipment	\$13,006,991	\$3,006,823	\$1,953,425	28
Transp. Equip., Exc. Motor Vehicles	\$9,185,487	\$4,352,759	\$2,844,370	35
Instruments & Related Products	\$5,886,096	\$2,495,659	\$1,896,929	25
Miscellaneous Manufacturing	\$9,659,626	\$3,795,882	\$2,618,066	44
Transportation	\$135,387,507	\$89,200,552	\$58,994,059	877
Communication	\$106,463,334	\$65,651,923	\$28,028,914	266
Electric, Gas, Water, Sanitary Services	\$278,871,621	\$61,484,412	\$26,830,164	121
Wholesale Trade	\$186,059,383	\$125,884,420	\$72,586,080	874
Retail Trade	\$581,027,404	\$481,457,309	\$287,896,084	8,123
Finance	\$71,532,203	\$36,300,143	\$21,137,677	202
Insurance	\$76,168,464	\$47,109,936	\$28,164,172	364
Real Estate	\$677,646,611	\$131,668,583	\$21,214,664	201
Hotels, Lodging Places, Amusements	\$76,877,991	\$39,325,741	\$25,799,038	676
Personal Services	\$115,378,409	\$71,301,580	\$55,473,788	1,006
Business Services	\$197,437,640	\$121,902,953	\$99,441,564	1,302
Eating & Drinking Places	\$274,109,347	\$160,524,107	\$85,407,398	4,156
Health Services	\$205,723,060	\$142,319,304	\$120,332,294	2,139
Miscellaneous Services	\$151,226,881	\$64,011,992	\$55,493,065	1,427
Households	\$4,894,203	\$4,894,203	\$4,790,645	356
Total	\$4,403,240,402	\$2,032,469,838	\$1,226,778,665	25,473

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Fuel Diversity (Existing Wind Turbines): Commercial (Case II)

**The Total Annual Impact of Ongoing Annual Cost Savings Benefits Associated
with the Availability of Incremental Wind Power from Existing Wind Turbines
for Units in Service Prior to the Initial Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment Initiative on
Business Activity in Texas
(Case II: Average Fuel Prices During 2008—Commercial)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$57,990,015	\$15,471,702	\$10,537,091	182
Forestry & Fishery Products	\$1,412,448	\$1,460,221	\$541,568	7
Coal Mining	\$4,441,108	\$1,267,682	\$1,335,843	9
Crude Petroleum & Natural Gas	\$33,841,092	\$7,414,586	\$3,419,599	18
Miscellaneous Mining	\$1,094,141	\$421,640	\$247,858	3
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$71,348,441	\$36,611,636	\$30,170,275	458
Food Products & Tobacco	\$119,539,349	\$30,708,643	\$15,687,439	282
Textile Mill Products	\$1,517,778	\$370,989	\$313,889	7
Apparel	\$21,906,990	\$12,125,609	\$6,144,232	180
Paper & Allied Products	\$18,995,479	\$8,418,841	\$3,806,093	62
Printing & Publishing	\$31,256,528	\$15,677,566	\$10,233,104	187
Chemicals & Petroleum Refining	\$96,781,657	\$15,649,479	\$7,348,344	58
Rubber & Leather Products	\$15,680,730	\$6,723,558	\$3,930,562	84
Lumber Products & Furniture	\$6,417,411	\$2,252,040	\$1,605,575	36
Stone, Clay, & Glass Products	\$7,751,513	\$4,358,026	\$2,279,270	40
Primary Metal	\$5,784,117	\$1,612,426	\$1,200,208	19
Fabricated Metal Products	\$14,976,742	\$5,335,137	\$3,444,368	63
Machinery, Except Electrical	\$8,993,502	\$3,650,111	\$2,607,654	30
Electric & Electronic Equipment	\$9,346,175	\$4,901,191	\$2,930,099	26
Motor Vehicles & Equipment	\$7,481,903	\$1,612,482	\$1,047,573	15
Transp. Equip., Exc. Motor Vehicles	\$3,342,157	\$1,415,850	\$925,208	12
Instruments & Related Products	\$3,173,847	\$1,252,809	\$952,247	13
Miscellaneous Manufacturing	\$6,768,306	\$2,679,797	\$1,848,290	32
Transportation	\$84,105,465	\$57,809,350	\$38,233,043	569
Communication	\$67,981,348	\$41,884,361	\$17,881,783	170
Electric, Gas, Water, Sanitary Services	\$130,033,788	\$29,724,851	\$12,971,137	59
Wholesale Trade	\$216,590,849	\$146,540,293	\$84,496,444	1,017
Retail Trade	\$441,928,542	\$366,175,156	\$218,961,041	6,178
Finance	\$82,655,878	\$39,765,650	\$23,155,651	222
Insurance	\$71,664,459	\$46,232,223	\$27,639,443	358
Real Estate	\$633,264,678	\$181,677,066	\$29,272,113	279
Hotels, Lodging Places, Amusements	\$98,597,784	\$49,493,143	\$32,469,209	851
Personal Services	\$71,713,250	\$43,832,420	\$34,102,330	618
Business Services	\$218,716,581	\$140,410,718	\$114,539,164	1,500
Eating & Drinking Places	\$232,188,226	\$135,955,955	\$72,335,826	3,520
Health Services	\$210,449,522	\$141,995,871	\$120,058,821	2,135
Miscellaneous Services	\$149,286,033	\$67,876,425	\$58,843,200	1,513
Households	\$3,996,259	\$3,996,259	\$3,911,700	291
Total	\$3,263,014,089	\$1,674,761,760	\$1,001,427,295	21,105

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Fuel Diversity (Existing Wind Turbines): Industrial (Case II)

**The Total Annual Impact of Ongoing Annual Cost Savings Benefits Associated
with the Availability of Incremental Wind Power from Existing Wind Turbines
for Units in Service Prior to the Initial Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment Initiative on
Business Activity in Texas
(Case II: Average Fuel Prices During 2008—Industrial)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$112,956,572	\$27,836,626	\$18,958,286	323
Forestry & Fishery Products	\$2,813,890	\$1,457,905	\$540,704	7
Coal Mining	\$7,365,906	\$2,120,618	\$2,234,635	14
Crude Petroleum & Natural Gas	\$491,729,130	\$107,774,502	\$49,705,459	260
Miscellaneous Mining	\$9,170,985	\$4,032,237	\$2,370,324	26
New Construction	\$40,468,935	\$17,484,882	\$14,408,626	219
Maintenance & Repair Construction	\$88,040,787	\$47,756,310	\$39,354,186	597
Food Products & Tobacco	\$121,525,322	\$28,986,826	\$14,807,871	265
Textile Mill Products	\$2,711,729	\$665,171	\$562,780	12
Apparel	\$19,102,738	\$10,572,846	\$5,357,404	155
Paper & Allied Products	\$28,197,691	\$13,013,521	\$5,883,321	95
Printing & Publishing	\$23,548,322	\$11,880,280	\$7,754,532	140
Chemicals & Petroleum Refining	\$344,899,477	\$66,656,918	\$31,299,292	248
Rubber & Leather Products	\$29,486,197	\$12,332,591	\$7,209,565	153
Lumber Products & Furniture	\$18,907,184	\$6,506,093	\$4,638,485	102
Stone, Clay, & Glass Products	\$27,562,093	\$14,004,281	\$7,324,293	126
Primary Metal	\$39,805,518	\$10,535,154	\$7,841,855	125
Fabricated Metal Products	\$47,252,143	\$17,992,795	\$11,616,187	213
Machinery, Except Electrical	\$52,972,742	\$21,682,114	\$15,489,799	175
Electric & Electronic Equipment	\$53,387,860	\$30,844,341	\$18,439,791	163
Motor Vehicles & Equipment	\$12,626,389	\$3,087,576	\$2,005,885	28
Transp. Equip., Exc. Motor Vehicles	\$13,188,016	\$6,588,123	\$4,305,098	53
Instruments & Related Products	\$6,808,021	\$3,021,129	\$2,296,341	29
Miscellaneous Manufacturing	\$7,657,212	\$2,978,178	\$2,054,089	32
Transportation	\$113,531,800	\$69,520,245	\$45,978,202	683
Communication	\$61,540,813	\$37,859,275	\$16,163,336	152
Electric, Gas, Water, Sanitary Services	\$228,603,181	\$48,319,573	\$21,085,380	93
Wholesale Trade	\$85,382,090	\$57,756,160	\$33,302,718	400
Retail Trade	\$168,253,954	\$139,435,951	\$83,378,251	2,352
Finance	\$29,441,160	\$16,175,381	\$9,418,972	89
Insurance	\$33,593,790	\$20,122,104	\$12,029,779	155
Real Estate	\$235,143,821	\$47,207,141	\$7,606,098	69
Hotels, Lodging Places, Amusements	\$17,681,369	\$9,179,811	\$6,022,260	156
Personal Services	\$34,246,584	\$21,051,479	\$16,378,402	296
Business Services	\$76,658,846	\$45,990,662	\$37,516,582	492
Eating & Drinking Places	\$81,103,385	\$47,507,958	\$25,276,775	1,229
Health Services	\$57,299,022	\$40,075,723	\$33,884,408	602
Miscellaneous Services	\$51,248,078	\$21,264,099	\$18,434,209	473
Households	\$2,559,894	\$2,559,894	\$2,505,727	186
Total	\$2,878,472,643	\$1,093,836,470	\$645,439,904	10,987

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Fuel Diversity (Existing Wind Turbines): Residential (Case II)

**The Total Annual Impact of Ongoing Annual Cost Savings Benefits Associated
with the Availability of Incremental Wind Power from Existing Wind Turbines
for Units in Service Prior to the Initial Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment Initiative on
Business Activity in Texas
(Case II: Average Fuel Prices During 2008—Residential)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$65,986,191	\$17,941,198	\$12,218,959	210
Forestry & Fishery Products	\$1,666,380	\$1,747,541	\$648,134	9
Coal Mining	\$8,917,474	\$2,575,686	\$2,714,166	20
Crude Petroleum & Natural Gas	\$47,741,158	\$10,428,773	\$4,809,739	26
Miscellaneous Mining	\$1,148,567	\$493,640	\$290,182	3
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$86,276,401	\$44,213,230	\$36,434,455	553
Food Products & Tobacco	\$134,924,601	\$34,704,967	\$17,728,958	319
Textile Mill Products	\$1,774,113	\$404,575	\$342,311	9
Apparel	\$24,596,036	\$13,600,161	\$6,891,407	202
Paper & Allied Products	\$21,278,917	\$9,416,598	\$4,257,174	70
Printing & Publishing	\$29,951,387	\$15,166,064	\$9,899,232	181
Chemicals & Petroleum Refining	\$111,923,698	\$16,948,505	\$7,958,310	64
Rubber & Leather Products	\$16,257,190	\$6,990,967	\$4,086,887	88
Lumber Products & Furniture	\$6,719,382	\$2,356,811	\$1,680,282	38
Stone, Clay, & Glass Products	\$8,728,074	\$4,837,395	\$2,529,977	44
Primary Metal	\$7,028,677	\$1,944,564	\$1,447,439	23
Fabricated Metal Products	\$17,779,346	\$6,384,190	\$4,121,639	76
Machinery, Except Electrical	\$10,988,722	\$4,404,836	\$3,146,833	36
Electric & Electronic Equipment	\$10,653,361	\$5,609,599	\$3,353,610	30
Motor Vehicles & Equipment	\$8,576,903	\$1,931,092	\$1,254,563	19
Transp. Equip., Exc. Motor Vehicles	\$3,727,200	\$1,595,461	\$1,042,575	14
Instruments & Related Products	\$2,999,137	\$1,229,907	\$934,838	13
Miscellaneous Manufacturing	\$6,877,507	\$2,713,340	\$1,871,418	32
Transportation	\$100,941,930	\$69,390,396	\$45,892,330	683
Communication	\$105,268,606	\$65,042,976	\$27,768,934	264
Electric, Gas, Water, Sanitary Services	\$256,377,414	\$57,551,295	\$25,113,852	114
Wholesale Trade	\$108,356,360	\$73,324,944	\$42,279,815	509
Retail Trade	\$671,196,404	\$556,179,151	\$332,577,347	9,385
Finance	\$45,657,752	\$24,114,121	\$14,041,721	135
Insurance	\$62,721,198	\$37,540,391	\$22,443,125	290
Real Estate	\$626,051,251	\$61,493,395	\$9,907,918	95
Hotels, Lodging Places, Amusements	\$53,265,062	\$28,054,755	\$18,404,889	483
Personal Services	\$148,491,949	\$92,362,283	\$71,859,352	1,303
Business Services	\$140,047,108	\$82,439,419	\$67,249,439	881
Eating & Drinking Places	\$291,220,210	\$170,550,722	\$90,742,091	4,416
Health Services	\$185,946,390	\$131,794,760	\$111,433,690	1,981
Miscellaneous Services	\$132,976,723	\$52,029,437	\$45,105,188	1,160
Households	\$4,237,365	\$4,237,365	\$4,147,705	309
Total	\$3,569,276,142	\$1,713,744,509	\$1,058,630,485	24,085

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Fuel Diversity (Existing Wind Turbines): Total (Case II)

**The Total Annual Impact of Ongoing Annual Cost Savings Benefits Associated
with the Availability of Incremental Wind Power from Existing Wind Turbines
for Units in Service Prior to the Initial Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment Initiative on
Business Activity in Texas
(Case II: Average Fuel Prices During 2008—Total)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$236,932,778	\$61,249,526	\$41,714,336	715
Forestry & Fishery Products	\$5,892,718	\$4,665,667	\$1,730,407	23
Coal Mining	\$20,724,488	\$5,963,986	\$6,284,644	43
Crude Petroleum & Natural Gas	\$573,311,380	\$125,617,861	\$57,934,797	303
Miscellaneous Mining	\$11,413,693	\$4,947,518	\$2,908,363	32
New Construction	\$40,468,935	\$17,484,882	\$14,408,626	219
Maintenance & Repair Construction	\$245,665,628	\$128,581,176	\$105,958,916	1,608
Food Products & Tobacco	\$375,989,272	\$94,400,437	\$48,224,268	866
Textile Mill Products	\$6,003,620	\$1,440,734	\$1,218,980	28
Apparel	\$65,605,764	\$36,298,616	\$18,393,043	538
Paper & Allied Products	\$68,472,087	\$30,848,959	\$13,946,588	227
Printing & Publishing	\$84,756,238	\$42,723,909	\$27,886,868	508
Chemicals & Petroleum Refining	\$553,604,831	\$99,254,902	\$46,605,946	370
Rubber & Leather Products	\$61,424,116	\$26,047,115	\$15,227,013	325
Lumber Products & Furniture	\$32,043,977	\$11,114,945	\$7,924,342	176
Stone, Clay, & Glass Products	\$44,041,680	\$23,199,702	\$12,133,541	211
Primary Metal	\$52,618,311	\$14,092,144	\$10,489,502	168
Fabricated Metal Products	\$80,008,231	\$29,712,122	\$19,182,194	352
Machinery, Except Electrical	\$72,954,966	\$29,737,061	\$21,244,286	241
Electric & Electronic Equipment	\$73,387,396	\$41,355,131	\$24,723,499	219
Motor Vehicles & Equipment	\$28,685,195	\$6,631,150	\$4,308,021	63
Transp. Equip., Exc. Motor Vehicles	\$20,257,373	\$9,599,434	\$6,272,881	78
Instruments & Related Products	\$12,981,004	\$5,503,845	\$4,183,426	55
Miscellaneous Manufacturing	\$21,303,025	\$8,371,315	\$5,773,797	96
Transportation	\$298,579,194	\$196,719,990	\$130,103,575	1,934
Communication	\$234,790,766	\$144,786,611	\$61,814,053	586
Electric, Gas, Water, Sanitary Services	\$615,014,383	\$135,595,719	\$59,170,369	267
Wholesale Trade	\$410,329,298	\$277,621,397	\$160,078,976	1,927
Retail Trade	\$1,281,378,900	\$1,061,790,258	\$634,916,640	17,915
Finance	\$157,754,790	\$80,055,151	\$46,616,344	445
Insurance	\$167,979,447	\$103,894,718	\$62,112,347	803
Real Estate	\$1,494,459,750	\$290,377,601	\$46,786,129	444
Hotels, Lodging Places, Amusements	\$169,544,215	\$86,727,709	\$56,896,358	1,490
Personal Services	\$254,451,784	\$157,246,181	\$122,340,084	2,218
Business Services	\$435,422,535	\$268,840,799	\$219,305,185	2,872
Eating & Drinking Places	\$604,511,820	\$354,014,634	\$188,354,692	9,165
Health Services	\$453,694,933	\$313,866,354	\$265,376,919	4,718
Miscellaneous Services	\$333,510,834	\$141,169,960	\$122,382,597	3,146
Households	\$10,793,517	\$10,793,517	\$10,565,132	786
Total	\$9,710,762,873	\$4,482,342,738	\$2,705,497,684	56,177

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



**TOTAL Ongoing Effects (Existing Wind Turbines):
(Case I)**

**The Total Annual Impact of Ongoing Annual Operations, Royalty Payments,
and Cost Savings Benefits (Case I) Associated with the Availability of
Incremental Wind Power from Existing Wind Turbines for Units in Service Prior
to the Initial Implementation of the Competitive Renewable Energy Zone (CREZ)
Transmission Investment Initiative on Business Activity in Texas
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$127,476,894	\$34,822,971	\$23,716,381	407
Forestry & Fishery Products	\$3,074,142	\$2,503,310	\$928,430	12
Coal Mining	\$11,383,059	\$3,276,415	\$3,452,573	24
Crude Petroleum & Natural Gas	\$269,759,323	\$59,109,330	\$27,261,148	143
Miscellaneous Mining	\$5,854,891	\$2,565,171	\$1,507,919	17
New Construction	\$18,350,201	\$7,928,331	\$6,533,436	99
Maintenance & Repair Construction	\$122,052,892	\$64,446,324	\$53,107,792	806
Food Products & Tobacco	\$212,081,751	\$53,548,819	\$27,355,303	492
Textile Mill Products	\$3,220,671	\$787,415	\$666,222	15
Apparel	\$38,205,400	\$21,152,686	\$10,718,383	313
Paper & Allied Products	\$37,029,564	\$16,568,439	\$7,490,468	122
Printing & Publishing	\$47,655,704	\$23,947,291	\$15,630,941	285
Chemicals & Petroleum Refining	\$274,541,604	\$47,573,764	\$22,338,647	177
Rubber & Leather Products	\$32,989,608	\$14,044,647	\$8,210,431	175
Lumber Products & Furniture	\$17,513,612	\$6,034,145	\$4,302,013	96
Stone, Clay, & Glass Products	\$23,632,386	\$12,382,156	\$6,475,919	112
Primary Metal	\$29,457,460	\$8,002,711	\$5,956,827	95
Fabricated Metal Products	\$53,131,962	\$20,496,648	\$13,232,666	243
Machinery, Except Electrical	\$40,873,596	\$16,702,098	\$11,932,049	135
Electric & Electronic Equipment	\$38,470,404	\$21,559,632	\$12,889,080	114
Motor Vehicles & Equipment	\$15,946,046	\$3,589,942	\$2,332,257	34
Transp. Equip., Exc. Motor Vehicles	\$11,533,479	\$5,358,651	\$3,501,684	44
Instruments & Related Products	\$7,410,869	\$3,154,418	\$2,397,647	32
Miscellaneous Manufacturing	\$12,074,898	\$4,697,913	\$3,240,209	54
Transportation	\$198,035,723	\$129,137,646	\$85,407,027	1,270
Communication	\$131,962,939	\$81,339,686	\$34,726,524	330
Electric, Gas, Water, Sanitary Services	\$1,268,470,328	\$300,967,850	\$131,334,345	597
Wholesale Trade	\$213,357,667	\$144,345,530	\$83,230,919	1,002
Retail Trade	\$626,007,514	\$518,704,916	\$310,168,962	8,752
Finance	\$93,050,806	\$48,654,196	\$28,331,477	271
Insurance	\$96,684,857	\$59,374,125	\$35,496,187	459
Real Estate	\$799,511,444	\$150,237,015	\$24,206,439	230
Hotels, Lodging Places, Amusements	\$87,942,174	\$45,068,646	\$29,566,581	774
Personal Services	\$138,582,775	\$85,561,019	\$66,567,861	1,207
Business Services	\$242,296,772	\$148,944,357	\$121,500,421	1,591
Eating & Drinking Places	\$295,440,674	\$173,007,816	\$92,049,397	4,479
Health Services	\$241,887,720	\$167,654,166	\$141,753,155	2,520
Miscellaneous Services	\$185,423,947	\$78,711,030	\$68,235,907	1,754
Households	\$20,395,159	\$6,555,936	\$6,417,213	477
Total	\$6,092,770,915	\$2,592,517,163	\$1,534,170,842	29,759

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

**TOTAL Ongoing Effects (Existing Wind Turbines):
(Case II)**

**The Total Annual Impact of Ongoing Annual Operations, Royalty Payments,
and Cost Savings Benefits (Case II) Associated with the Availability of
Incremental Wind Power from Existing Wind Turbines for Units in Service Prior
to the Initial Implementation of the Competitive Renewable Energy Zone (CREZ)
Transmission Investment Initiative on Business Activity in Texas
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$256,975,066	\$68,299,562	\$46,515,803	798
Forestry & Fishery Products	\$6,294,870	\$5,053,380	\$1,874,202	25
Coal Mining	\$22,710,252	\$6,536,096	\$6,887,513	48
Crude Petroleum & Natural Gas	\$583,108,858	\$127,767,130	\$58,926,038	308
Miscellaneous Mining	\$12,093,169	\$5,269,290	\$3,097,517	34
New Construction	\$40,468,935	\$17,484,882	\$14,408,626	219
Maintenance & Repair Construction	\$256,324,098	\$134,723,757	\$111,020,783	1,684
Food Products & Tobacco	\$417,582,754	\$105,144,399	\$53,712,798	965
Textile Mill Products	\$6,502,015	\$1,574,864	\$1,332,469	31
Apparel	\$74,062,940	\$40,992,087	\$20,771,300	607
Paper & Allied Products	\$74,453,723	\$33,429,271	\$15,113,126	246
Printing & Publishing	\$93,980,142	\$47,298,506	\$30,872,810	562
Chemicals & Petroleum Refining	\$577,120,312	\$101,822,604	\$47,811,631	380
Rubber & Leather Products	\$66,561,623	\$28,280,979	\$16,532,920	352
Lumber Products & Furniture	\$35,027,595	\$12,109,139	\$8,633,148	192
Stone, Clay, & Glass Products	\$47,703,843	\$25,062,204	\$13,107,637	228
Primary Metal	\$58,216,567	\$15,704,925	\$11,689,978	187
Fabricated Metal Products	\$96,861,327	\$36,736,130	\$23,716,902	435
Machinery, Except Electrical	\$80,747,921	\$32,955,211	\$23,543,343	267
Electric & Electronic Equipment	\$78,581,079	\$44,162,727	\$26,401,976	234
Motor Vehicles & Equipment	\$31,624,249	\$7,214,268	\$4,686,853	68
Transp. Equip., Exc. Motor Vehicles	\$22,605,365	\$10,605,326	\$6,930,195	86
Instruments & Related Products	\$14,505,777	\$6,162,604	\$4,684,143	62
Miscellaneous Manufacturing	\$23,718,297	\$9,273,345	\$6,395,941	107
Transportation	\$361,227,411	\$236,657,085	\$156,516,543	2,327
Communication	\$260,290,372	\$160,474,374	\$68,511,664	650
Electric, Gas, Water, Sanitary Services	\$1,604,613,090	\$375,079,157	\$163,674,550	743
Wholesale Trade	\$437,627,583	\$296,082,507	\$170,723,814	2,055
Retail Trade	\$1,326,359,011	\$1,099,037,865	\$657,189,518	18,543
Finance	\$179,273,393	\$92,409,205	\$53,810,144	514
Insurance	\$188,495,841	\$116,158,907	\$69,444,362	898
Real Estate	\$1,616,324,583	\$308,946,034	\$49,777,904	472
Hotels, Lodging Places, Amusements	\$180,608,399	\$92,470,613	\$60,663,901	1,589
Personal Services	\$277,656,149	\$171,505,620	\$133,434,157	2,419
Business Services	\$480,281,668	\$295,882,204	\$241,364,041	3,161
Eating & Drinking Places	\$625,843,147	\$366,498,343	\$194,996,691	9,489
Health Services	\$489,859,592	\$339,201,217	\$286,797,781	5,099
Miscellaneous Services	\$367,707,900	\$155,868,998	\$135,125,439	3,474
Households	\$26,294,472	\$12,455,249	\$12,191,700	907
Total	\$11,400,293,386	\$5,042,390,063	\$3,012,889,861	60,463

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Ongoing Annual Operations Prior to the CREZ Initiative: Occupational Profile (Case I)

Occupational Profile for the Total Annual Impact of Ongoing Annual Operations, Royalty Payments, and Cost Savings Benefits (Case 1) Associated with the Availability of Incremental Wind Power from Existing Wind Turbines for Units in Service Prior to the Initial Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas

TOTAL, ALL OCCUPATIONS	29,759
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	2,164
Managerial and administrative occupations	1,512
Elem. & sec. sch. principals and asst. principals	31
Assistant principals	10
Principals	21
Food service and lodging managers	267
Postmasters and mail superintendents	10
Public admin. chief exec., legis., and gen. admin.	46
All other managers and administrators	1,158
Management support occupations	652
Accountants and auditors	81
Assessors	7
Claims examiners, prop. and casual. insurance	13
Compliance and enforce. inspectors, exc. const.	19
Construction and building inspectors	45
Cost estimators	205
Personnel specialists and related workers	67
Claims takers, unemployment benefits	0
Employ. interviewers, pvt. or pub. emp. serv.	46
Personnel, training, and labor related spec.	18
Special agents, insurance	2
Purchasing agents and buyers	170
Purchasing agents, exc. wh., ret., and farm pr.	14
Wholesale and retail buyers, exc. farm products	156
Tax examiners, collectors, and revenue agents	4
Tax preparers	18
Underwriters	6
All other management support workers	17
ENGINEERS, ARCHITECTS, AND SURVEYORS	146
Engineers	136
Aeronautical and astronautical engineers	7
Chemical engineers	12
Civil engineers, including traffic engineers	15
Electrical and electronics engineers	34

Industrial engineers, except safety engineers	12
Mechanical engineers	16
Matallurgists and met., cer., and mat. engineers	4
Mining engineers, inc. mine safety engineers	1
Nuclear engineers	4
Petroleum engineers	15
Other engineers	14
Safety engineers, except mining engineers	2
All other engineers	13
Architects and surveyors	10
Architects, inc. landscape architects	7
Surveyors	3
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	97
Computer systems analysts, electronic data processing	30
Life scientists	27
Agricultural and food scientists	5
Biological scientists	9
Foresters and conservation scientists	2
Medical scientists	6
All other life scientists	5
Mathematical scientists	11
Actuaries	4
Statisticians	4
Mathematicians and all other mathematical scientists	3
Physical scientists	29
Chemists	16
Geologists, geophysicists, and oceanographers	8
Meteorologists	0
Physicists and astronomers	3
All other physical scientists	2
SOCIAL SCIENTISTS	23
Economists	6
Psychologists	9
Sociologists	1
Urban and regional planners	4
All other social scientists	4
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	127
Clergy	40
Directors, religious activities and education	17

Recreation workers	20
Social workers	50
LAWYERS AND JUDGES	19
Judges, magistrates, and other jud. workers	7
Lawyers	12
TEACHERS, LIBRARIANS, AND COUNSELORS	613
Teachers, preschool and elementary	62
Teachers, preschool	13
Teachers, kindergarten and elementary	49
Teachers, secondary school	255
College and university faculty	164
Other teachers and instructors	113
Farm and home management advisors	6
Graduate assistants, teaching	34
Instructors, adult (nonvocational) education	9
Instructors and coaches, sports and phys. train.	47
Teachers and instructors, voc. ed. and training	7
All other teachers and instructors	10
Librarians, archivists, curators, and related workers	11
Audio-visual specialists	2
Curators, archiv., museum techn., and restorers	1
Librarians, professional	8
Counselors	8
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	683
Chiropractors	9
Dentists	18
Dietitians and nutritionists	11
Opticians, dispensing and measuring	34
Optometrists	9
Pharmacists	89
Podiatrists	2
Physician assistants	13
Physicians and surgeons	88
Registered nurses	314
Therapists	89
Occupational therapists	6
Physical therapists	14
Recreational therapists	4
Respiratory therapists	50

Speech pathologists and audiologists	11
All other therapists	4
Veterinarians and veterinary inspectors	7
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	247
Artists and commercial artists	29
Athletes, coaches, umpires, and related workers	10
Dancers and choreographers	5
Designers, except interior designers	32
Merchandise displayers and window trimmers	18
Musicians	30
Music dir., singers, composers, and related workers	6
Musicians, instrumental	24
Photographers and camera operators	18
Camera operators, television and motion picture	2
Photographers	16
Producers, directors, actors, and entertainers	14
Public related specialists and publicity writers	8
Radio and TV announcers and newscasters	9
Announcers, radio and television	8
Broadcast news analysts	1
Reporters and correspondents	58
Writers and editors, inc. tech. writers	15
TECHNICIAN OCCUPATIONS	670
Health technicians and technologists	398
Dental hygienists	21
Dietetic technicians	15
Electrocardiograph technicians/technologists	11
Electroencephalograph technicians/technologists	5
Emergency medical technicians	13
Licensed practical nurses	144
Medical and clinical lab technol. and techn.	63
Medical and clinical laboratory technicians	25
Medical and clinical laboratory technologists	37
Medical records technicians and technologists	10
Radiologic technologists and technicians	62
Surgical technicians	32
All other health prof. and paraprofessionals	23
Engineering and science technicians and technologists	182
Engineering technicians	91
Civil engineering technicians and technologists	9

Electrical and electronic technicians/technol.	59
Industrial engineering technicians and technol.	2
Mechanical engineering technicians and technol.	9
All other engineering technicians and technol.	12
Drafters	25
Phys. and life sci. technicians/technologists	66
Petroleum technicians and technologists	33
All other science technicians and technologists	33
Technicians, exc. health and engineering and science	89
Air traffic controllers	8
Broadcast technicians	4
Computer programmers	35
Legal assistants and technicians, exc. clerical	19
Law clerks	4
Paralegal personnel	6
Title examiners, searchers, and clerks	9
Programmers, numerical, tool, and proc. control	1
Radio operators	0
Technical assistants, library	7
All other technicians	15
ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	52
MARKETING AND SALES OCCUPATIONS	3,567
Cashiers	862
Counter and rental clerks	53
Insurance sales workers	16
Real estate agents and brokers	32
Brokers, real estate	3
Sales agents, real estate	30
Real estate appraisers	2
Salespersons, retail	1,225
Securities and financial services sales workers	8
Stock clerks, sales floor	408
Travel agents	18
All other sales and related workers	943
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL	3,308
Adjusters and investigators	107
Adjustment clerks	33
Bill and account collectors	19
Ins. adjusters, examiners, and investigators	6

Insurance appraisers, auto damage	30
Insurance claims clerks	3
Insurance examining clerks	1
Insurance policy processing clerks	3
License clerks	2
Welfare eligibility workers and interviewers	10
Communications equipment operators	75
Telephone operators	64
Central office operators	10
Directory assistance operators	4
Switchboard operators	50
Telegraph and teletype operators	1
All other communications equipment operators	10
Computer operators and peripheral equipment operators	36
Computer operators, exc. peripheral equipment	26
Peripheral EDP equipment operators	10
Duplicating, mail, and other office machine operators	20
Duplicating machine operators	5
Transit clerks	1
All other office machine operators	14
Financial records processing occupations	366
Billing, cost, and rate clerks	42
Billing, posting, and calc. mach. operators	22
Bookkeeping, accounting, and auditing clerks	278
Payroll and timekeeping clerks	25
Information clerks	343
Hotel desk clerks	185
New accounts clerks	73
Receptionists and information clerks	76
Reservation & trans. ticket agents & travel clerks	10
Reservation and transportation ticket agents	6
Travel clerks	4
Mail and message distribution workers	230
Mail clerks, exc. mail mach. op. and postal serv.	15
Messengers	13
Postal mail carriers	98
Postal service clerks	104
Mat. rec., sched., disp., and dist. occupations	473
Dispatchers	41
Dispatchers, exc. police, fire, and ambulance	34
Dispatchers, police, fire, and ambulance	7
Meter readers, utilities	8

Order fillers, wholesale and retail sales	67
Procurement clerks	6
Production, planning, and expediting clerks	13
Stock clerks, stockroom, warehouse, or yard	164
Traffic, shipping, and receiving clerks	110
Transportation agents	5
Weighers, meas., check., and samp., recordkeep.	7
All other mat. rec., sched., and dist. workers	52
Records processing occupations, exc. financial	169
Advertising clerks	42
Brokerage clerks	7
File clerks	30
Library assistants and bookmobile drivers	14
Order clerks, materials, merch., and service	50
Personnel clerks, exc. payroll and timekeeping	12
Statement clerks	14
Secretaries, stenographers, and typists	342
Secretaries	259
Stenographers	13
Typists	70
Other clerical and administrative support workers	1,146
Court clerks	13
Credit authorizers	18
Credit checkers	25
Customer service representatives, utilities	6
Data entry keyers, exc. composing	32
Data keyers, composing	175
General office clerks	291
Loan and credit clerks	11
Municipal clerks	7
Proofreaders and copy markers	23
Real estate clerks	3
Statistical clerks	16
Teacher aides and educational assistants	21
Tellers	336
All other clerical and admin. support workers	171
SERVICE WORKERS	6,504
Clean. and bldg. serv. occup., exc. pvt. hshld.	399
Janitors and cleaners, inc. maids/hskpg. clean.	372
Pest controllers and assistants	27

Food and beverage prep. and service occupations	3,620
Bakers, bread and pastry	60
Bartenders	215
Cooks, except short order	342
Cooks, institution or cafeteria	49
Cooks, restaurant	293
Cooks, sh. order and spec. fast food	274
Din. rm. and cafet. attendants and bar. helpers	154
Food preparation and service workers, fast food	843
Food preparation workers	469
Hosts and hostesses, rest./lounge/coffee shop	94
Waiters and waitresses	948
All other food service workers	220
Health service and related occupations	489
Ambulance drivers and attendants, except EMTs	6
Dental assistants	93
Medical assistants	46
Nursing aides and psychiatric aides	279
Nursing aides, orderlies, and attendants	260
Psychiatric aides	19
Occupational therapy assistants and aides	2
Pharmacy assistants	32
Phys. and correct. therapy assistants and aides	31
Personal service occupations	294
Amusement and recreation attendants	59
Baggage porters and bellhops	3
Barbers	15
Child care workers	20
Cosmetologists and related workers	147
Hairdressers, hairstylists, and cosmetologists	111
Manicurists	15
Shampooers	21
Flight attendants	17
Guides	4
Social welfare service aides	18
Ushers, lobby attendants, and ticket takers	11
Private household workers	1,120
Cooks, private household	26
Housekeepers and butlers	48
Child care workers, private household	445
Cleaners and servants, private household	601

Protective service occupations	429
Correction officers and jailers	18
Fire fighting occupations	108
Fire fighters	84
Fire fighting and prevention supervisors	21
Fire inspectors	3
Police and detectives	158
Police and detective supervisors	30
Police detectives and investigators	14
Police patrol officers	114
Sheriffs and other law enforcement workers	13
Bailiffs	2
Fish and game wardens	0
Parking enforcement officers	2
Sheriffs, deputy sheriffs, and U.S. marshalls	9
Other protective service workers	132
Crossing guards	1
Detectives and investigators, except public	25
Guards	91
All other protective service workers	15
All other service occupations	152
Housekeepers, institutional	36
All other service workers	116
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	428
Supervisors, farming, forestry, and ag. related occ.	22
Agriculture related occupations	115
Animal caretakers, except farm	14
Gardeners and groundskeepers, except farm	78
Graders and sorters, agricultural products	22
Farm occupations	224
Farm workers	219
Nursery workers	5
Farm operators and managers	36
Farmers	10
Farm managers	26
Fishers, hunters, and trappers	5
Captains and other officers, fishing vessels	1
Fishers, hunters, and trappers	5
Forestry and logging occupations	26
Choke setters	10
Fallers and buckers	0

Forest and conservation workers	4
Logging tractor operators	2
Log graders and scalers	5
Log handling equipment operators	1
All oth. timber cut. and related logging workers	3
All oth. agric., forest., fish., and related wkrs.	1
BLUE COLLAR WORKER SUPERVISORS	108
CONSTRUCTION TRADES	1,373
Air hammer operators	15
Bricklayers and stone masons	42
Brick masons	22
Stone masons	21
Carpenters	60
Carpet installers	19
Coil. tile installers and acoustical carpenters	10
Concrete and terrazzo finishers	22
Drywall installers and finishers	529
Drywall installers	302
Tapers	158
Lathers	69
Electricians	92
Fence erectors	53
Glaziers	41
Hard tile setters	6
Highway maintenance workers	36
Insulation workers	15
Painters and paperhangers, const. and maint.	41
Pipelayers	11
Pipelaying fitters	52
Plasterers	95
Plumbers, pipefitters, and steamfitters	65
Rail-track laying and maint. equip. operators	4
Roofers	24
Septic tank servicers and sewer pipe cleaners	5
Structural and reinforcing metal workers	125
Reinforcing metal workers	112
Structural metal workers	13
All other construction trades workers	13

EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	929
Blasters and explosives workers	3
Continuous mining machine operators	4
Derrick operators, oil and gas extraction	105
Mine cutting and channeling machine operators	12
Roof bolters	4
Rotary drill operators, oil and gas extraction	166
Roustabouts	552
Service unit operators	77
All other extractive workers, except helpers	6
 MECHANICS, INSTALLERS, AND REPAIRERS	 2,208
Communications equip. mech., install, and rep.	12
Central office and PBX installers and repairers	6
Frame wirers, central office	2
Radio mechanics	1
Signal or track switch maintainers	2
All oth. comm. equip. mech., install., and rep.	1
Electrical and elec. equip. mech./install./rep.	189
Data processing equipment repairers	8
Electrical installers and repairers, tr. equip., mfg.	1
Electrical powerline installers and repairers	2
Electric motor, transformer, and related repairers	27
Electronic home entertainment equip. repairers	41
Electronics repairers, commer. and ind. equip.	5
Station installers and repairers, telephone	14
Tel. and cable TV line installers and repairers	91
Machinery and related mech., install., and rep.	948
Industrial machinery mechanics	803
Machinery maintenance mechanics, marine equip.	743
Machinery maintenance mechanics, sewing mach.	5
Machinery maintenance mechanics, textile mach.	1
Machinery maintenance mechanics, water/power pl.	15
Mine machinery mechanics	10
All other machinery maintenance mechanics	30
Machinery maintenance workers	4
Maintenance repairers, general utility	97
Millwrights	44
Vehicle and mobile equip. mech. and rep.	533
Aircraft mechanics and engine specialists	23
Automotive body and related repairers	80
Automotive and motorcycle mechanics	258

Bus and truck mechanics and diesel eng. special	36
Farm equipment mechanics	4
Mobile heavy equipment mechanics, exc. engines	108
Rail car repairers	10
Small engine specialists	13
Other mechanics, installers, and repairers	527
Bicycle repairers	15
Coin and vending mach. servicers and repairers	27
Electric meter installers and repairers	1
Electromedical and biomedical equip. repairers	4
Heat., a/c, and refrig. mechanics and installers	32
Home appliance and power tool repairers	58
Locksmiths and safe repairers	2
Mech. cont. and valve installers and repairers	2
Menders, garments, linens, and related	7
Mobile home repairers	21
Musical instrument repairers and tuners	11
Office machine and cash register servicers	179
Precision instrument repairers	13
Riggers	18
Tire repairers and changers	107
Watchmakers	9
All other mechanics, installers, and repairers	22
PRECISION PRODUCTION OCCUPATIONS	1,290
Precision food workers	278
Bakers, manufacturing	95
Butchers and meat cutters	116
Food batchmakers	45
All other precision food and tobacco workers	22
Precision metal workers	554
Boilermakers	7
Etchers and engravers, hand or mach., precision	3
Hand workers, jewelry and related prod., precision	14
Instrument makers, precision	7
Jewelers and silversmiths	22
Layout workers, metal, precision	20
Machinists	18
Pattern and model makers, metal	1
Sheet metal workers	428
Shipfitters	17
Tool and die makers	13
All other precision metal workers	4



All other precision metal workers	4
Precision printing workers	131
Bookbinders	12
Compositors, typesetters, and arrangers, prec.	18
Lithography and photoengraving workers, prec.	90
All other precision printing workers	11
Precision text., app., and furnishings workers	122
Custom tailors and sewers	74
Patternmakers and layout workers, fab. and app.	7
Shoe and leather workers and repairers, prec.	16
Upholsterers	16
All other prec. text., app., and furnish. wkr.	10
Precision woodworkers	78
Cabinetmakers and bench carpenters	22
Furniture finishers	11
Pattern and model makers, wood	1
Wood machinists	44
All other precision woodworkers	1
Inspectors and related occupations	52
Inspectors, testers, and graders, precision	23
Other prod. inspectors, testers, graders, & sorters	29
Other precision workers	74
Dental lab technicians, precision	24
Detail design decorators and painters, prec.	5
Foundry mold and core makers, precision	2
Molders/shapers, exc. jewel and found., prec.	1
Patternmakers, model makers, & related workers, prec.	1
Photographic process workers, precision	9
All other precision workers	32
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	1,544
Num. cont. mach. tool op. and tend., met./plas.	2
Comb. mach. tool set., set-up op., op., and tend.	11
Comb. mach. tool op. and tend., met. and plas.	9
Comb. mach. tool set. and set-up op., met./plas.	3
Mach. tool cut. & form. set./oper./tend., met. & plas.	75
Drill. mach. tool set. and set-up op., met. and pl.	3
Ext. and draw. mach. set. and set-up op., met./pl.	6
Forging mach. set. and set-up op., met./pl.	12
Grinding mach. set. and set-up op., met. and plas.	6

Lathe mach. tool set. and set-up op., met. and pl.	4
Machine forming op. and tend., met. and plas.	12
Mach. tool cut. op. and tend., met. and plas.	12
Milling mach. set. and set-up op., met. and plas.	1
Press mach. set. and set-up op., met. and plas.	3
Punch. mach. set. and set-up op., met. and plas.	10
Rolling mach. set. and set-up op., met. and plas.	1
Sawing mach. tool set. & set-up op., met. & plas.	1
Shear mach. set. and set-up op., met. and plas.	2
Met. fab. mach. set., oper., and related workers	148
Metal fabricators, structural metal products	105
Solder. and braz. mach. operators and tenders	1
Solder. and braz. mach. setters and set-up op.	1
Welding machine operators and tenders	31
Welding machine setters and set-up operators	10
Met. & pl. proc. mach. set., oper., & related workers	52
Elec. plat. mach. oper. and tend., met. and plas.	3
Elec. plat. mach. set. and set-up op., met. and pl.	2
Foundry mold assembly and shakeout workers	11
Furnace operators and tenders	3
Heaters, metal and plastic	0
Heat. equip. set. and set-up oper., met. and plas.	1
Heat treating mach. oper. and tend., met. and plas.	1
Metal molding mach. operators and tenders	2
Met. molding mach. setters and set-up operators	1
Nonel. plat. mach. oper. and tend., met. and plast.	1
Nonel. plat. mach. set. & set-up op., met. & plast.	1
Plastic molding mach. operators and tenders	20
Plas. molding mach. setters and set-up operators	6
All oth. met./pl. mach. set., oper., related workers	10
Printing, binding, and related workers	418
Bindery machine operators	43
Bindery machine setters and set-up operators	62
Printing press operators	185
Letterpress setters and set-up operators	38
Offset lithographic press setters and set-up op.	125
Printing press mach. operators and tenders	20
All oth. print. press setters & set-up operators	2
Photoeng. and lithogr. mach. oper. and tend.	6
Photoengraving and lithographing photographers	40

Screen print. mach. setters and set-up operators	7
Typesetting and composing mach. oper. and tend.	70
All other printing, binding, and related wkrs.	6
Text. & related setters, operators, & related workers	389
Ext. and forming mach. oper. and tend.. syn. fib.	9
Lau. and drycl. mach. opoer. and tend., exc. press	45
Press. mach. oper. & tend., text., gar. & related	63
Sewing maching operators, garment	185
Sewing maching operators, non-garment	32
Shoe sewing machine operators and tenders	45
Text. bleaching and dyeing mach. oper. and tend.	1
Textile draw-out mach. operators and tenders	1
Textile mach. oper. and tend., winding	7
Textile machine setters and set-up operators	2
Woodworking mach. set., oper., & oth. related workers	11
Head sawyers	1
Sawing machine operators and tenders	3
Sawing machine setters and set-up operators	1
Woodworking machine operators and tenders	5
Woodworking mach. setters and set-up operators	2
Oth. mach. set., set-up oper., oper., and tend.	427
Boiler operators and tenders, low pressure	3
Cement, and gluing mach. operators and tenders	3
Chemical equip. controllers and operators	6
Chemical equipment tenders	4
Cooking mach. oper. and tend., food and tobacco	33
Crushing and mixing mach. oper. and tend.	13
Cutting and slicing mach. operators and tenders	7
Dairy process. equip. operators, incl. setters	38
Electronic semiconductor processors	5
Extruding and forming mach. oper. and tend.	7
Furnace, kiln, or kettle operators and tenders	8
Motion picture projectionists	4
Packaging and filling mach. oper. and tend.	57
Painting machine operators and tenders	8
Painters, transportation equipment	67
Paper goods mach. setters and set-up operators	9
Photographic processing mach. oper. and tend.	10
Roasting mach. oper. and tend., food and tob.	28

Separating and still mach. oper. and tend.	6
Tire building machine operators	25
All other machine operators and tenders	76
All other machine setters and set-up operators	9
HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	646
Precision assemblers	107
Aircraft assemblers, precision	34
Electrical and electronic equip. assem., prec.	7
Electromechanical equip. assemblers, precision	21
Fitters, structural metal, precision	31
Mach. builders and oth. prec. mach. assemblers	5
Watch & clock assemblers & related workers, prec.	5
All other precision assemblers, metal	5
Oth. hand workers, incl. assemb. and fabricators	539
Cannery workers	21
Coil winders, tapers, and finishers	70
Cutters and trimmers, hand	7
Electrical and electronic assemblers	10
Glaziers, manufacturing	2
Machine assemblers	10
Meat, poultry, and fish cutters and trimmers, hand	241
Metal pourers and casters, basic shapes	25
Molders and casters, hand	3
Painting, coating, and decorating workers, hand	4
Portable machine cutters	6
Pressers, hand	13
Sewers, hand	5
Welders and cutters	32
All other assemblers and fabricators	66
All other hand workers	24
PLANT AND SYSTEM OCCUPATIONS	93
Auxiliary equipment operators, power	1
Chemical plant and system operators	2
Guagers	14
Petroleum refinery and control panel operators	30
Power distributors and dispatchers	4
Stationary engineers	5

Water and liq. waste treat. pl. and sys. oper.	20
All other plant and system operators	17
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	973
Aircraft pilots and flight engineers	8
Motor vehicle operators	388
Bus drivers	33
Bus drivers	4
Bus drivers, school	30
Taxi drivers and chauffeurs	11
Truck drivers	343
Rail transportation workers	42
Locomotive engineers	5
Locomotive firers	2
Railroad brake, signal, and switch operators	16
Railroad conductors and yardmasters	10
Rail yard engineers, dinkey op., and hostlers	7
Subway and streetcar operators	2
Water transportation and related workers	21
Captains, water vessel	4
Mates and able seamen	4
Ordinary seamen and marine oilers	7
Pilots, ship	1
Ship engineers	5
All other transportation and related workers	253
Parking lot attendants	4
Service station attendants	248
Material moving equipment operators	247
Conveyor operators and tenders	5
Hoist, winch, and crane operators	11
Industrial truck and tractor operators	31
Loading machine operators, underground mining	15
Oil pumpers, except well head	80
Operating engineers	34
Shuttle car operators	5
Tank car and truck loaders	3
Well head pumpers	65
All other transportation and mat. mov. equip. op.	14

HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	1,946
Helpers, construction trades	982
Helpers, extractive workers	207
Machine feeders and offbearers	36
Freight, stock, and material movers, hand	312
Refuse collectors	7
All other freight, stock, and mat. movers, hand	304
All other helpers, labor., and mat. movers, hand	409
Hand packers and packagers	36
Vehicle washers and equipment cleaners	140
All oth. helpers, labor., and mat. movers, hand	232

**The Total Annual Impact of Ongoing Annual Operations, Royalty Payments,
and Cost Savings Benefits (Case 2) Associated with the Availability of
Incremental Wind Power from Existing Wind Turbines for Units in Service Prior
to the Initial Implementation of the Competitive Renewable Energy Zone (CREZ)
Transmission Investment Initiative on Business Activity in Texas
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$256,975,066	\$68,299,562	\$46,515,803	798
Forestry & Fishery Products	\$6,294,870	\$5,053,380	\$1,874,202	25
Coal Mining	\$22,710,252	\$6,536,096	\$6,887,513	48
Crude Petroleum & Natural Gas	\$583,108,858	\$127,767,130	\$58,926,038	308
Miscellaneous Mining	\$12,093,169	\$5,269,290	\$3,097,517	34
New Construction	\$40,468,935	\$17,484,882	\$14,408,626	219
Maintenance & Repair Construction	\$256,324,098	\$134,723,757	\$111,020,783	1,684
Food Products & Tobacco	\$417,582,754	\$105,144,399	\$53,712,798	965
Textile Mill Products	\$6,502,015	\$1,574,864	\$1,332,469	31
Apparel	\$74,062,940	\$40,992,087	\$20,771,300	607
Paper & Allied Products	\$74,453,723	\$33,429,271	\$15,113,126	246
Printing & Publishing	\$93,980,142	\$47,298,506	\$30,872,810	562
Chemicals & Petroleum Refining	\$577,120,312	\$101,822,604	\$47,811,631	380
Rubber & Leather Products	\$66,561,623	\$28,280,979	\$16,532,920	352
Lumber Products & Furniture	\$35,027,595	\$12,109,139	\$8,633,148	192
Stone, Clay, & Glass Products	\$47,703,843	\$25,062,204	\$13,107,637	228
Primary Metal	\$58,216,567	\$15,704,925	\$11,689,978	187
Fabricated Metal Products	\$96,861,327	\$36,736,130	\$23,716,902	435
Machinery, Except Electrical	\$80,747,921	\$32,955,211	\$23,543,343	267
Electric & Electronic Equipment	\$78,581,079	\$44,162,727	\$26,401,976	234
Motor Vehicles & Equipment	\$31,624,249	\$7,214,268	\$4,686,853	68
Transp. Equip., Exc. Motor Vehicles	\$22,605,365	\$10,605,326	\$6,930,195	86
Instruments & Related Products	\$14,505,777	\$6,162,604	\$4,684,143	62
Miscellaneous Manufacturing	\$23,718,297	\$9,273,345	\$6,395,941	107
Transportation	\$361,227,411	\$236,657,085	\$156,516,543	2,327
Communication	\$260,290,372	\$160,474,374	\$68,511,664	650
Electric, Gas, Water, Sanitary Services	\$1,604,613,090	\$375,079,157	\$163,674,550	743
Wholesale Trade	\$437,627,583	\$296,082,507	\$170,723,814	2,055
Retail Trade	\$1,326,359,011	\$1,099,037,865	\$657,189,518	18,543
Finance	\$179,273,393	\$92,409,205	\$53,810,144	514
Insurance	\$188,495,841	\$116,158,907	\$69,444,362	898
Real Estate	\$1,616,324,583	\$308,946,034	\$49,777,904	472
Hotels, Lodging Places, Amusements	\$180,608,399	\$92,470,613	\$60,663,901	1,589
Personal Services	\$277,656,149	\$171,505,620	\$133,434,157	2,419
Business Services	\$480,281,668	\$295,882,204	\$241,364,041	3,161
Eating & Drinking Places	\$625,843,147	\$366,498,343	\$194,996,691	9,489
Health Services	\$489,859,592	\$339,201,217	\$286,797,781	5,099
Miscellaneous Services	\$367,707,900	\$155,868,998	\$135,125,439	3,474
Households	\$26,294,472	\$12,455,249	\$12,191,700	907
Total	\$11,400,293,386	\$5,042,390,063	\$3,012,889,861	60,463

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Ongoing Annual Operations Prior to the CREZ Initiative: Occupational Profile (Case II)

Occupational Profile for The Total Annual Impact of Ongoing Annual Operations, Royalty Payments, and Cost Savings Benefits (Case 2) Associated with the Availability of Incremental Wind Power from Existing Wind Turbines for Units in Service Prior to the Initial Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas

TOTAL, ALL OCCUPATIONS	60,463
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	4,397
Managerial and administrative occupations	3,071
Elem. & sec. sch. principals and asst. principals	63
Assistant principals	21
Principals	43
Food service and lodging managers	543
Postmasters and mail superintendents	20
Public admin. chief exec., legis., and gen. admin.	93
All other managers and administrators	2,352
Management support occupations	1,325
Accountants and auditors	165
Assessors	14
Claims examiners, prop. and casual. insurance	27
Compliance and enforce. inspectors, exc. const.	39
Construction and building inspectors	92
Cost estimators	417
Personnel specialists and related workers	135
Claims takers, unemployment benefits	0
Employ. interviewers, pvt. or pub. emp. serv.	94
Personnel, training, and labor related spec.	37
Special agents, insurance	5
Purchasing agents and buyers	345
Purchasing agents, exc. wh., ret., and farm pr.	29
Wholesale and retail buyers, exc. farm products	317
Tax examiners, collectors, and revenue agents	8
Tax preparers	36
Underwriters	12
All other management support workers	34
ENGINEERS, ARCHITECTS, AND SURVEYORS	296
Engineers	276
Aeronautical and astronautical engineers	14
Chemical engineers	24
Civil engineers, including traffic engineers	30
Electrical and electronics engineers	70

Industrial engineers, except safety engineers	24
Mechanical engineers	33
Matallurgists and met., cer., and mat. engineers	8
Mining engineers, inc. mine safety engineers	3
Nuclear engineers	8
Petroleum engineers	31
Other engineers	29
Safety engineers, except mining engineers	4
All other engineers	26
Architects and surveyors	21
Architects, inc. landscape architects	15
Surveyors	6
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	197
Computer systems analysts, electronic data processing	60
Life scientists	55
Agricultural and food scientists	11
Biological scientists	19
Foresters and conservation scientists	4
Medical scientists	12
All other life scientists	9
Mathematical scientists	23
Actuaries	7
Statisticians	9
Mathematicians and all other mathematical scientists	7
Physical scientists	59
Chemists	32
Geologists, geophysicists, and oceanographers	16
Meteorologists	1
Physicists and astronomers	6
All other physical scientists	5
SOCIAL SCIENTISTS	47
Economists	11
Psychologists	17
Sociologists	1
Urban and regional planners	9
All other social scientists	7
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	258
Clergy	80
Directors, religious activities and education	35

Recreation workers	41
Social workers	102
LAWYERS AND JUDGES	39
Judges, magistrates, and other jud. workers	15
Lawyers	24
TEACHERS, LIBRARIANS, AND COUNSELORS	1,246
Teachers, preschool and elementary	126
Teachers, preschool	26
Teachers, kindergarten and elementary	100
Teachers, secondary school	518
College and university faculty	334
Other teachers and instructors	231
Farm and home management advisors	12
Graduate assistants, teaching	68
Instructors, adult (nonvocational) education	19
Instructors and coaches, sports and phys. train.	96
Teachers and instructors, voc. ed. and training	15
All other teachers and instructors	20
Librarians, archivists, curators, and related workers	22
Audio-visual specialists	4
Curators, archiv., museum techn., and restorers	2
Librarians, professional	16
Counselors	16
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	1,389
Chiropractors	18
Dentists	38
Dietitians and nutritionists	22
Opticians, dispensing and measuring	69
Optometrists	18
Pharmacists	181
Podiatrists	4
Physician assistants	27
Physicians and surgeons	179
Registered nurses	638
Therapists	181
Occupational therapists	11
Physical therapists	28
Recreational therapists	9
Respiratory therapists	103

Speech pathologists and audiologists	22
All other therapists	9
Veterinarians and veterinary inspectors	14
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	502
Artists and commercial artists	60
Athletes, coaches, umpires, and related workers	21
Dancers and choreographers	10
Designers, except interior designers	65
Merchandise displayers and window trimmers	37
Musicians	62
Music dir., singers, composers, and related workers	12
Musicians, instrumental	49
Photographers and camera operators	37
Camera operators, television and motion picture	4
Photographers	33
Producers, directors, actors, and entertainers	29
Public related specialists and publicity writers	17
Radio and TV announcers and newscasters	18
Announcers, radio and television	16
Broadcast news analysts	2
Reporters and correspondents	117
Writers and editors, inc. tech. writers	31
TECHNICIAN OCCUPATIONS	1,361
Health technicians and technologists	809
Dental hygienists	43
Dietetic technicians	30
Electrocardiograph technicians/technologists	21
Electroencephalograph technicians/technologists	11
Emergency medical technicians	26
Licensed practical nurses	292
Medical and clinical lab technol. and techn.	127
Medical and clinical laboratory technicians	51
Medical and clinical laboratory technologists	76
Medical records technicians and technologists	19
Radiologic technologists and technicians	126
Surgical technicians	66
All other health prof. and paraprofessionals	48
Engineering and science technicians and technologists	371
Engineering technicians	185
Civil engineering technicians and technologists	18

Electrical and electronic technicians/technol.	120
Industrial engineering technicians and technol.	5
Mechanical engineering technicians and technol.	18
All other engineering technicians and technol.	24
Drafters	51
Phys. and life sci. technicians/technologists	135
Petroleum technicians and technologists	67
All other science technicians and technologists	68
Technicians, exc. health and engineering and science	182
Air traffic controllers	15
Broadcast technicians	8
Computer programmers	71
Legal assistants and technicians, exc. clerical	39
Law clerks	8
Paralegal personnel	12
Title examiners, searchers, and clerks	19
Programmers, numerical, tool, and proc. control	3
Radio operators	1
Technical assistants, library	15
All other technicians	31
ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	105
MARKETING AND SALES OCCUPATIONS	7,247
Cashiers	1,751
Counter and rental clerks	108
Insurance sales workers	33
Real estate agents and brokers	66
Brokers, real estate	5
Sales agents, real estate	61
Real estate appraisers	5
Salespersons, retail	2,488
Securities and financial services sales workers	16
Stock clerks, sales floor	829
Travel agents	36
All other sales and related workers	1,917
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL	6,722
Adjusters and investigators	217
Adjustment clerks	67
Bill and account collectors	38
Ins. adjusters, examiners, and investigators	13

Insurance appraisers, auto damage	61
Insurance claims clerks	5
Insurance examining clerks	1
Insurance policy processing clerks	7
License clerks	5
Welfare eligibility workers and interviewers	19
Communications equipment operators	153
Telephone operators	131
Central office operators	20
Directory assistance operators	9
Switchboard operators	102
Telegraph and teletype operators	1
All other communications equipment operators	21
Computer operators and peripheral equipment operators	74
Computer operators, exc. peripheral equipment	53
Peripheral EDP equipment operators	21
Duplicating, mail, and other office machine operators	40
Duplicating machine operators	10
Transit clerks	2
All other office machine operators	29
Financial records processing occupations	744
Billing, cost, and rate clerks	85
Billing, posting, and calc. mach. operators	44
Bookkeeping, accounting, and auditing clerks	565
Payroll and timekeeping clerks	50
Information clerks	698
Hotel desk clerks	376
New accounts clerks	149
Receptionists and information clerks	154
Reservation & trans. ticket agents & travel clerks	20
Reservation and transportation ticket agents	12
Travel clerks	8
Mail and message distribution workers	467
Mail clerks, exc. mail mach. op. and postal serv.	30
Messengers	27
Postal mail carriers	199
Postal service clerks	211
Mat. rec., sched., disp., and dist. occupations	962
Dispatchers	84
Dispatchers, exc. police, fire, and ambulance	70
Dispatchers, police, fire, and ambulance	14
Meter readers, utilities	17

Order fillers, wholesale and retail sales	136
Procurement clerks	13
Production, planning, and expediting clerks	27
Stock clerks, stockroom, warehouse, or yard	333
Traffic, shipping, and receiving clerks	223
Transportation agents	10
Weighers, meas., check., and samp., recordkeep.	14
All other mat. rec., sched., and dist. workers	105
Records processing occupations, exc. financial	343
Advertising clerks	85
Brokerage clerks	13
File clerks	62
Library assistants and bookmobile drivers	29
Order clerks, materials, merch., and service	101
Personnel clerks, exc. payroll and timekeeping	24
Statement clerks	28
Secretaries, stenographers, and typists	696
Secretaries	526
Stenographers	27
Typists	142
Other clerical and administrative support workers	2,329
Court clerks	26
Credit authorizers	36
Credit checkers	51
Customer service representatives, utilities	12
Data entry keyers, exc. composing	65
Data keyers, composing	356
General office clerks	591
Loan and credit clerks	23
Municipal clerks	14
Proofreaders and copy markers	46
Real estate clerks	5
Statistical clerks	32
Teacher aides and educational assistants	43
Tellers	682
All other clerical and admin. support workers	347
SERVICE WORKERS	13,214
Clean. and bldg. serv. occup., exc. pvt. hshld.	810
Janitors and cleaners, inc. maids/hskpg. clean.	756
Pest controllers and assistants	55

Food and beverage prep. and service occupations	7,354
Bakers, bread and pastry	122
Bartenders	438
Cooks, except short order	695
Cooks, institution or cafeteria	100
Cooks, restaurant	595
Cooks, sh. order and spec. fast food	556
Din. rm. and cafet. attendants and bar. helpers	313
Food preparation and service workers, fast food	1,713
Food preparation workers	954
Hosts and hostesses, rest./lounge/coffee shop	191
Waiters and waitresses	1,925
All other food service workers	448
Health service and related occupations	994
Ambulance drivers and attendants, except EMTs	11
Dental assistants	189
Medical assistants	94
Nursing aides and psychiatric aides	567
Nursing aides, orderlies, and attendants	528
Psychiatric aides	39
Occupational therapy assistants and aides	5
Pharmacy assistants	64
Phys. and correct. therapy assistants and aides	63
Personal service occupations	598
Amusement and recreation attendants	119
Baggage porters and bellhops	6
Barbers	31
Child care workers	40
Cosmetologists and related workers	299
Hairdressers, hairstylists, and cosmetologists	225
Manicurists	31
Shampooers	43
Flight attendants	35
Guides	8
Social welfare service aides	36
Ushers, lobby attendants, and ticket takers	23
Private household workers	2,276
Cooks, private household	53
Housekeepers and butlers	98
Child care workers, private household	904
Cleaners and servants, private household	1,221

Protective service occupations	872
Correction officers and jailers	37
Fire fighting occupations	219
Fire fighters	172
Fire fighting and prevention supervisors	42
Fire inspectors	6
Police and detectives	321
Police and detective supervisors	62
Police detectives and investigators	27
Police patrol officers	232
Sheriffs and other law enforcement workers	27
Bailiffs	4
Fish and game wardens	0
Parking enforcement officers	5
Sheriffs, deputy sheriffs, and U.S. marshalls	18
Other protective service workers	268
Crossing guards	2
Detectives and investigators, except public	51
Guards	185
All other protective service workers	30
All other service occupations	310
Housekeepers, institutional	73
All other service workers	237
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	871
Supervisors, farming, forestry, and ag. related occ.	45
Agriculture related occupations	233
Animal caretakers, except farm	29
Gardeners and groundskeepers, except farm	159
Graders and sorters, agricultural products	45
Farm occupations	455
Farm workers	445
Nursery workers	11
Farm operators and managers	72
Farmers	20
Farm managers	52
Fishers, hunters, and trappers	11
Captains and other officers, fishing vessels	1
Fishers, hunters, and trappers	10
Forestry and logging occupations	52
Choke setters	21
Fallers and buckers	1

Forest and conservation workers	9
Logging tractor operators	4
Log graders and scalers	10
Log handling equipment operators	2
All oth. timber cut. and related logging workers	6
All oth. agric., forest., fish., and related wkrs.	2
BLUE COLLAR WORKER SUPERVISORS	220
CONSTRUCTION TRADES	2,790
Air hammer operators	31
Bricklayers and stone masons	86
Brick masons	44
Stone masons	42
Carpenters	122
Carpet installers	38
Coil. tile installers and acoustical carpenters	21
Concrete and terrazzo finishers	44
Drywall installers and finishers	1,076
Drywall installers	615
Tapers	320
Lathers	141
Electricians	186
Fence erectors	107
Glaziers	84
Hard tile setters	13
Highway maintenance workers	72
Insulation workers	29
Painters and paperhangers, const. and maint.	83
Pipelayers	22
Pipelaying fitters	106
Plasterers	193
Plumbers, pipefitters, and steamfitters	132
Rail-track laying and maint. equip. operators	7
Roofers	49
Septic tank servicers and sewer pipe cleaners	11
Structural and reinforcing metal workers	254
Reinforcing metal workers	227
Structural metal workers	26
All other construction trades workers	26

EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	1,887
Blasters and explosives workers	6
Continuous mining machine operators	7
Derrick operators, oil and gas extraction	214
Mine cutting and channeling machine operators	24
Roof bolters	8
Rotary drill operators, oil and gas extraction	336
Roustabouts	1,122
Service unit operators	157
All other extractive workers, except helpers	13
 MECHANICS, INSTALLERS, AND REPAIRERS	 4,486
Communications equip. mech., install, and rep.	24
Central office and PBX installers and repairers	12
Frame wirers, central office	4
Radio mechanics	3
Signal or track switch maintainers	4
All oth. comm. equip. mech., install., and rep.	1
Electrical and elec. equip. mech./install./rep.	383
Data processing equipment repairers	16
Electrical installers and repairers, tr. equip., mfg.	2
Electrical powerline installers and repairers	4
Electric motor, transformer, and related repairers	55
Electronic home entertainment equip. repairers	83
Electronics repairers, commer. and ind. equip.	10
Station installers and repairers, telephone	28
Tel. and cable TV line installers and repairers	185
Machinery and related mech., install., and rep.	1,926
Industrial machinery mechanics	1,632
Machinery maintenance mechanics, marine equip.	1,509
Machinery maintenance mechanics, sewing mach.	11
Machinery maintenance mechanics, textile mach.	1
Machinery maintenance mechanics, water/power pl.	30
Mine machinery mechanics	21
All other machinery maintenance mechanics	60
Machinery maintenance workers	9
Maintenance repairers, general utility	196
Millwrights	89
Vehicle and mobile equip. mech. and rep.	1,082
Aircraft mechanics and engine specialists	47
Automotive body and related repairers	163
Automotive and motorcycle mechanics	525

Bus and truck mechanics and diesel eng. special	73
Farm equipment mechanics	9
Mobile heavy equipment mechanics, exc. engines	220
Rail car repairers	19
Small engine specialists	26
Other mechanics, installers, and repairers	1,071
Bicycle repairers	31
Coin and vending mach. servicers and repairers	55
Electric meter installers and repairers	3
Electromedical and biomedical equip. repairers	7
Heat., a/c, and refrig. mechanics and installers	65
Home appliance and power tool repairers	117
Locksmiths and safe repairers	4
Mech. cont. and valve installers and repairers	4
Menders, garments, linens, and related	15
Mobile home repairers	42
Musical instrument repairers and tuners	23
Office machine and cash register servicers	363
Precision instrument repairers	26
Riggers	36
Tire repairers and changers	218
Watchmakers	18
All other mechanics, installers, and repairers	44
PRECISION PRODUCTION OCCUPATIONS	2,622
Precision food workers	566
Bakers, manufacturing	193
Butchers and meat cutters	236
Food batchmakers	92
All other precision food and tobacco workers	45
Precision metal workers	1,126
Boilermakers	15
Etchers and engravers, hand or mach., precision	6
Hand workers, jewelry and related prod., precision	28
Instrument makers, precision	14
Jewelers and silversmiths	45
Layout workers, metal, precision	40
Machinists	37
Pattern and model makers, metal	2
Sheet metal workers	869
Shipfitters	35
Tool and die makers	25
All other precision metal workers	9

Precision printing workers	266
Bookbinders	25
Compositors, typesetters, and arrangers, prec.	37
Lithography and photoengraving workers, prec.	183
All other precision printing workers	22
Precision text., app., and furnishings workers	248
Custom tailors and sewers	150
Patternmakers and layout workers, fab. and app.	14
Shoe and leather workers and repairers, prec.	32
Upholsterers	32
All other prec. text., app., and furnish. wkr.	20
Precision woodworkers	159
Cabinetmakers and bench carpenters	45
Furniture finishers	22
Pattern and model makers, wood	2
Wood machinists	89
All other precision woodworkers	2
Inspectors and related occupations	107
Inspectors, testers, and graders, precision	48
Other prod. inspectors, testers, graders, & sorters	59
Other precision workers	150
Dental lab technicians, precision	48
Detail design decorators and painters, prec.	11
Foundry mold and core makers, precision	4
Molders/shapers, exc. jewel and found., prec.	3
Patternmakers, model makers, & related workers, prec.	1
Photographic process workers, precision	19
All other precision workers	65
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	3,137
Num. cont. mach. tool op. and tend., met./plas.	5
Comb. mach. tool set., set-up op., op., and tend.	23
Comb. mach. tool op. and tend., met. and plas.	17
Comb. mach. tool set. and set-up op., met./plas.	6
Mach. tool cut. & form. set./oper./tend., met. & plas.	153
Drill. mach. tool set. and set-up op., met. and pl.	6
Ext. and draw. mach. set. and set-up op., met./pl.	13
Forging mach. set. and set-up op., met./pl.	25
Grinding mach. set. and set-up op., met. and plas.	12
Lathe mach. tool set. and set-up op., met. and pl.	9
Machine forming op. and tend., met. and plas.	25
Mach. tool cut. op. and tend., met. and plas.	25

Milling mach. set. and set-up op., met. and plas.	3
Press mach. set. and set-up op., met. and plas.	6
Punch. mach. set. and set-up op., met. and plas.	20
Rolling mach. set. and set-up op., met. and plas.	2
Sawing mach. tool set. & set-up op., met. & plas.	2
Shear mach. set. and set-up op., met. and plas.	5
Met. fab. mach. set., oper., and related workers	301
Metal fabricators, structural metal products	214
Solder. and braz. mach. operators and tenders	2
Solder. and braz. mach. setters and set-up op.	1
Welding machine operators and tenders	64
Welding machine setters and set-up operators	20
Met. & pl. proc. mach. set., oper., & related workers	105
Elec. plat. mach. oper. and tend., met. and plas.	5
Elec. plat. mach. set. and set-up op., met. and pl.	4
Foundry mold assembly and shakeout workers	23
Furnace operators and tenders	7
Heaters, metal and plastic	1
Heat. equip. set. and set-up oper., met. and plas.	1
Heat treating mach. oper. and tend., met. and plas.	2
Metal molding mach. operators and tenders	4
Met. molding mach. setters and set-up operators	3
Nonel. plat. mach. oper. and tend., met. and plast.	2
Nonel. plat. mach. set. & set-up op., met. & plast.	1
Plastic molding mach. operators and tenders	40
Plas. molding mach. setters and set-up operators	12
All oth. met./pl. mach. set., oper., related workers	21
Printing, binding, and related workers	849
Bindery machine operators	87
Bindery machine setters and set-up operators	127
Printing press operators	375
Letterpress setters and set-up operators	77
Offset lithographic press setters and set-up op.	253
Printing press mach. operators and tenders	40
All oth. print. press setters & set-up operators	4
Photoeng. and lithogr. mach. oper. and tend.	11
Photoengraving and lithographing photographers	81
Screen print. mach. setters and set-up operators	14
Typesetting and composing mach. oper. and tend.	142
All other printing, binding, and related wkrs.	12
Text. & related setters, operators, & related workers	790
Ext. and forming mach. oper. and tend.. syn. fib.	18

Lau. and drycl. mach. opeer. and tend., exc. press	91
Press. mach. oper. & tend., text., gar. & related	127
Sewing maching operators, garment	376
Sewing maching operators, non-garment	66
Shoe sewing machine operators and tenders	92
Text. bleaching and dyeing mach. oper. and tend.	1
Textile draw-out mach. operators and tenders	2
Textile mach. oper. and tend., winding	14
Textile machine setters and set-up operators	4
Woodworking mach. set., oper., & oth. related workers	21
Head sawyers	1
Sawing machine operators and tenders	5
Sawing machine setters and set-up operators	2
Woodworking machine operators and tenders	9
Woodworking mach. setters and set-up operators	4
Oth. mach. set., set-up oper., oper., and tend.	868
Boiler operators and tenders, low pressure	7
Cement, and gluing mach. operators and tenders	7
Chemical equip. controllers and operators	13
Chemical equipment tenders	8
Cooking mach. oper. and tend., food and tobacco	68
Crushing and mixing mach. oper. and tend.	26
Cutting and slicing mach. operators and tenders	14
Dairy process. equip. operators, incl. setters	78
Electronic semiconductor processors	11
Extruding and forming mach. oper. and tend.	13
Furnace, kiln, or kettle operators and tenders	16
Motion picture projectionists	7
Packaging and filling mach. oper. and tend.	116
Painting machine operators and tenders	16
Painters, transportation equipment	136
Paper goods mach. setters and set-up operators	19
Photographic processing mach. oper. and tend.	21
Roasting mach. oper. and tend., food and tob.	58
Separating and still mach. oper. and tend.	12
Tire building machine operators	51
All other machine operators and tenders	154
All other machine setters and set-up operators	19
 HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	 1,313
Precision assemblers	218
Aircraft assemblers, precision	68

Electrical and electronic equip. assem., prec.	14
Electromechanical equip. assemblers, precision	43
Fitters, structural metal, precision	64
Mach. builders and oth. prec. mach. assemblers	10
Watch & clock assemblers & related workers, prec.	10
All other precision assemblers, metal	10
Oth. hand workers, incl. assemb. and fabricators	1,094
Cannery workers	43
Coil winders, tapers, and finishers	142
Cutters and trimmers, hand	14
Electrical and electronic assemblers	20
Glaziers, manufacturing	3
Machine assemblers	21
Meat, poultry, and fish cutters and trimmers, hand	489
Metal pourers and casters, basic shapes	50
Molders and casters, hand	6
Painting, coating, and decorating workers, hand	8
Portable machine cutters	12
Pressers, hand	27
Sewers, hand	9
Welders and cutters	66
All other assemblers and fabricators	133
All other hand workers	50
PLANT AND SYSTEM OCCUPATIONS	188
Auxiliary equipment operators, power	2
Chemical plant and system operators	4
Guagers	28
Petroleum refinery and control panel operators	61
Power distributors and dispatchers	8
Stationary engineers	11
Water and liq. waste treat. pl. and sys. oper.	41
All other plant and system operators	34
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	1,977
Aircraft pilots and flight engineers	16
Motor vehicle operators	788
Bus drivers	68
Bus drivers	8
Bus drivers, school	60
Taxi drivers and chauffeurs	23
Truck drivers	697

Rail transportation workers	85
Locomotive engineers	9
Locomotive firers	4
Railroad brake, signal, and switch operators	33
Railroad conductors and yardmasters	21
Rail yard engineers, dinkey op., and hostlers	15
Subway and streetcar operators	3
Water transportation and related workers	43
Captains, water vessel	9
Mates and able seamen	9
Ordinary seamen and marine oilers	14
Pilots, ship	2
Ship engineers	9
All other transportation and related workers	513
Parking lot attendants	9
Service station attendants	505
Material moving equipment operators	503
Conveyor operators and tenders	9
Hoist, winch, and crane operators	22
Industrial truck and tractor operators	62
Loading machine operators, underground mining	30
Oil pumpers, except well head	162
Operating engineers	69
Shuttle car operators	11
Tank car and truck loaders	5
Well head pumpers	132
All other transportation and mat. mov. equip. op.	29
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	3,953
Helpers, construction trades	1,996
Helpers, extractive workers	421
Machine feeders and offbearers	73
Freight, stock, and material movers, hand	633
Refuse collectors	14
All other freight, stock, and mat. movers, hand	619
All other helpers, labor., and mat. movers, hand	830
Hand packers and packagers	74
Vehicle washers and equipment cleaners	284
All oth. helpers, labor., and mat. movers, hand	472

Construction: New Power Transmission Facilities

**The Total Projected Impact of New Power Transmission Facility Construction
Anticipated as a Consequence of the Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment Initiative
on Business Activity in Texas—Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)*	Gross Product (2009 Dollars)*	Personal Income (2009 Dollars)*	Employment (Person- Years)
Agricultural Products & Services	\$197,319,722	\$52,964,294	\$36,071,635	620
Forestry & Fishery Products	\$5,058,352	\$4,156,602	\$1,541,601	21
Coal Mining	\$21,395,418	\$6,353,439	\$6,695,045	48
Crude Petroleum & Natural Gas	\$161,316,720	\$35,734,603	\$16,480,755	87
Miscellaneous Mining	\$25,508,104	\$12,320,590	\$7,242,586	87
New Construction	\$3,830,779,084	\$1,927,331,272	\$1,588,241,008	24,110
Maintenance & Repair Construction	\$216,615,763	\$114,260,774	\$94,158,006	1,429
Food Products & Tobacco	\$422,305,519	\$109,762,164	\$56,071,757	1,009
Textile Mill Products	\$5,953,402	\$1,389,581	\$1,175,704	29
Apparel	\$97,615,599	\$54,071,910	\$27,399,061	803
Paper & Allied Products	\$67,597,552	\$29,907,976	\$13,521,179	220
Printing & Publishing	\$92,147,552	\$45,729,255	\$29,848,511	545
Chemicals & Petroleum Refining	\$470,252,627	\$72,490,790	\$34,038,640	270
Rubber & Leather Products	\$68,867,835	\$29,333,471	\$17,148,214	368
Lumber Products & Furniture	\$88,102,632	\$24,312,503	\$17,333,475	388
Stone, Clay, & Glass Products	\$305,547,198	\$148,601,209	\$77,719,069	1,363
Primary Metal	\$217,318,469	\$59,865,349	\$44,560,837	721
Fabricated Metal Products	\$777,454,261	\$310,224,859	\$200,281,578	3,692
Machinery, Except Electrical	\$78,653,686	\$31,544,922	\$22,535,830	259
Electric & Electronic Equipment	\$90,894,022	\$46,439,696	\$27,763,230	249
Motor Vehicles & Equipment	\$35,161,829	\$7,617,328	\$4,948,712	75
Transp. Equip., Exc. Motor Vehicles	\$17,867,098	\$7,771,126	\$5,078,146	65
Instruments & Related Products	\$18,528,322	\$8,527,368	\$6,481,575	90
Miscellaneous Manufacturing	\$26,616,284	\$10,466,776	\$7,219,057	124
Transportation	\$406,164,210	\$268,952,403	\$177,875,534	2,646
Communication	\$251,980,420	\$155,883,572	\$66,551,704	633
Electric, Gas, Water, Sanitary Services	\$532,756,675	\$120,650,958	\$52,648,868	240
Wholesale Trade	\$531,490,837	\$359,453,716	\$207,264,218	2,494
Retail Trade	\$1,265,422,626	\$1,048,534,503	\$626,990,106	17,693
Finance	\$174,530,241	\$93,979,990	\$54,724,824	524
Insurance	\$226,358,051	\$135,263,561	\$80,865,889	1,047
Real Estate	\$1,324,800,127	\$185,319,014	\$29,858,916	285
Hotels, Lodging Places, Amusements	\$123,871,793	\$64,514,147	\$42,323,512	1,110
Personal Services	\$246,232,956	\$151,865,862	\$118,154,095	2,143
Business Services	\$862,461,569	\$549,925,047	\$448,597,926	5,876
Eating & Drinking Places	\$548,011,684	\$320,693,897	\$170,626,264	8,303
Health Services	\$416,694,577	\$291,794,569	\$246,715,010	4,386
Miscellaneous Services	\$359,065,612	\$148,859,754	\$129,049,010	3,318
Households	\$18,767,328	\$18,767,328	\$18,370,218	1,367
Total	\$14,627,485,758	\$7,065,636,179	\$4,814,171,306	88,736

*Values are fully adjusted to reflect external input purchases.

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Construction: New Wind Turbines



**The Total Projected Impact of New Wind Turbine Construction Anticipated
as a Consequence of the Implementation of the Competitive Renewable
Energy Zone (CREZ) Transmission Investment Initiative
on Business Activity in Texas—Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)*	Gross Product (2009 Dollars)*	Personal Income (2009 Dollars)*	Employment (Person-Years)
Agricultural Products & Services	\$648,246,063	\$174,001,335	\$118,504,603	2,037
Forestry & Fishery Products	\$16,617,989	\$13,655,508	\$5,064,557	69
Coal Mining	\$70,289,455	\$20,872,682	\$21,994,945	158
Crude Petroleum & Natural Gas	\$529,966,935	\$117,397,366	\$54,143,520	286
Miscellaneous Mining	\$83,800,687	\$40,476,309	\$23,793,758	284
New Construction	\$12,585,095,043	\$6,331,779,177	\$5,217,780,405	79,206
Maintenance & Repair Construction	\$711,638,521	\$375,376,045	\$309,333,280	4,695
Food Products & Tobacco	\$1,387,382,300	\$360,596,953	\$184,210,150	3,314
Textile Mill Products	\$19,558,458	\$4,565,130	\$3,862,492	94
Apparel	\$320,692,360	\$177,640,139	\$90,012,967	2,638
Paper & Allied Products	\$222,075,354	\$98,255,399	\$44,420,553	723
Printing & Publishing	\$302,728,420	\$150,232,370	\$98,060,040	1,791
Chemicals & Petroleum Refining	\$1,544,900,886	\$238,150,900	\$111,825,693	888
Rubber & Leather Products	\$226,248,559	\$96,367,999	\$56,336,297	1,211
Lumber Products & Furniture	\$289,439,819	\$79,872,828	\$56,944,925	1,275
Stone, Clay, & Glass Products	\$1,200,358,717	\$583,787,899	\$305,323,571	5,353
Primary Metal	\$853,747,374	\$235,184,267	\$175,059,663	2,833
Fabricated Metal Products	\$3,054,271,172	\$1,218,735,161	\$786,817,026	14,504
Machinery, Except Electrical	\$258,397,599	\$103,633,186	\$74,036,000	850
Electric & Electronic Equipment	\$298,610,250	\$152,566,351	\$91,209,356	817
Motor Vehicles & Equipment	\$115,515,655	\$25,024,883	\$16,257,791	246
Transp. Equip., Exc. Motor Vehicles	\$58,698,016	\$25,530,149	\$16,683,016	214
Instruments & Related Products	\$60,870,304	\$28,014,598	\$21,293,641	295
Miscellaneous Manufacturing	\$87,441,341	\$34,386,054	\$23,716,461	407
Transportation	\$1,334,353,945	\$883,577,851	\$584,366,902	8,692
Communication	\$827,820,519	\$512,117,646	\$218,639,472	2,081
Electric, Gas, Water, Sanitary Services	\$1,750,242,770	\$396,369,444	\$172,965,079	790
Wholesale Trade	\$1,746,084,164	\$1,180,897,953	\$680,916,290	8,195
Retail Trade	\$4,157,238,951	\$3,444,705,655	\$2,059,823,837	58,127
Finance	\$573,376,754	\$308,748,450	\$179,785,130	1,720
Insurance	\$743,644,444	\$444,375,603	\$265,665,253	3,440
Real Estate	\$4,352,309,321	\$608,820,648	\$98,094,221	937
Hotels, Lodging Places, Amusements	\$406,950,715	\$211,945,573	\$139,043,629	3,647
Personal Services	\$808,938,623	\$498,918,436	\$388,166,604	7,041
Business Services	\$2,833,408,185	\$1,806,645,290	\$1,473,759,621	19,303
Eating & Drinking Places	\$1,800,359,400	\$1,053,561,974	\$560,551,183	27,277
Health Services	\$1,368,948,911	\$958,620,244	\$810,522,293	14,410
Miscellaneous Services	\$1,179,622,932	\$489,042,597	\$423,959,206	10,900
Households	\$61,655,501	\$61,655,501	\$60,350,892	4,490
Total	\$48,891,546,410	\$23,546,105,552	\$16,023,294,323	295,236

*Values are fully adjusted to reflect external input purchases.

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Construction: Total New

The Total Projected Impact of New Power Transmission Facility and New Wind Turbine Construction Anticipated as a Consequence of the Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2009 Dollars)*	Gross Product (2009 Dollars)*	Personal Income (2009 Dollars)*	Employment (Person-Years)
Agricultural Products & Services	\$845,565,786	\$226,965,629	\$154,576,237	2,657
Forestry & Fishery Products	\$21,676,341	\$17,812,110	\$6,606,158	90
Coal Mining	\$91,684,873	\$27,226,121	\$28,689,990	207
Crude Petroleum & Natural Gas	\$691,283,655	\$153,131,969	\$70,624,275	373
Miscellaneous Mining	\$109,308,791	\$52,796,899	\$31,036,344	371
New Construction	\$16,415,874,128	\$8,259,110,449	\$6,806,021,413	103,316
Maintenance & Repair Construction	\$928,254,284	\$489,636,819	\$403,491,286	6,123
Food Products & Tobacco	\$1,809,687,819	\$470,359,117	\$240,281,907	4,323
Textile Mill Products	\$25,511,861	\$5,954,711	\$5,038,196	122
Apparel	\$418,307,958	\$231,712,050	\$117,412,028	3,442
Paper & Allied Products	\$289,672,906	\$128,163,375	\$57,941,732	943
Printing & Publishing	\$394,875,973	\$195,961,625	\$127,908,551	2,336
Chemicals & Petroleum Refining	\$2,015,153,512	\$310,641,690	\$145,864,333	1,159
Rubber & Leather Products	\$295,116,394	\$125,701,470	\$73,484,511	1,579
Lumber Products & Furniture	\$377,542,451	\$104,185,331	\$74,278,400	1,663
Stone, Clay, & Glass Products	\$1,505,905,915	\$732,389,109	\$383,042,640	6,716
Primary Metal	\$1,071,065,843	\$295,049,616	\$219,620,501	3,554
Fabricated Metal Products	\$3,831,725,433	\$1,528,960,020	\$987,098,604	18,196
Machinery, Except Electrical	\$337,051,286	\$135,178,108	\$96,571,830	1,108
Electric & Electronic Equipment	\$389,504,272	\$199,006,047	\$118,972,587	1,065
Motor Vehicles & Equipment	\$150,677,484	\$32,642,211	\$21,206,502	321
Transp. Equip., Exc. Motor Vehicles	\$76,565,114	\$33,301,275	\$21,761,162	279
Instruments & Related Products	\$79,398,626	\$36,541,966	\$27,775,216	385
Miscellaneous Manufacturing	\$114,057,625	\$44,852,830	\$30,935,518	531
Transportation	\$1,740,518,154	\$1,152,530,254	\$762,242,437	11,338
Communication	\$1,079,800,939	\$668,001,218	\$285,191,175	2,714
Electric, Gas, Water, Sanitary Services	\$2,282,999,445	\$517,020,402	\$225,613,946	1,030
Wholesale Trade	\$2,277,575,000	\$1,540,351,669	\$888,180,509	10,689
Retail Trade	\$5,422,661,577	\$4,493,240,158	\$2,686,813,943	75,821
Finance	\$747,906,995	\$402,728,440	\$234,509,955	2,244
Insurance	\$970,002,495	\$579,639,164	\$346,531,141	4,487
Real Estate	\$5,677,109,449	\$794,139,662	\$127,953,137	1,222
Hotels, Lodging Places, Amusements	\$530,822,507	\$276,459,720	\$181,367,141	4,757
Personal Services	\$1,055,171,579	\$650,784,298	\$506,320,699	9,184
Business Services	\$3,695,869,753	\$2,356,570,337	\$1,922,357,547	25,179
Eating & Drinking Places	\$2,348,371,084	\$1,374,255,871	\$731,177,447	35,580
Health Services	\$1,785,643,488	\$1,250,414,812	\$1,057,237,303	18,796
Miscellaneous Services	\$1,538,688,544	\$637,902,351	\$553,008,217	14,218
Households	\$80,422,828	\$80,422,828	\$78,721,110	5,856
Total	\$63,519,032,168	\$30,611,741,731	\$20,837,465,629	383,972

*Values are fully adjusted to reflect external input purchases.

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Construction (New): Occupational Profile

**Occupational Profile for the Total Projected Impact of New Power Transmission Facility
and New Wind Turbine Construction Anticipated as a Consequence of the
Implementation of the Competitive Renewable Energy Zone (CREZ)
Transmission Investment Initiative on Business Activity in Texas**

TOTAL, ALL OCCUPATIONS	383,972
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	31,712
Managerial and administrative occupations	22,868
Elem. & sec. sch. principals and asst. principals	317
Assistant principals	103
Principals	217
Food service and lodging managers	2,117
Postmasters and mail superintendents	69
Public admin. chief exec., legis., and gen. admin.	324
All other managers and administrators	20,041
Management support occupations	8,844
Accountants and auditors	1,490
Assessors	48
Claims examiners, prop. and casual. insurance	169
Compliance and enforce. inspectors, exc. const.	253
Construction and building inspectors	643
Cost estimators	3,103
Personnel specialists and related workers	707
Claims takers, unemployment benefits	1
Employ. interviewers, pvt. or pub. emp. serv.	445
Personnel, training, and labor related spec.	236
Special agents, insurance	25
Purchasing agents and buyers	2,005
Purchasing agents, exc. wh., ret., and farm pr.	364
Wholesale and retail buyers, exc. farm products	1,642
Tax examiners, collectors, and revenue agents	29
Tax preparers	153
Underwriters	64
All other management support workers	180
ENGINEERS, ARCHITECTS, AND SURVEYORS	5,216
Engineers	4,932
Aeronautical and astronautical engineers	142
Chemical engineers	265
Civil engineers, including traffic engineers	813
Electrical and electronics engineers	484

Industrial engineers, except safety engineers	147
Mechanical engineers	495
Matallurgists and met., cer., and mat. engineers	68
Mining engineers, inc. mine safety engineers	38
Nuclear engineers	62
Petroleum engineers	1,728
Other engineers	686
Safety engineers, except mining engineers	68
All other engineers	619
Architects and surveyors	284
Architects, inc. landscape architects	100
Surveyors	184
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	1,291
Computer systems analysts, electronic data processing	421
Life scientists	351
Agricultural and food scientists	52
Biological scientists	161
Foresters and conservation scientists	29
Medical scientists	71
All other life scientists	39
Mathematical scientists	211
Actuaries	44
Statisticians	69
Mathematicians and all other mathematical scientists	98
Physical scientists	309
Chemists	167
Geologists, geophysicists, and oceanographers	67
Meteorologists	5
Physicists and astronomers	38
All other physical scientists	31
SOCIAL SCIENTISTS	220
Economists	68
Psychologists	75
Sociologists	6
Urban and regional planners	34
All other social scientists	38
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	1,155
Clergy	448
Directors, religious activities and education	143

Recreation workers	177
Social workers	388
LAWYERS AND JUDGES	222
Judges, magistrates, and other jud. workers	53
Lawyers	169
TEACHERS, LIBRARIANS, AND COUNSELORS	6,016
Teachers, preschool and elementary	508
Teachers, preschool	105
Teachers, kindergarten and elementary	403
Teachers, secondary school	2,587
College and university faculty	1,670
Other teachers and instructors	1,082
Farm and home management advisors	59
Graduate assistants, teaching	341
Instructors, adult (nonvocational) education	83
Instructors and coaches, sports and phys. train.	446
Teachers and instructors, voc. ed. and training	68
All other teachers and instructors	85
Librarians, archivists, curators, and related workers	100
Audio-visual specialists	17
Curators, archiv., museum techn., and restorers	7
Librarians, professional	76
Counselors	69
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	5,709
Chiropractors	76
Dentists	138
Dietitians and nutritionists	90
Opticians, dispensing and measuring	432
Optometrists	90
Pharmacists	778
Podiatrists	15
Physician assistants	123
Physicians and surgeons	737
Registered nurses	2,425
Therapists	757
Occupational therapists	46
Physical therapists	114
Recreational therapists	36
Respiratory therapists	420

Speech pathologists and audiologists	104
All other therapists	37
Veterinarians and veterinary inspectors	50
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	2,871
Artists and commercial artists	398
Athletes, coaches, umpires, and related workers	85
Dancers and choreographers	51
Designers, except interior designers	387
Merchandise displayers and window trimmers	158
Musicians	259
Music dir., singers, composers, and related workers	59
Musicians, instrumental	200
Photographers and camera operators	213
Camera operators, television and motion picture	12
Photographers	201
Producers, directors, actors, and entertainers	121
Public related specialists and publicity writers	98
Radio and TV announcers and newscasters	40
Announcers, radio and television	35
Broadcast news analysts	4
Reporters and correspondents	898
Writers and editors, inc. tech. writers	163
TECHNICIAN OCCUPATIONS	7,786
Health technicians and technologists	3,418
Dental hygienists	176
Dietetic technicians	121
Electrocardiograph technicians/technologists	94
Electroencephalograph technicians/technologists	45
Emergency medical technicians	107
Licensed practical nurses	1,248
Medical and clinical lab technol. and techn.	516
Medical and clinical laboratory technicians	209
Medical and clinical laboratory technologists	306
Medical records technicians and technologists	78
Radiologic technologists and technicians	567
Surgical technicians	269
All other health prof. and paraprofessionals	196
Engineering and science technicians and technologists	3,218
Engineering technicians	1,207
Civil engineering technicians and technologists	130

Electrical and electronic technicians/technol.	706
Industrial engineering technicians and technol.	33
Mechanical engineering technicians and technol.	121
All other engineering technicians and technol.	218
Drafters	832
Phys. and life sci. technicians/technologists	1,178
Petroleum technicians and technologists	812
All other science technicians and technologists	366
Technicians, exc. health and engineering and science	1,150
Air traffic controllers	53
Broadcast technicians	19
Computer programmers	506
Legal assistants and technicians, exc. clerical	353
Law clerks	50
Paralegal personnel	69
Title examiners, searchers, and clerks	235
Programmers, numerical, tool, and proc. control	23
Radio operators	3
Technical assistants, library	56
All other technicians	138
 ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	 751
 MARKETING AND SALES OCCUPATIONS	 32,896
Cashiers	7,401
Counter and rental clerks	509
Insurance sales workers	168
Real estate agents and brokers	795
Brokers, real estate	25
Sales agents, real estate	770
Real estate appraisers	21
Salespersons, retail	10,747
Securities and financial services sales workers	80
Stock clerks, sales floor	3,998
Travel agents	108
All other sales and related workers	9,070
 ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL	 38,870
Adjusters and investigators	1,021
Adjustment clerks	300
Bill and account collectors	195
Ins. adjusters, examiners, and investigators	64

Insurance appraisers, auto damage	310
Insurance claims clerks	27
Insurance examining clerks	7
Insurance policy processing clerks	34
License clerks	17
Welfare eligibility workers and interviewers	68
Communications equipment operators	759
Telephone operators	664
Central office operators	40
Directory assistance operators	17
Switchboard operators	607
Telegraph and teletype operators	3
All other communications equipment operators	92
Computer operators and peripheral equipment operators	511
Computer operators, exc. peripheral equipment	383
Peripheral EDP equipment operators	129
Duplicating, mail, and other office machine operators	220
Duplicating machine operators	56
Transit clerks	10
All other office machine operators	153
Financial records processing occupations	5,275
Billing, cost, and rate clerks	367
Billing, posting, and calc. mach. operators	241
Bookkeeping, accounting, and auditing clerks	3,874
Payroll and timekeeping clerks	794
Information clerks	3,274
Hotel desk clerks	1,610
New accounts clerks	874
Receptionists and information clerks	701
Reservation & trans. ticket agents & travel clerks	89
Reservation and transportation ticket agents	49
Travel clerks	39
Mail and message distribution workers	1,753
Mail clerks, exc. mail mach. op. and postal serv.	163
Messengers	164
Postal mail carriers	692
Postal service clerks	734
Mat. rec., sched., disp., and dist. occupations	5,042
Dispatchers	418
Dispatchers, exc. police, fire, and ambulance	351
Dispatchers, police, fire, and ambulance	67
Meter readers, utilities	55

Order fillers, wholesale and retail sales	825
Procurement clerks	92
Production, planning, and expediting clerks	216
Stock clerks, stockroom, warehouse, or yard	1,648
Traffic, shipping, and receiving clerks	1,138
Transportation agents	31
Weighers, meas., check., and samp., recordkeep.	144
All other mat. rec., sched., and dist. workers	477
Records processing occupations, exc. financial	2,149
Advertising clerks	717
Brokerage clerks	63
File clerks	395
Library assistants and bookmobile drivers	132
Order clerks, materials, merch., and service	523
Personnel clerks, exc. payroll and timekeeping	155
Statement clerks	164
Secretaries, stenographers, and typists	5,375
Secretaries	4,201
Stenographers	154
Typists	1,020
Other clerical and administrative support workers	13,490
Court clerks	107
Credit authorizers	161
Credit checkers	224
Customer service representatives, utilities	34
Data entry keyers, exc. composing	425
Data keyers, composing	1,715
General office clerks	4,059
Loan and credit clerks	125
Municipal clerks	49
Proofreaders and copy markers	369
Real estate clerks	23
Statistical clerks	197
Teacher aides and educational assistants	184
Tellers	3,996
All other clerical and admin. support workers	1,823
SERVICE WORKERS	55,527
Clean. and bldg. serv. occup., exc. pvt. hshld.	4,339
Janitors and cleaners, inc. maids/hskpg. clean.	4,080
Pest controllers and assistants	259

Food and beverage prep. and service occupations	29,171
Bakers, bread and pastry	510
Bartenders	1,714
Cooks, except short order	2,824
Cooks, institution or cafeteria	432
Cooks, restaurant	2,391
Cooks, sh. order and spec. fast food	2,208
Din. rm. and cafet. attendants and bar. helpers	1,225
Food preparation and service workers, fast food	6,778
Food preparation workers	3,840
Hosts and hostesses, rest./lounge/coffee shop	777
Waiters and waitresses	7,486
All other food service workers	1,808
Health service and related occupations	4,060
Ambulance drivers and attendants, except EMTs	44
Dental assistants	854
Medical assistants	384
Nursing aides and psychiatric aides	2,155
Nursing aides, orderlies, and attendants	1,997
Psychiatric aides	158
Occupational therapy assistants and aides	20
Pharmacy assistants	343
Phys. and correct. therapy assistants and aides	259
Personal service occupations	2,343
Amusement and recreation attendants	457
Baggage porters and bellhops	21
Barbers	134
Child care workers	175
Cosmetologists and related workers	1,187
Hairdressers, hairstylists, and cosmetologists	865
Manicurists	136
Shampooers	186
Flight attendants	110
Guides	30
Social welfare service aides	140
Ushers, lobby attendants, and ticket takers	90
Private household workers	10,376
Cooks, private household	240
Housekeepers and butlers	447
Child care workers, private household	4,120
Cleaners and servants, private household	5,568

Protective service occupations	3,741
Correction officers and jailers	128
Fire fighting occupations	763
Fire fighters	597
Fire fighting and prevention supervisors	147
Fire inspectors	20
Police and detectives	1,118
Police and detective supervisors	215
Police detectives and investigators	96
Police patrol officers	807
Sheriffs and other law enforcement workers	94
Bailiffs	14
Fish and game wardens	2
Parking enforcement officers	16
Sheriffs, deputy sheriffs, and U.S. marshalls	62
Other protective service workers	1,639
Crossing guards	15
Detectives and investigators, except public	221
Guards	1,257
All other protective service workers	146
All other service occupations	1,497
Housekeepers, institutional	325
All other service workers	1,172
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	3,481
Supervisors, farming, forestry, and ag. related occ.	208
Agriculture related occupations	1,169
Animal caretakers, except farm	115
Gardeners and groundskeepers, except farm	807
Graders and sorters, agricultural products	248
Farm occupations	1,474
Farm workers	1,437
Nursery workers	38
Farm operators and managers	235
Farmers	65
Farm managers	170
Fishers, hunters, and trappers	36
Captains and other officers, fishing vessels	4
Fishers, hunters, and trappers	31
Forestry and logging occupations	347
Choke setters	144
Fallers and buckers	7

Forest and conservation workers	50
Logging tractor operators	16
Log graders and scalers	77
Log handling equipment operators	9
All oth. timber cut. and related logging workers	44
All oth. agric., forest., fish., and related wkrs.	11
BLUE COLLAR WORKER SUPERVISORS	3,589
CONSTRUCTION TRADES	36,664
Air hammer operators	540
Bricklayers and stone masons	1,986
Brick masons	1,749
Stone masons	237
Carpenters	13,089
Carpet installers	175
Coil. tile installers and acoustical carpenters	123
Concrete and terrazzo finishers	1,920
Drywall installers and finishers	5,821
Drywall installers	3,416
Tapers	1,687
Lathers	717
Electricians	1,647
Fence erectors	540
Glaziers	352
Hard tile setters	70
Highway maintenance workers	252
Insulation workers	242
Painters and paperhangers, const. and maint.	972
Pipelayers	1,385
Pipelaying fitters	788
Plasterers	1,009
Plumbers, pipefitters, and steamfitters	2,081
Rail-track laying and maint. equip. operators	36
Roofers	490
Septic tank servicers and sewer pipe cleaners	42
Structural and reinforcing metal workers	2,649
Reinforcing metal workers	1,901
Structural metal workers	748
All other construction trades workers	455

EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	20,245
Blasters and explosives workers	77
Continuous mining machine operators	44
Derrick operators, oil and gas extraction	2,271
Mine cutting and channeling machine operators	188
Roof bolters	37
Rotary drill operators, oil and gas extraction	3,692
Roustabouts	12,157
Service unit operators	1,665
All other extractive workers, except helpers	114
 MECHANICS, INSTALLERS, AND REPAIRERS	 23,136
Communications equip. mech., install, and rep.	77
Central office and PBX installers and repairers	23
Frame wirers, central office	7
Radio mechanics	29
Signal or track switch maintainers	14
All oth. comm. equip. mech., install., and rep.	2
Electrical and elec. equip. mech./install./rep.	2,416
Data processing equipment repairers	92
Electrical installers and repairers, tr. equip., mfg.	9
Electrical powerline installers and repairers	10
Electric motor, transformer, and related repairers	252
Electronic home entertainment equip. repairers	339
Electronics repairers, commer. and ind. equip.	47
Station installers and repairers, telephone	58
Tel. and cable TV line installers and repairers	1,608
Machinery and related mech., install., and rep.	9,697
Industrial machinery mechanics	7,374
Machinery maintenance mechanics, marine equip.	6,312
Machinery maintenance mechanics, sewing mach.	51
Machinery maintenance mechanics, textile mach.	7
Machinery maintenance mechanics, water/power pl.	173
Mine machinery mechanics	180
All other machinery maintenance mechanics	650
Machinery maintenance workers	305
Maintenance repairers, general utility	1,200
Millwrights	818
Vehicle and mobile equip. mech. and rep.	5,896
Aircraft mechanics and engine specialists	180
Automotive body and related repairers	681
Automotive and motorcycle mechanics	2,792

Bus and truck mechanics and diesel eng. special	652
Farm equipment mechanics	45
Mobile heavy equipment mechanics, exc. engines	1,359
Rail car repairers	75
Small engine specialists	112
Other mechanics, installers, and repairers	5,050
Bicycle repairers	186
Coin and vending mach. servicers and repairers	275
Electric meter installers and repairers	7
Electromedical and biomedical equip. repairers	32
Heat., a/c, and refrig. mechanics and installers	291
Home appliance and power tool repairers	486
Locksmiths and safe repairers	20
Mech. cont. and valve installers and repairers	13
Menders, garments, linens, and related	67
Mobile home repairers	215
Musical instrument repairers and tuners	134
Office machine and cash register servicers	1,533
Precision instrument repairers	180
Riggers	300
Tire repairers and changers	905
Watchmakers	116
All other mechanics, installers, and repairers	288
PRECISION PRODUCTION OCCUPATIONS	16,824
Precision food workers	3,367
Bakers, manufacturing	1,052
Butchers and meat cutters	1,515
Food batchmakers	552
All other precision food and tobacco workers	248
Precision metal workers	6,218
Boilermakers	224
Etchers and engravers, hand or mach., precision	33
Hand workers, jewelry and related prod., precision	120
Instrument makers, precision	64
Jewelers and silversmiths	287
Layout workers, metal, precision	321
Machinists	410
Pattern and model makers, metal	30
Sheet metal workers	4,157
Shipfitters	181
Tool and die makers	296
All other precision metal workers	95

Precision printing workers	2,042
Bookbinders	197
Compositors, typesetters, and arrangers, prec.	355
Lithography and photoengraving workers, prec.	1,217
All other precision printing workers	274
Precision text., app., and furnishings workers	1,490
Custom tailors and sewers	621
Patternmakers and layout workers, fab. and app.	77
Shoe and leather workers and repairers, prec.	326
Upholsterers	365
All other prec. text., app., and furnish. wkr.	100
Precision woodworkers	1,422
Cabinetmakers and bench carpenters	688
Furniture finishers	176
Pattern and model makers, wood	20
Wood machinists	528
All other precision woodworkers	11
Inspectors and related occupations	941
Inspectors, testers, and graders, precision	440
Other prod. inspectors, testers, graders, & sorters	501
Other precision workers	1,343
Dental lab technicians, precision	219
Detail design decorators and painters, prec.	51
Foundry mold and core makers, precision	38
Molders/shapers, exc. jewel and found., prec.	34
Patternmakers, model makers, & related workers, prec.	10
Photographic process workers, precision	110
All other precision workers	881
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	21,254
Num. cont. mach. tool op. and tend., met./plas.	45
Comb. mach. tool set., set-up op., op., and tend.	239
Comb. mach. tool op. and tend., met. and plas.	149
Comb. mach. tool set. and set-up op., met./plas.	89
Mach. tool cut. & form. set./oper./tend., met. & plas.	1,914
Drill. mach. tool set. and set-up op., met. and pl.	85
Ext. and draw. mach. set. and set-up op., met./pl.	99
Forging mach. set. and set-up op., met./pl.	150
Grinding mach. set. and set-up op., met. and plas.	135
Lathe mach. tool set. and set-up op., met. and pl.	155
Machine forming op. and tend., met. and plas.	479
Mach. tool cut. op. and tend., met. and plas.	296

Milling mach. set. and set-up op., met. and plas.	27
Press mach. set. and set-up op., met. and plas.	134
Punch. mach. set. and set-up op., met. and plas.	208
Rolling mach. set. and set-up op., met. and plas.	34
Sawing mach. tool set. & set-up op., met. & plas.	37
Shear mach. set. and set-up op., met. and plas.	73
Met. fab. mach. set., oper., and related workers	2,144
Metal fabricators, structural metal products	1,450
Solder. and braz. mach. operators and tenders	19
Solder. and braz. mach. setters and set-up op.	16
Welding machine operators and tenders	430
Welding machine setters and set-up operators	229
Met. & pl. proc. mach. set., oper., & related workers	830
Elec. plat. mach. oper. and tend., met. and plas.	109
Elec. plat. mach. set. and set-up op., met. and pl.	79
Foundry mold assembly and shakeout workers	148
Furnace operators and tenders	60
Heaters, metal and plastic	13
Heat. equip. set. and set-up oper., met. and plas.	14
Heat treating mach. oper. and tend., met. and plas.	41
Metal molding mach. operators and tenders	43
Met. molding mach. setters and set-up operators	32
Nonel. plat. mach. oper. and tend., met. and plast.	27
Nonel. plat. mach. set. & set-up op., met. & plast.	23
Plastic molding mach. operators and tenders	181
Plas. molding mach. setters and set-up operators	60
All oth. met./pl. mach. set., oper., related workers	215
Printing, binding, and related workers	5,530
Bindery machine operators	683
Bindery machine setters and set-up operators	784
Printing press operators	2,390
Letterpress setters and set-up operators	514
Offset lithographic press setters and set-up op.	1,681
Printing press mach. operators and tenders	170
All oth. print. press setters & set-up operators	26
Photoeng. and lithogr. mach. oper. and tend.	70
Photoengraving and lithographing photographers	538
Screen print. mach. setters and set-up operators	62
Typesetting and composing mach. oper. and tend.	949
All other printing, binding, and related wkrs.	54
Text. & related setters, operators, & related workers	3,868
Ext. and forming mach. oper. and tend.. syn. fib.	87

Lau. and drycl. mach. opoer. and tend., exc. press	397
Press. mach. oper. & tend., text., gar. & related	593
Sewing maching operators, garment	1,806
Sewing maching operators, non-garment	283
Shoe sewing machine operators and tenders	584
Text. bleaching and dyeing mach. oper. and tend.	6
Textile draw-out mach. operators and tenders	16
Textile mach. oper. and tend., winding	76
Textile machine setters and set-up operators	19
Woodworking mach. set., oper., & oth. related workers	171
Head sawyers	10
Sawing machine operators and tenders	34
Sawing machine setters and set-up operators	26
Woodworking machine operators and tenders	70
Woodworking mach. setters and set-up operators	31
Oth. mach. set., set-up oper., oper., and tend.	6,299
Boiler operators and tenders, low pressure	33
Cement, and gluing mach. operators and tenders	34
Chemical equip. controllers and operators	63
Chemical equipment tenders	38
Cooking mach. oper. and tend., food and tobacco	407
Crushing and mixing mach. oper. and tend.	248
Cutting and slicing mach. operators and tenders	97
Dairy process. equip. operators, incl. setters	468
Electronic semiconductor processors	119
Extruding and forming mach. oper. and tend.	86
Furnace, kiln, or kettle operators and tenders	177
Motion picture projectionists	30
Packaging and filling mach. oper. and tend.	675
Painting machine operators and tenders	131
Painters, transportation equipment	684
Paper goods mach. setters and set-up operators	101
Photographic processing mach. oper. and tend.	103
Roasting mach. oper. and tend., food and tob.	347
Separating and still mach. oper. and tend.	94
Tire building machine operators	321
All other machine operators and tenders	1,844
All other machine setters and set-up operators	201
 HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	 9,177
Precision assemblers	1,168
Aircraft assemblers, precision	357

Electrical and electronic equip. assem., prec.	63
Electromechanical equip. assemblers, precision	191
Fitters, structural metal, precision	390
Mach. builders and oth. prec. mach. assemblers	51
Watch & clock assemblers & related workers, prec.	47
All other precision assemblers, metal	69
Oth. hand workers, incl. assemb. and fabricators	8,009
Cannery workers	222
Coil winders, tapers, and finishers	698
Cutters and trimmers, hand	112
Electrical and electronic assemblers	98
Glaziers, manufacturing	30
Machine assemblers	106
Meat, poultry, and fish cutters and trimmers, hand	2,941
Metal pourers and casters, basic shapes	321
Molders and casters, hand	58
Painting, coating, and decorating workers, hand	40
Portable machine cutters	58
Pressers, hand	121
Sewers, hand	68
Welders and cutters	1,528
All other assemblers and fabricators	1,207
All other hand workers	402
PLANT AND SYSTEM OCCUPATIONS	1,381
Auxiliary equipment operators, power	2
Chemical plant and system operators	27
Guagers	307
Petroleum refinery and control panel operators	387
Power distributors and dispatchers	30
Stationary engineers	76
Water and liq. waste treat. pl. and sys. oper.	175
All other plant and system operators	378
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	22,176
Aircraft pilots and flight engineers	97
Motor vehicle operators	6,943
Bus drivers	244
Bus drivers	38
Bus drivers, school	206
Taxi drivers and chauffeurs	135
Truck drivers	6,564

Rail transportation workers	422
Locomotive engineers	38
Locomotive firers	13
Railroad brake, signal, and switch operators	147
Railroad conductors and yardmasters	127
Rail yard engineers, dinkey op., and hostlers	85
Subway and streetcar operators	12
Water transportation and related workers	251
Captains, water vessel	32
Mates and able seamen	58
Ordinary seamen and marine oilers	89
Pilots, ship	5
Ship engineers	67
All other transportation and related workers	2,205
Parking lot attendants	39
Service station attendants	2,166
Material moving equipment operators	11,989
Conveyor operators and tenders	218
Hoist, winch, and crane operators	831
Industrial truck and tractor operators	593
Loading machine operators, underground mining	317
Oil pumpers, except well head	2,016
Operating engineers	6,514
Shuttle car operators	68
Tank car and truck loaders	33
Well head pumpers	1,399
All other transportation and mat. mov. equip. op.	269
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	35,800
Helpers, construction trades	13,586
Helpers, extractive workers	4,465
Machine feeders and offbearers	476
Freight, stock, and material movers, hand	2,855
Refuse collectors	53
All other freight, stock, and mat. movers, hand	2,802
All other helpers, labor., and mat. movers, hand	14,419
Hand packers and packagers	500
Vehicle washers and equipment cleaners	1,188
All oth. helpers, labor., and mat. movers, hand	12,732

Ongoing Operations: New Power Transmission Facilities

The Total Projected Annual Impact of Ongoing New Power Transmission Facility Operations Anticipated as a Consequence of the Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$5,269,808	\$1,887,249	\$1,285,321	22
Forestry & Fishery Products	\$104,178	\$99,944	\$37,067	1
Coal Mining	\$322,755	\$92,936	\$97,933	1
Crude Petroleum & Natural Gas	\$2,249,161	\$493,606	\$227,651	1
Miscellaneous Mining	\$184,387	\$87,888	\$51,665	1
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$2,249,031	\$1,325,073	\$1,091,943	17
Food Products & Tobacco	\$10,921,474	\$2,821,896	\$1,441,559	26
Textile Mill Products	\$130,080	\$35,354	\$29,913	1
Apparel	\$2,234,644	\$1,240,295	\$628,477	18
Paper & Allied Products	\$1,557,102	\$670,045	\$302,922	5
Printing & Publishing	\$2,419,034	\$1,198,709	\$782,424	14
Chemicals & Petroleum Refining	\$5,453,709	\$565,600	\$265,582	2
Rubber & Leather Products	\$1,350,916	\$587,920	\$343,695	7
Lumber Products & Furniture	\$802,516	\$266,692	\$190,137	4
Stone, Clay, & Glass Products	\$980,276	\$496,284	\$259,559	5
Primary Metal	\$1,362,678	\$390,259	\$290,490	5
Fabricated Metal Products	\$2,890,398	\$1,114,530	\$719,542	13
Machinery, Except Electrical	\$2,050,775	\$833,759	\$595,641	7
Electric & Electronic Equipment	\$1,401,232	\$758,463	\$453,435	4
Motor Vehicles & Equipment	\$776,501	\$152,698	\$99,203	2
Transp. Equip., Exc. Motor Vehicles	\$639,906	\$274,148	\$179,146	2
Instruments & Related Products	\$412,803	\$178,727	\$135,849	2
Miscellaneous Manufacturing	\$638,984	\$237,669	\$163,923	3
Transportation	\$17,102,546	\$10,872,663	\$7,190,791	107
Communication	\$6,600,890	\$4,059,391	\$1,733,084	16
Electric, Gas, Water, Sanitary Services	\$279,445,258	\$67,652,840	\$29,521,895	135
Wholesale Trade	\$6,868,832	\$4,644,785	\$2,678,224	32
Retail Trade	\$8,714,675	\$7,214,555	\$4,314,073	122
Finance	\$5,792,352	\$3,338,908	\$1,944,256	19
Insurance	\$5,412,119	\$3,235,072	\$1,934,053	25
Real Estate	\$30,906,125	\$4,865,963	\$784,012	7
Hotels, Lodging Places, Amusements	\$2,732,722	\$1,414,939	\$928,249	24
Personal Services	\$5,748,784	\$3,527,282	\$2,744,282	50
Business Services	\$11,710,728	\$7,058,435	\$5,757,875	75
Eating & Drinking Places	\$4,248,172	\$2,485,507	\$1,322,423	64
Health Services	\$9,173,162	\$6,418,811	\$5,427,164	96
Miscellaneous Services	\$8,503,588	\$3,597,643	\$3,118,857	80
Households	\$442,034	\$442,034	\$432,680	32
Total	\$449,804,337	\$146,638,572	\$79,504,996	1,048

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Ongoing Operations: New Wind Turbines

The Total Projected Annual Impact of Ongoing New Wind Turbine Operations and Related Activity Anticipated as a Consequence of the Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$31,662,256	\$11,287,673	\$7,687,533	132
Forestry & Fishery Products	\$625,551	\$599,072	\$222,184	3
Coal Mining	\$3,069,224	\$884,076	\$931,608	7
Crude Petroleum & Natural Gas	\$15,036,407	\$3,299,791	\$1,521,860	8
Miscellaneous Mining	\$1,104,445	\$524,454	\$308,299	3
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$15,378,941	\$9,020,059	\$7,433,088	113
Food Products & Tobacco	\$65,765,697	\$16,992,055	\$8,680,355	156
Textile Mill Products	\$783,553	\$212,950	\$180,180	4
Apparel	\$13,452,995	\$7,467,418	\$3,783,860	111
Paper & Allied Products	\$9,404,437	\$4,050,044	\$1,830,993	30
Printing & Publishing	\$14,583,555	\$7,223,832	\$4,715,158	86
Chemicals & Petroleum Refining	\$36,165,624	\$3,814,244	\$1,791,008	14
Rubber & Leather Products	\$8,134,828	\$3,539,364	\$2,069,096	44
Lumber Products & Furniture	\$4,801,907	\$1,596,722	\$1,138,376	25
Stone, Clay, & Glass Products	\$5,880,278	\$2,979,232	\$1,558,151	27
Primary Metal	\$9,169,004	\$2,643,754	\$1,967,881	32
Fabricated Metal Products	\$27,698,884	\$11,573,542	\$7,471,892	138
Machinery, Except Electrical	\$12,729,216	\$5,260,401	\$3,758,048	43
Electric & Electronic Equipment	\$8,388,581	\$4,538,948	\$2,713,538	24
Motor Vehicles & Equipment	\$4,674,378	\$920,873	\$598,260	9
Transp. Equip., Exc. Motor Vehicles	\$3,823,404	\$1,638,003	\$1,070,377	14
Instruments & Related Products	\$2,466,401	\$1,067,454	\$811,363	11
Miscellaneous Manufacturing	\$3,846,206	\$1,432,313	\$987,888	17
Transportation	\$101,971,993	\$64,861,569	\$42,897,126	638
Communication	\$39,675,996	\$24,401,322	\$10,417,709	99
Electric, Gas, Water, Sanitary Services	\$1,648,904,373	\$399,163,824	\$174,184,440	794
Wholesale Trade	\$42,598,287	\$28,806,776	\$16,610,240	200
Retail Trade	\$56,147,322	\$46,484,589	\$27,796,298	784
Finance	\$34,712,504	\$19,988,626	\$11,639,433	111
Insurance	\$32,548,796	\$19,455,513	\$11,631,273	150
Real Estate	\$186,109,996	\$29,323,648	\$4,724,672	45
Hotels, Lodging Places, Amusements	\$16,998,932	\$8,811,746	\$5,780,809	151
Personal Services	\$34,602,566	\$21,232,119	\$16,518,930	300
Business Services	\$71,085,139	\$42,907,123	\$35,001,218	458
Eating & Drinking Places	\$27,399,374	\$16,031,477	\$8,529,602	415
Health Services	\$55,225,544	\$38,644,158	\$32,673,995	581
Miscellaneous Services	\$53,442,429	\$23,117,520	\$20,040,964	515
Households	\$25,821,927	\$2,660,323	\$2,604,029	194
Total	\$2,725,890,949	\$888,456,608	\$484,281,731	6,487

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Ongoing Operations: Total New

The Total Projected Annual Impact of Ongoing New Power Transmission Facility and Wind Turbine Operations Anticipated as a Consequence of the Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$36,932,064	\$13,174,922	\$8,972,854	154
Forestry & Fishery Products	\$729,729	\$699,016	\$259,252	4
Coal Mining	\$3,391,979	\$977,012	\$1,029,541	7
Crude Petroleum & Natural Gas	\$17,285,567	\$3,793,397	\$1,749,510	9
Miscellaneous Mining	\$1,288,832	\$612,342	\$359,964	4
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$17,627,972	\$10,345,132	\$8,525,031	129
Food Products & Tobacco	\$76,687,171	\$19,813,951	\$10,121,914	182
Textile Mill Products	\$913,633	\$248,304	\$210,093	5
Apparel	\$15,687,639	\$8,707,714	\$4,412,337	129
Paper & Allied Products	\$10,961,539	\$4,720,089	\$2,133,915	35
Printing & Publishing	\$17,002,589	\$8,422,541	\$5,497,582	100
Chemicals & Petroleum Refining	\$41,619,333	\$4,379,844	\$2,056,590	16
Rubber & Leather Products	\$9,485,745	\$4,127,284	\$2,412,791	51
Lumber Products & Furniture	\$5,604,423	\$1,863,415	\$1,328,513	30
Stone, Clay, & Glass Products	\$6,860,554	\$3,475,515	\$1,817,709	32
Primary Metal	\$10,531,682	\$3,034,013	\$2,258,371	36
Fabricated Metal Products	\$30,589,282	\$12,688,072	\$8,191,434	151
Machinery, Except Electrical	\$14,779,992	\$6,094,160	\$4,353,689	50
Electric & Electronic Equipment	\$9,789,813	\$5,297,411	\$3,166,973	28
Motor Vehicles & Equipment	\$5,450,879	\$1,073,571	\$697,463	10
Transp. Equip., Exc. Motor Vehicles	\$4,463,310	\$1,912,151	\$1,249,523	16
Instruments & Related Products	\$2,879,204	\$1,246,181	\$947,212	13
Miscellaneous Manufacturing	\$4,485,190	\$1,669,981	\$1,151,811	20
Transportation	\$119,074,539	\$75,734,232	\$50,087,917	745
Communication	\$46,276,887	\$28,460,713	\$12,150,793	115
Electric, Gas, Water, Sanitary Services	\$1,928,349,631	\$466,816,665	\$203,706,335	929
Wholesale Trade	\$49,467,119	\$33,451,561	\$19,288,464	232
Retail Trade	\$64,861,997	\$53,699,144	\$32,110,371	906
Finance	\$40,504,856	\$23,327,534	\$13,583,689	130
Insurance	\$37,960,916	\$22,690,585	\$13,565,326	175
Real Estate	\$217,016,121	\$34,189,611	\$5,508,684	52
Hotels, Lodging Places, Amusements	\$19,731,653	\$10,226,685	\$6,709,058	176
Personal Services	\$40,351,350	\$24,759,401	\$19,263,213	349
Business Services	\$82,795,867	\$49,965,558	\$40,759,093	534
Eating & Drinking Places	\$31,647,546	\$18,516,985	\$9,852,024	479
Health Services	\$64,398,706	\$45,062,969	\$38,101,159	677
Miscellaneous Services	\$61,946,017	\$26,715,163	\$23,159,821	596
Households	\$26,263,961	\$3,102,357	\$3,036,709	226
Total	\$3,175,695,287	\$1,035,095,180	\$563,786,727	7,534

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Royalties (New Development)

**The Total Projected Incremental Annual Impact of Ongoing Royalty Payments
Anticipated as a Consequence of the Implementation of the Competitive
Renewable Energy Zone (CREZ) Transmission Investment Initiative
on Business Activity in Texas—Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$2,351,151	\$639,262	\$435,373	7
Forestry & Fishery Products	\$59,375	\$62,267	\$23,094	0
Coal Mining	\$317,738	\$91,774	\$96,708	1
Crude Petroleum & Natural Gas	\$1,701,063	\$371,587	\$171,376	1
Miscellaneous Mining	\$40,925	\$17,589	\$10,339	0
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$3,074,111	\$1,575,360	\$1,298,195	20
Food Products & Tobacco	\$4,807,493	\$1,236,571	\$631,700	11
Textile Mill Products	\$63,213	\$14,415	\$12,197	0
Apparel	\$876,380	\$484,587	\$245,547	7
Paper & Allied Products	\$758,188	\$335,522	\$151,687	2
Printing & Publishing	\$1,067,197	\$540,381	\$352,719	6
Chemicals & Petroleum Refining	\$3,987,949	\$603,891	\$283,562	2
Rubber & Leather Products	\$579,259	\$249,095	\$145,620	3
Lumber Products & Furniture	\$239,418	\$83,975	\$59,870	1
Stone, Clay, & Glass Products	\$310,990	\$172,361	\$90,146	2
Primary Metal	\$250,438	\$69,287	\$51,574	1
Fabricated Metal Products	\$633,495	\$227,475	\$146,858	3
Machinery, Except Electrical	\$391,539	\$156,949	\$112,125	1
Electric & Electronic Equipment	\$379,589	\$199,875	\$119,492	1
Motor Vehicles & Equipment	\$305,603	\$68,807	\$44,701	1
Transp. Equip., Exc. Motor Vehicles	\$132,804	\$56,848	\$37,148	0
Instruments & Related Products	\$106,862	\$43,823	\$33,309	0
Miscellaneous Manufacturing	\$245,052	\$96,679	\$66,680	1
Transportation	\$3,596,658	\$2,472,446	\$1,635,188	24
Communication	\$3,750,821	\$2,317,544	\$989,434	9
Electric, Gas, Water, Sanitary Services	\$9,134,973	\$2,050,608	\$894,831	4
Wholesale Trade	\$3,860,841	\$2,612,638	\$1,506,470	18
Retail Trade	\$23,915,372	\$19,817,197	\$11,850,050	334
Finance	\$1,626,829	\$859,209	\$500,320	5
Insurance	\$2,234,816	\$1,337,600	\$799,670	10
Real Estate	\$22,306,807	\$2,191,069	\$353,029	3
Hotels, Lodging Places, Amusements	\$1,897,885	\$999,618	\$655,784	17
Personal Services	\$5,290,911	\$3,290,957	\$2,560,418	46
Business Services	\$4,990,013	\$2,937,396	\$2,396,162	31
Eating & Drinking Places	\$10,376,455	\$6,076,886	\$3,233,228	157
Health Services	\$6,625,448	\$4,695,974	\$3,970,489	71
Miscellaneous Services	\$4,738,088	\$1,853,859	\$1,607,141	41
Households	\$150,981	\$150,981	\$147,787	11
Total	\$127,176,733	\$61,062,361	\$37,720,020	858

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Fuel Diversity Savings (New Development): Commercial (Case I)

**The Potential Annual Impact of the Anticipated Cost Savings Benefits
Associated with the Availability of Incremental Wind Power as a Consequence
of the Implementation of the Competitive Renewable Energy Zone (CREZ)
Power Transmission Initiative on Business Activity in Texas
(Case I: Average Fuel Prices Over the 2003-2009 Period—Commercial)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$55,009,688	\$14,676,553	\$9,995,550	172
Forestry & Fishery Products	\$1,339,857	\$1,385,174	\$513,735	7
Coal Mining	\$4,212,863	\$1,202,531	\$1,267,189	9
Crude Petroleum & Natural Gas	\$32,101,870	\$7,033,523	\$3,243,853	17
Miscellaneous Mining	\$1,037,909	\$399,971	\$235,120	3
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$67,681,573	\$34,730,025	\$28,619,710	434
Food Products & Tobacco	\$113,395,768	\$29,130,410	\$14,881,202	268
Textile Mill Products	\$1,439,773	\$351,923	\$297,757	7
Apparel	\$20,781,106	\$11,502,428	\$5,828,457	171
Paper & Allied Products	\$18,019,229	\$7,986,164	\$3,610,483	59
Printing & Publishing	\$29,650,137	\$14,871,836	\$9,707,186	177
Chemicals & Petroleum Refining	\$91,807,680	\$14,845,193	\$6,970,685	55
Rubber & Leather Products	\$14,874,837	\$6,378,009	\$3,728,555	80
Lumber Products & Furniture	\$6,087,596	\$2,136,300	\$1,523,059	34
Stone, Clay, & Glass Products	\$7,353,133	\$4,134,050	\$2,162,130	38
Primary Metal	\$5,486,849	\$1,529,557	\$1,138,524	18
Fabricated Metal Products	\$14,207,031	\$5,060,944	\$3,267,349	60
Machinery, Except Electrical	\$8,531,291	\$3,462,518	\$2,473,637	28
Electric & Electronic Equipment	\$8,865,840	\$4,649,300	\$2,779,510	25
Motor Vehicles & Equipment	\$7,097,380	\$1,529,611	\$993,735	15
Transp. Equip., Exc. Motor Vehicles	\$3,170,391	\$1,343,084	\$877,658	11
Instruments & Related Products	\$3,010,731	\$1,188,423	\$903,308	12
Miscellaneous Manufacturing	\$6,420,457	\$2,542,072	\$1,753,299	30
Transportation	\$79,782,966	\$54,838,308	\$36,268,102	539
Communication	\$64,487,528	\$39,731,765	\$16,962,770	161
Electric, Gas, Water, Sanitary Services	\$123,350,858	\$28,197,178	\$12,304,502	56
Wholesale Trade	\$205,459,423	\$139,009,031	\$80,153,851	965
Retail Trade	\$419,216,157	\$347,356,025	\$207,707,802	5,861
Finance	\$78,407,879	\$37,721,942	\$21,965,594	210
Insurance	\$67,981,350	\$43,856,174	\$26,218,947	340
Real Estate	\$600,718,803	\$172,339,992	\$27,767,708	265
Hotels, Lodging Places, Amusements	\$93,530,469	\$46,949,502	\$30,800,493	808
Personal Services	\$68,027,634	\$41,579,705	\$32,349,682	587
Business Services	\$207,475,906	\$133,194,478	\$108,652,561	1,423
Eating & Drinking Places	\$220,255,192	\$128,968,662	\$68,618,214	3,339
Health Services	\$199,633,722	\$134,698,164	\$113,888,542	2,025
Miscellaneous Services	\$141,613,658	\$64,387,998	\$55,819,025	1,435
Households	\$3,790,876	\$3,790,876	\$3,710,663	276
Total	\$3,095,315,410	\$1,588,689,396	\$949,960,145	20,020

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Fuel Diversity Savings (New Development): Industrial (Case I)

**The Potential Annual Impact of the Anticipated Cost Savings Benefits
Associated with the Availability of Incremental Wind Power as a Consequence
of the Implementation of the Competitive Renewable Energy Zone (CREZ)
Power Transmission Initiative on Business Activity in Texas
(Case I: Average Fuel Prices Over the 2003-2009 Period—Industrial)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$107,151,305	\$26,405,996	\$17,983,948	307
Forestry & Fishery Products	\$2,669,273	\$1,382,978	\$512,916	6
Coal Mining	\$6,987,344	\$2,011,631	\$2,119,789	14
Crude Petroleum & Natural Gas	\$466,457,304	\$102,235,561	\$47,150,907	246
Miscellaneous Mining	\$8,699,653	\$3,825,005	\$2,248,504	25
New Construction	\$38,389,083	\$16,586,268	\$13,668,112	208
Maintenance & Repair Construction	\$83,516,036	\$45,301,932	\$37,331,625	566
Food Products & Tobacco	\$115,279,674	\$27,497,083	\$14,046,838	252
Textile Mill Products	\$2,572,363	\$630,985	\$533,856	12
Apparel	\$18,120,976	\$10,029,467	\$5,082,067	147
Paper & Allied Products	\$26,748,505	\$12,344,707	\$5,580,954	90
Printing & Publishing	\$22,338,084	\$11,269,707	\$7,355,997	133
Chemicals & Petroleum Refining	\$327,173,783	\$63,231,166	\$29,690,702	235
Rubber & Leather Products	\$27,970,789	\$11,698,772	\$6,839,038	145
Lumber Products & Furniture	\$17,935,472	\$6,171,720	\$4,400,096	97
Stone, Clay, & Glass Products	\$26,145,572	\$13,284,548	\$6,947,870	120
Primary Metal	\$37,759,761	\$9,993,712	\$7,438,833	119
Fabricated Metal Products	\$44,823,676	\$17,068,077	\$11,019,187	202
Machinery, Except Electrical	\$50,250,272	\$20,567,788	\$14,693,719	166
Electric & Electronic Equipment	\$50,644,055	\$29,259,133	\$17,492,100	155
Motor Vehicles & Equipment	\$11,977,471	\$2,928,894	\$1,902,795	27
Transp. Equip., Exc. Motor Vehicles	\$12,510,234	\$6,249,534	\$4,083,843	50
Instruments & Related Products	\$6,458,131	\$2,865,862	\$2,178,323	28
Miscellaneous Manufacturing	\$7,263,679	\$2,825,118	\$1,948,522	31
Transportation	\$107,696,969	\$65,947,336	\$43,615,208	648
Communication	\$58,377,997	\$35,913,543	\$15,332,641	144
Electric, Gas, Water, Sanitary Services	\$216,854,396	\$45,836,247	\$20,001,722	89
Wholesale Trade	\$80,993,980	\$54,787,851	\$31,591,165	380
Retail Trade	\$159,606,745	\$132,269,808	\$79,093,127	2,231
Finance	\$27,928,067	\$15,344,067	\$8,934,896	84
Insurance	\$31,867,278	\$19,087,953	\$11,411,523	147
Real Estate	\$223,058,887	\$44,780,987	\$7,215,192	66
Hotels, Lodging Places, Amusements	\$16,772,657	\$8,708,025	\$5,712,754	148
Personal Services	\$32,486,522	\$19,969,564	\$15,536,654	281
Business Services	\$72,719,057	\$43,627,028	\$35,588,462	466
Eating & Drinking Places	\$76,935,174	\$45,066,343	\$23,977,706	1,166
Health Services	\$54,354,207	\$38,016,079	\$32,142,960	571
Miscellaneous Services	\$48,614,244	\$20,171,256	\$17,486,805	449
Households	\$2,428,331	\$2,428,331	\$2,376,948	176
Total	\$2,730,537,008	\$1,037,620,062	\$612,268,298	10,422

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Fuel Diversity Savings (New Development): Residential (Case I)

**The Potential Annual Impact of the Anticipated Cost Savings Benefits
Associated with the Availability of Incremental Wind Power as a Consequence
of the Implementation of the Competitive Renewable Energy Zone (CREZ)
Power Transmission Initiative on Business Activity in Texas
(Case I: Average Fuel Prices Over the 2003-2009 Period—Residential)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$62,594,910	\$17,019,131	\$11,590,980	199
Forestry & Fishery Products	\$1,580,739	\$1,657,729	\$614,824	8
Coal Mining	\$8,459,171	\$2,443,312	\$2,574,674	19
Crude Petroleum & Natural Gas	\$45,287,559	\$9,892,799	\$4,562,548	24
Miscellaneous Mining	\$1,089,538	\$468,270	\$275,268	3
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$81,842,329	\$41,940,944	\$34,561,950	524
Food Products & Tobacco	\$127,990,313	\$32,921,347	\$16,817,799	302
Textile Mill Products	\$1,682,935	\$383,782	\$324,718	8
Apparel	\$23,331,953	\$12,901,197	\$6,537,232	192
Paper & Allied Products	\$20,185,313	\$8,932,643	\$4,038,382	66
Printing & Publishing	\$28,412,072	\$14,386,622	\$9,390,473	171
Chemicals & Petroleum Refining	\$106,171,514	\$16,077,457	\$7,549,302	60
Rubber & Leather Products	\$15,421,671	\$6,631,675	\$3,876,846	83
Lumber Products & Furniture	\$6,374,048	\$2,235,686	\$1,593,926	36
Stone, Clay, & Glass Products	\$8,279,505	\$4,588,783	\$2,399,952	42
Primary Metal	\$6,667,446	\$1,844,625	\$1,373,050	22
Fabricated Metal Products	\$16,865,598	\$6,056,082	\$3,909,813	72
Machinery, Except Electrical	\$10,423,970	\$4,178,455	\$2,985,105	34
Electric & Electronic Equipment	\$10,105,844	\$5,321,301	\$3,181,255	29
Motor Vehicles & Equipment	\$8,136,103	\$1,831,846	\$1,190,086	18
Transp. Equip., Exc. Motor Vehicles	\$3,535,645	\$1,513,465	\$988,993	13
Instruments & Related Products	\$2,845,000	\$1,166,698	\$886,793	12
Miscellaneous Manufacturing	\$6,524,045	\$2,573,891	\$1,775,239	30
Transportation	\$95,754,141	\$65,824,160	\$43,533,749	648
Communication	\$99,858,452	\$61,700,171	\$26,341,784	251
Electric, Gas, Water, Sanitary Services	\$243,201,206	\$54,593,516	\$23,823,156	109
Wholesale Trade	\$102,787,515	\$69,556,497	\$40,106,894	483
Retail Trade	\$636,701,073	\$527,594,993	\$315,484,935	8,902
Finance	\$43,311,227	\$22,874,804	\$13,320,064	128
Insurance	\$59,497,718	\$35,611,048	\$21,289,688	276
Real Estate	\$593,876,101	\$58,333,016	\$9,398,713	90
Hotels, Lodging Places, Amusements	\$50,527,569	\$26,612,915	\$17,458,992	458
Personal Services	\$140,860,384	\$87,615,434	\$68,166,227	1,236
Business Services	\$132,849,556	\$78,202,545	\$63,793,235	836
Eating & Drinking Places	\$276,253,298	\$161,785,473	\$86,078,510	4,189
Health Services	\$176,389,899	\$125,021,327	\$105,706,690	1,879
Miscellaneous Services	\$126,142,545	\$49,355,447	\$42,787,061	1,100
Households	\$4,019,590	\$4,019,590	\$3,934,538	293
Total	\$3,385,837,494	\$1,625,668,674	\$1,004,223,446	22,847

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Fuel Diversity Savings (New Development): Total (Case I)

**The Potential Annual Impact of the Anticipated Cost Savings Benefits
Associated with the Availability of Incremental Wind Power as a Consequence
of the Implementation of the Competitive Renewable Energy Zone (CREZ)
Power Transmission Initiative on Business Activity in Texas
(Case I: Average Fuel Prices Over the 2003-2009 Period—Total)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$224,755,903	\$58,101,680	\$39,570,478	678
Forestry & Fishery Products	\$5,589,869	\$4,425,881	\$1,641,474	21
Coal Mining	\$19,659,378	\$5,657,474	\$5,961,652	41
Crude Petroleum & Natural Gas	\$543,846,732	\$119,161,882	\$54,957,308	288
Miscellaneous Mining	\$10,827,100	\$4,693,246	\$2,758,891	30
New Construction	\$38,389,083	\$16,586,268	\$13,668,112	208
Maintenance & Repair Construction	\$233,039,939	\$121,972,901	\$100,513,285	1,525
Food Products & Tobacco	\$356,665,756	\$89,548,840	\$45,745,840	822
Textile Mill Products	\$5,695,071	\$1,366,690	\$1,156,332	26
Apparel	\$62,234,035	\$34,433,092	\$17,447,755	510
Paper & Allied Products	\$64,953,046	\$29,263,514	\$13,229,820	215
Printing & Publishing	\$80,400,293	\$40,528,165	\$26,453,656	481
Chemicals & Petroleum Refining	\$525,152,977	\$94,153,816	\$44,210,690	351
Rubber & Leather Products	\$58,267,297	\$24,708,455	\$14,444,439	308
Lumber Products & Furniture	\$30,397,116	\$10,543,706	\$7,517,080	167
Stone, Clay, & Glass Products	\$41,778,211	\$22,007,382	\$11,509,952	200
Primary Metal	\$49,914,056	\$13,367,895	\$9,950,407	159
Fabricated Metal Products	\$75,896,304	\$28,185,103	\$18,196,349	334
Machinery, Except Electrical	\$69,205,533	\$28,208,761	\$20,152,461	228
Electric & Electronic Equipment	\$69,615,739	\$39,229,734	\$23,452,865	208
Motor Vehicles & Equipment	\$27,210,954	\$6,290,350	\$4,086,615	59
Transp. Equip., Exc. Motor Vehicles	\$19,216,270	\$9,106,083	\$5,950,494	74
Instruments & Related Products	\$12,313,861	\$5,220,982	\$3,968,424	52
Miscellaneous Manufacturing	\$20,208,181	\$7,941,082	\$5,477,059	91
Transportation	\$283,234,076	\$186,609,803	\$123,417,058	1,835
Communication	\$222,723,978	\$137,345,478	\$58,637,195	556
Electric, Gas, Water, Sanitary Services	\$583,406,460	\$128,626,940	\$56,129,379	253
Wholesale Trade	\$389,240,918	\$263,353,379	\$151,851,910	1,828
Retail Trade	\$1,215,523,975	\$1,007,220,826	\$602,285,864	16,994
Finance	\$149,647,172	\$75,940,813	\$44,220,553	422
Insurance	\$159,346,346	\$98,555,174	\$58,920,158	762
Real Estate	\$1,417,653,791	\$275,453,994	\$44,381,612	421
Hotels, Lodging Places, Amusements	\$160,830,695	\$82,270,442	\$53,972,238	1,414
Personal Services	\$241,374,541	\$149,164,703	\$116,052,562	2,104
Business Services	\$413,044,519	\$255,024,050	\$208,034,259	2,725
Eating & Drinking Places	\$573,443,664	\$335,820,479	\$178,674,430	8,694
Health Services	\$430,377,828	\$297,735,571	\$251,738,192	4,475
Miscellaneous Services	\$316,370,447	\$133,914,700	\$116,092,891	2,984
Households	\$10,238,797	\$10,238,797	\$10,022,150	745
Total	\$9,211,689,912	\$4,251,978,132	\$2,566,451,889	53,290

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Fuel Diversity Savings (New Development): Commercial (Case II)

**The Potential Annual Impact of the Anticipated Cost Savings Benefits
Associated with the Availability of Incremental Wind Power as a Consequence
of the Implementation of the Competitive Renewable Energy Zone (CREZ)
Power Transmission Initiative on Business Activity in Texas
(Case II: Average Fuel Prices During 2008—Commercial)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$121,316,574	\$32,367,192	\$22,043,861	380
Forestry & Fishery Products	\$2,954,877	\$3,054,818	\$1,132,974	15
Coal Mining	\$9,290,910	\$2,652,023	\$2,794,617	19
Crude Petroleum & Natural Gas	\$70,796,418	\$15,511,501	\$7,153,887	37
Miscellaneous Mining	\$2,288,970	\$882,083	\$518,525	6
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$149,262,736	\$76,592,465	\$63,116,976	957
Food Products & Tobacco	\$250,079,331	\$64,243,256	\$32,818,518	591
Textile Mill Products	\$3,175,229	\$776,119	\$656,664	15
Apparel	\$45,829,975	\$25,367,080	\$12,853,888	377
Paper & Allied Products	\$39,739,021	\$17,612,427	\$7,962,442	130
Printing & Publishing	\$65,389,445	\$32,797,862	\$21,407,912	391
Chemicals & Petroleum Refining	\$202,469,666	\$32,739,104	\$15,372,922	122
Rubber & Leather Products	\$32,804,482	\$14,065,853	\$8,222,834	177
Lumber Products & Furniture	\$13,425,386	\$4,711,325	\$3,358,904	76
Stone, Clay, & Glass Products	\$16,216,361	\$9,117,100	\$4,768,291	84
Primary Metal	\$12,100,518	\$3,373,235	\$2,510,865	41
Fabricated Metal Products	\$31,331,722	\$11,161,241	\$7,205,706	132
Machinery, Except Electrical	\$18,814,632	\$7,636,124	\$5,455,278	63
Electric & Electronic Equipment	\$19,552,434	\$10,253,415	\$6,129,840	55
Motor Vehicles & Equipment	\$15,652,331	\$3,373,353	\$2,191,550	32
Transp. Equip., Exc. Motor Vehicles	\$6,991,877	\$2,961,994	\$1,935,558	24
Instruments & Related Products	\$6,639,767	\$2,620,908	\$1,992,125	26
Miscellaneous Manufacturing	\$14,159,466	\$5,606,204	\$3,866,669	66
Transportation	\$175,950,753	\$120,938,617	\$79,984,489	1,190
Communication	\$142,218,693	\$87,623,139	\$37,409,141	356
Electric, Gas, Water, Sanitary Services	\$272,033,962	\$62,185,137	\$27,135,947	123
Wholesale Trade	\$453,113,515	\$306,565,986	\$176,768,690	2,128
Retail Trade	\$924,525,650	\$766,047,656	\$458,072,017	12,925
Finance	\$172,918,181	\$83,190,741	\$48,442,205	464
Insurance	\$149,923,855	\$96,718,977	\$57,822,411	749
Real Estate	\$1,324,805,669	\$380,073,001	\$61,237,997	585
Hotels, Lodging Places, Amusements	\$206,269,049	\$103,540,902	\$67,926,403	1,781
Personal Services	\$150,025,927	\$91,698,527	\$71,342,934	1,294
Business Services	\$457,560,601	\$293,742,761	\$239,618,817	3,138
Eating & Drinking Places	\$485,743,621	\$284,423,285	\$151,328,372	7,365
Health Services	\$440,265,704	\$297,058,941	\$251,166,079	4,466
Miscellaneous Services	\$312,310,145	\$141,999,191	\$123,101,459	3,165
Households	\$8,360,274	\$8,360,274	\$8,183,376	609
Total	\$6,826,307,723	\$3,503,643,816	\$2,095,011,143	44,152

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Fuel Diversity Savings (New Development): Industrial (Case II)



**The Potential Annual Impact of the Anticipated Cost Savings Benefits
Associated with the Availability of Incremental Wind Power as a Consequence
of the Implementation of the Competitive Renewable Energy Zone (CREZ)
Power Transmission Initiative on Business Activity in Texas
(Case II: Average Fuel Prices During 2008—Industrial)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$236,307,995	\$58,234,923	\$39,661,212	676
Forestry & Fishery Products	\$5,886,728	\$3,049,974	\$1,131,167	14
Coal Mining	\$15,409,661	\$4,436,386	\$4,674,913	30
Crude Petroleum & Natural Gas	\$1,028,709,734	\$225,466,974	\$103,985,073	543
Miscellaneous Mining	\$19,185,932	\$8,435,541	\$4,958,777	54
New Construction	\$84,662,033	\$36,578,815	\$30,143,209	458
Maintenance & Repair Construction	\$184,183,545	\$99,907,404	\$82,329,948	1,249
Food Products & Tobacco	\$254,234,037	\$60,641,170	\$30,978,439	555
Textile Mill Products	\$5,673,006	\$1,391,554	\$1,177,350	26
Apparel	\$39,963,410	\$22,118,660	\$11,207,825	325
Paper & Allied Products	\$58,990,280	\$27,224,614	\$12,308,055	198
Printing & Publishing	\$49,263,683	\$24,853,845	\$16,222,676	293
Chemicals & Petroleum Refining	\$721,538,399	\$139,447,952	\$65,478,907	519
Rubber & Leather Products	\$61,685,867	\$25,800,090	\$15,082,591	319
Lumber Products & Furniture	\$39,554,305	\$13,610,911	\$9,703,828	213
Stone, Clay, & Glass Products	\$57,660,593	\$29,297,309	\$15,322,606	264
Primary Metal	\$83,274,146	\$22,039,808	\$16,405,359	262
Fabricated Metal Products	\$98,852,673	\$37,641,381	\$24,301,355	445
Machinery, Except Electrical	\$110,820,312	\$45,359,529	\$32,405,049	366
Electric & Electronic Equipment	\$111,688,748	\$64,527,139	\$38,576,507	341
Motor Vehicles & Equipment	\$26,414,724	\$6,459,287	\$4,196,362	59
Transp. Equip., Exc. Motor Vehicles	\$27,589,662	\$13,782,519	\$9,006,374	110
Instruments & Related Products	\$14,242,551	\$6,320,278	\$4,804,003	61
Miscellaneous Manufacturing	\$16,019,081	\$6,230,423	\$4,297,206	67
Transportation	\$237,511,386	\$145,438,105	\$96,187,558	1,429
Communication	\$128,744,933	\$79,202,557	\$33,814,106	318
Electric, Gas, Water, Sanitary Services	\$478,243,616	\$101,085,765	\$44,111,146	195
Wholesale Trade	\$178,621,484	\$120,827,342	\$69,670,125	837
Retail Trade	\$351,991,513	\$291,703,524	\$174,429,403	4,920
Finance	\$61,591,648	\$33,839,305	\$19,704,727	185
Insurance	\$70,279,056	\$42,095,948	\$25,166,602	323
Real Estate	\$491,926,800	\$98,758,529	\$15,912,149	145
Hotels, Lodging Places, Amusements	\$36,989,870	\$19,204,395	\$12,598,721	326
Personal Services	\$71,644,717	\$44,040,225	\$34,264,030	619
Business Services	\$160,372,238	\$96,213,625	\$78,485,634	1,028
Eating & Drinking Places	\$169,670,326	\$99,387,845	\$52,879,651	2,572
Health Services	\$119,870,997	\$83,839,422	\$70,887,036	1,259
Miscellaneous Services	\$107,212,270	\$44,485,030	\$38,564,829	990
Households	\$5,355,362	\$5,355,362	\$5,242,044	389
Total	\$6,021,837,325	\$2,288,333,466	\$1,350,276,549	22,984

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Fuel Diversity Savings (New Development): Residential (Case II)

**The Potential Annual Impact of the Anticipated Cost Savings Benefits
Associated with the Availability of Incremental Wind Power as a Consequence
of the Implementation of the Competitive Renewable Energy Zone (CREZ)
Power Transmission Initiative on Business Activity in Texas
(Case II: Average Fuel Prices During 2008—Residential)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$138,044,774	\$37,533,437	\$25,562,369	440
Forestry & Fishery Products	\$3,486,110	\$3,655,900	\$1,355,913	19
Coal Mining	\$18,655,581	\$5,388,400	\$5,678,103	41
Crude Petroleum & Natural Gas	\$99,875,706	\$21,817,256	\$10,062,096	53
Miscellaneous Mining	\$2,402,831	\$1,032,708	\$607,067	7
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$180,492,405	\$92,495,192	\$76,221,798	1,157
Food Products & Tobacco	\$282,265,666	\$72,603,666	\$37,089,426	667
Textile Mill Products	\$3,711,489	\$846,380	\$716,124	18
Apparel	\$51,455,528	\$28,451,879	\$14,416,997	423
Paper & Allied Products	\$44,516,031	\$19,699,759	\$8,906,116	146
Printing & Publishing	\$62,659,058	\$31,727,787	\$20,709,443	378
Chemicals & Petroleum Refining	\$234,147,196	\$35,456,700	\$16,648,986	133
Rubber & Leather Products	\$34,010,451	\$14,625,279	\$8,549,870	184
Lumber Products & Furniture	\$14,057,117	\$4,930,509	\$3,515,192	79
Stone, Clay, & Glass Products	\$18,259,351	\$10,119,953	\$5,292,777	93
Primary Metal	\$14,704,169	\$4,068,076	\$3,028,080	49
Fabricated Metal Products	\$37,194,841	\$13,355,885	\$8,622,573	159
Machinery, Except Electrical	\$22,988,683	\$9,215,029	\$6,583,254	76
Electric & Electronic Equipment	\$22,287,100	\$11,735,423	\$7,015,837	63
Motor Vehicles & Equipment	\$17,943,096	\$4,039,893	\$2,624,577	40
Transp. Equip., Exc. Motor Vehicles	\$7,797,396	\$3,337,745	\$2,181,093	28
Instruments & Related Products	\$6,274,269	\$2,572,997	\$1,955,705	27
Miscellaneous Manufacturing	\$14,387,917	\$5,676,376	\$3,915,054	67
Transportation	\$211,173,062	\$145,166,457	\$96,007,911	1,428
Communication	\$220,224,576	\$136,071,545	\$58,093,311	553
Electric, Gas, Water, Sanitary Services	\$536,348,013	\$120,398,760	\$52,538,812	239
Wholesale Trade	\$226,684,236	\$153,397,632	\$88,450,438	1,065
Retail Trade	\$1,404,159,796	\$1,163,540,803	\$695,760,194	19,633
Finance	\$95,517,168	\$50,447,348	\$29,375,634	281
Insurance	\$131,214,328	\$78,535,444	\$46,951,583	608
Real Estate	\$1,309,714,998	\$128,645,731	\$20,727,614	198
Hotels, Lodging Places, Amusements	\$111,431,853	\$58,691,255	\$38,503,491	1,010
Personal Services	\$310,648,901	\$193,224,223	\$150,331,575	2,727
Business Services	\$292,982,080	\$172,465,343	\$140,687,522	1,843
Eating & Drinking Places	\$609,240,020	\$356,796,409	\$189,834,741	9,238
Health Services	\$389,004,534	\$275,717,961	\$233,122,089	4,145
Miscellaneous Services	\$278,190,657	\$108,846,893	\$94,361,191	2,426
Households	\$8,864,673	\$8,864,673	\$8,677,103	646
Total	\$7,467,015,657	\$3,585,196,710	\$2,214,681,658	50,386

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



Fuel Diversity Savings (New Development): Total (Case II)

**The Potential Annual Impact of the Anticipated Cost Savings Benefits
Associated with the Availability of Incremental Wind Power as a Consequence
of the Implementation of the Competitive Renewable Energy Zone (CREZ)
Power Transmission Initiative on Business Activity in Texas
(Case II: Average Fuel Prices During 2008—Total)
Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$495,669,343	\$128,135,552	\$87,267,442	1,496
Forestry & Fishery Products	\$12,327,715	\$9,760,693	\$3,620,054	47
Coal Mining	\$43,356,151	\$12,476,810	\$13,147,633	91
Crude Petroleum & Natural Gas	\$1,199,381,858	\$262,795,731	\$121,201,056	634
Miscellaneous Mining	\$23,877,733	\$10,350,332	\$6,084,369	67
New Construction	\$84,662,033	\$36,578,815	\$30,143,209	458
Maintenance & Repair Construction	\$513,938,686	\$268,995,062	\$221,668,722	3,363
Food Products & Tobacco	\$786,579,033	\$197,488,093	\$100,886,384	1,813
Textile Mill Products	\$12,559,725	\$3,014,053	\$2,550,137	58
Apparel	\$137,248,913	\$75,937,619	\$38,478,710	1,125
Paper & Allied Products	\$143,245,332	\$64,536,800	\$29,176,614	474
Printing & Publishing	\$177,312,186	\$89,379,495	\$58,340,031	1,062
Chemicals & Petroleum Refining	\$1,158,155,261	\$207,643,757	\$97,500,815	774
Rubber & Leather Products	\$128,500,799	\$54,491,222	\$31,855,295	679
Lumber Products & Furniture	\$67,036,809	\$23,252,745	\$16,577,924	368
Stone, Clay, & Glass Products	\$92,136,305	\$48,534,362	\$25,383,674	440
Primary Metal	\$110,078,833	\$29,481,120	\$21,944,303	351
Fabricated Metal Products	\$167,379,236	\$62,158,508	\$40,129,634	736
Machinery, Except Electrical	\$152,623,627	\$62,210,682	\$44,443,581	504
Electric & Electronic Equipment	\$153,528,282	\$86,515,977	\$51,722,184	458
Motor Vehicles & Equipment	\$60,010,151	\$13,872,533	\$9,012,488	131
Transp. Equip., Exc. Motor Vehicles	\$42,378,935	\$20,082,258	\$13,123,025	163
Instruments & Related Products	\$27,156,588	\$11,514,183	\$8,751,833	115
Miscellaneous Manufacturing	\$44,566,465	\$17,513,003	\$12,078,928	201
Transportation	\$624,635,201	\$411,543,178	\$272,179,958	4,047
Communication	\$491,188,202	\$302,897,241	\$129,316,558	1,227
Electric, Gas, Water, Sanitary Services	\$1,286,625,592	\$283,669,661	\$123,785,904	558
Wholesale Trade	\$858,419,235	\$580,790,959	\$334,889,252	4,030
Retail Trade	\$2,680,676,959	\$2,221,291,983	\$1,328,261,614	37,478
Finance	\$330,026,997	\$167,477,395	\$97,522,567	931
Insurance	\$351,417,238	\$217,350,369	\$129,940,595	1,680
Real Estate	\$3,126,447,467	\$607,477,261	\$97,877,760	928
Hotels, Lodging Places, Amusements	\$354,690,772	\$181,436,552	\$119,028,615	3,118
Personal Services	\$532,319,545	\$328,962,975	\$255,938,539	4,639
Business Services	\$910,914,919	\$562,421,728	\$458,791,974	6,009
Eating & Drinking Places	\$1,264,653,966	\$740,607,539	\$394,042,764	19,174
Health Services	\$949,141,235	\$656,616,324	\$555,175,204	9,870
Miscellaneous Services	\$697,713,072	\$295,331,115	\$256,027,479	6,582
Households	\$22,580,309	\$22,580,309	\$22,102,522	1,644
Total	\$20,315,160,705	\$9,377,173,992	\$5,659,969,350	117,523

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



TOTAL Ongoing Effects (New Development): Case I

The Total Potential Annual Impact of Ongoing Operations, Royalties, and Cost Savings (Case 1) Associated with the Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$264,039,118	\$71,915,864	\$48,978,705	840
Forestry & Fishery Products	\$6,378,973	\$5,187,163	\$1,923,820	25
Coal Mining	\$23,369,095	\$6,726,261	\$7,087,902	49
Crude Petroleum & Natural Gas	\$562,833,363	\$123,326,866	\$56,878,194	298
Miscellaneous Mining	\$12,156,856	\$5,323,177	\$3,129,195	34
New Construction	\$38,389,083	\$16,586,268	\$13,668,112	208
Maintenance & Repair Construction	\$253,742,022	\$133,893,393	\$110,336,510	1,674
Food Products & Tobacco	\$438,160,420	\$110,599,362	\$56,499,453	1,015
Textile Mill Products	\$6,671,918	\$1,629,409	\$1,378,622	32
Apparel	\$78,798,055	\$43,625,392	\$22,105,639	646
Paper & Allied Products	\$76,672,774	\$34,319,126	\$15,515,422	252
Printing & Publishing	\$98,470,079	\$49,491,088	\$32,303,957	588
Chemicals & Petroleum Refining	\$570,760,259	\$99,137,551	\$46,550,842	370
Rubber & Leather Products	\$68,332,301	\$29,084,834	\$17,002,850	363
Lumber Products & Furniture	\$36,240,957	\$12,491,096	\$8,905,463	198
Stone, Clay, & Glass Products	\$48,949,754	\$25,655,258	\$13,417,807	233
Primary Metal	\$60,696,177	\$16,471,194	\$12,260,352	196
Fabricated Metal Products	\$107,119,082	\$41,100,650	\$26,534,640	487
Machinery, Except Electrical	\$84,377,063	\$34,459,870	\$24,618,275	279
Electric & Electronic Equipment	\$79,785,142	\$44,727,021	\$26,739,330	237
Motor Vehicles & Equipment	\$32,967,436	\$7,432,728	\$4,828,779	71
Transp. Equip., Exc. Motor Vehicles	\$23,812,383	\$11,075,081	\$7,237,164	90
Instruments & Related Products	\$15,299,927	\$6,510,986	\$4,948,945	65
Miscellaneous Manufacturing	\$24,938,423	\$9,707,742	\$6,695,551	112
Transportation	\$405,905,273	\$264,816,481	\$175,140,163	2,605
Communication	\$272,751,686	\$168,123,734	\$71,777,421	681
Electric, Gas, Water, Sanitary Services	\$2,520,891,064	\$597,494,213	\$260,730,545	1,186
Wholesale Trade	\$442,568,878	\$299,417,578	\$172,646,844	2,078
Retail Trade	\$1,304,301,344	\$1,080,737,167	\$646,246,285	18,235
Finance	\$191,778,858	\$100,127,556	\$58,304,562	557
Insurance	\$199,542,078	\$122,583,359	\$73,285,154	948
Real Estate	\$1,656,976,719	\$311,834,673	\$50,243,325	477
Hotels, Lodging Places, Amusements	\$182,460,233	\$93,496,746	\$61,337,080	1,607
Personal Services	\$287,016,802	\$177,215,061	\$137,876,193	2,499
Business Services	\$500,830,398	\$307,927,004	\$251,189,513	3,290
Eating & Drinking Places	\$615,467,665	\$360,414,349	\$191,759,682	9,331
Health Services	\$501,401,982	\$347,494,513	\$293,809,840	5,223
Miscellaneous Services	\$383,054,552	\$162,483,721	\$140,859,853	3,621
Households	\$36,653,739	\$13,492,136	\$13,206,645	982
Total	\$12,514,561,931	\$5,348,135,672	\$3,167,958,635	61,682

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



**TOTAL Ongoing Effects (New Development):
Occupational Profile (Case I)**



Occupational Profile for the Total Potential Annual Impact of the Anticipated Ongoing Operations, Royalties, and Cost Savings (Case I) Associated with the Implementation of the CREZ Power Transmission Initiative on Business Activity in Texas

TOTAL, ALL OCCUPATIONS	61,682
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	4,484
Managerial and administrative occupations	3,132
Elem. & sec. sch. principals and asst. principals	65
Assistant principals	21
Principals	44
Food service and lodging managers	553
Postmasters and mail superintendents	20
Public admin. chief exec., legis., and gen. admin.	95
All other managers and administrators	2,398
Management support occupations	1,352
Accountants and auditors	168
Assessors	14
Claims examiners, prop. and casual. insurance	28
Compliance and enforce. inspectors, exc. const.	40
Construction and building inspectors	93
Cost estimators	425
Personnel specialists and related workers	138
Claims takers, unemployment benefits	0
Employ. interviewers, pvt. or pub. emp. serv.	96
Personnel, training, and labor related spec.	37
Special agents, insurance	5
Purchasing agents and buyers	353
Purchasing agents, exc. wh., ret., and farm pr.	29
Wholesale and retail buyers, exc. farm products	323
Tax examiners, collectors, and revenue agents	9
Tax preparers	37
Underwriters	12
All other management support workers	35
ENGINEERS, ARCHITECTS, AND SURVEYORS	303
Engineers	282
Aeronautical and astronautical engineers	14
Chemical engineers	24
Civil engineers, including traffic engineers	30
Electrical and electronics engineers	71

Industrial engineers, except safety engineers	25
Mechanical engineers	34
Matallurgists and met., cer., and mat. engineers	9
Mining engineers, inc. mine safety engineers	3
Nuclear engineers	8
Petroleum engineers	32
Other engineers	30
Safety engineers, except mining engineers	4
All other engineers	26
Architects and surveyors	21
Architects, inc. landscape architects	15
Surveyors	6
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	201
Computer systems analysts, electronic data processing	61
Life scientists	56
Agricultural and food scientists	11
Biological scientists	19
Foresters and conservation scientists	4
Medical scientists	12
All other life scientists	9
Mathematical scientists	24
Actuaries	7
Statisticians	9
Mathematicians and all other mathematical scientists	7
Physical scientists	60
Chemists	33
Geologists, geophysicists, and oceanographers	16
Meteorologists	1
Physicists and astronomers	6
All other physical scientists	5
SOCIAL SCIENTISTS	47
Economists	12
Psychologists	18
Sociologists	1
Urban and regional planners	9
All other social scientists	8
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	264
Clergy	82
Directors, religious activities and education	35

Recreation workers	42
Social workers	104
LAWYERS AND JUDGES	40
Judges, magistrates, and other jud. workers	15
Lawyers	24
TEACHERS, LIBRARIANS, AND COUNSELORS	1,277
Teachers, preschool and elementary	129
Teachers, preschool	27
Teachers, kindergarten and elementary	103
Teachers, secondary school	531
College and university faculty	343
Other teachers and instructors	236
Farm and home management advisors	12
Graduate assistants, teaching	70
Instructors, adult (nonvocational) education	19
Instructors and coaches, sports and phys. train.	98
Teachers and instructors, voc. ed. and training	15
All other teachers and instructors	21
Librarians, archivists, curators, and related workers	22
Audio-visual specialists	4
Curators, archiv., museum techn., and restorers	2
Librarians, professional	17
Counselors	17
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	1,415
Chiropractors	19
Dentists	38
Dietitians and nutritionists	23
Opticians, dispensing and measuring	70
Optometrists	18
Pharmacists	184
Podiatrists	4
Physician assistants	28
Physicians and surgeons	182
Registered nurses	650
Therapists	185
Occupational therapists	11
Physical therapists	28
Recreational therapists	9
Respiratory therapists	105

Speech pathologists and audiologists	23
All other therapists	9
Veterinarians and veterinary inspectors	14
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	513
Artists and commercial artists	61
Athletes, coaches, umpires, and related workers	22
Dancers and choreographers	10
Designers, except interior designers	67
Merchandise displayers and window trimmers	37
Musicians	63
Music dir., singers, composers, and related workers	12
Musicians, instrumental	50
Photographers and camera operators	37
Camera operators, television and motion picture	4
Photographers	34
Producers, directors, actors, and entertainers	29
Public related specialists and publicity writers	17
Radio and TV announcers and newscasters	18
Announcers, radio and television	16
Broadcast news analysts	2
Reporters and correspondents	120
Writers and editors, inc. tech. writers	32
TECHNICIAN OCCUPATIONS	1,389
Health technicians and technologists	825
Dental hygienists	44
Dietetic technicians	30
Electrocardiograph technicians/technologists	22
Electroencephalograph technicians/technologists	11
Emergency medical technicians	27
Licensed practical nurses	298
Medical and clinical lab technol. and techn.	130
Medical and clinical laboratory technicians	52
Medical and clinical laboratory technologists	77
Medical records technicians and technologists	20
Radiologic technologists and technicians	128
Surgical technicians	67
All other health prof. and paraprofessionals	49
Engineering and science technicians and technologists	378
Engineering technicians	189
Civil engineering technicians and technologists	18

Electrical and electronic technicians/technol.	122
Industrial engineering technicians and technol.	5
Mechanical engineering technicians and technol.	19
All other engineering technicians and technol.	24
Drafters	52
Phys. and life sci. technicians/technologists	137
Petroleum technicians and technologists	68
All other science technicians and technologists	69
Technicians, exc. health and engineering and science	186
Air traffic controllers	16
Broadcast technicians	8
Computer programmers	72
Legal assistants and technicians, exc. clerical	40
Law clerks	8
Paralegal personnel	12
Title examiners, searchers, and clerks	20
Programmers, numerical, tool, and proc. control	3
Radio operators	1
Technical assistants, library	15
All other technicians	32
ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	108
MARKETING AND SALES OCCUPATIONS	7,381
Cashiers	1,782
Counter and rental clerks	110
Insurance sales workers	34
Real estate agents and brokers	67
Brokers, real estate	5
Sales agents, real estate	62
Real estate appraisers	5
Salespersons, retail	2,533
Securities and financial services sales workers	16
Stock clerks, sales floor	845
Travel agents	37
All other sales and related workers	1,953
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL	6,860
Adjusters and investigators	222
Adjustment clerks	68
Bill and account collectors	38
Ins. adjusters, examiners, and investigators	13

Insurance appraisers, auto damage	63
Insurance claims clerks	6
Insurance examining clerks	1
Insurance policy processing clerks	7
License clerks	5
Welfare eligibility workers and interviewers	20
Communications equipment operators	156
Telephone operators	134
Central office operators	20
Directory assistance operators	9
Switchboard operators	104
Telegraph and teletype operators	1
All other communications equipment operators	21
Computer operators and peripheral equipment operators	75
Computer operators, exc. peripheral equipment	54
Peripheral EDP equipment operators	21
Duplicating, mail, and other office machine operators	41
Duplicating machine operators	10
Transit clerks	2
All other office machine operators	29
Financial records processing occupations	758
Billing, cost, and rate clerks	87
Billing, posting, and calc. mach. operators	45
Bookkeeping, accounting, and auditing clerks	576
Payroll and timekeeping clerks	51
Information clerks	712
Hotel desk clerks	383
New accounts clerks	152
Receptionists and information clerks	157
Reservation & trans. ticket agents & travel clerks	20
Reservation and transportation ticket agents	12
Travel clerks	8
Mail and message distribution workers	477
Mail clerks, exc. mail mach. op. and postal serv.	30
Messengers	28
Postal mail carriers	203
Postal service clerks	215
Mat. rec., sched., disp., and dist. occupations	981
Dispatchers	85
Dispatchers, exc. police, fire, and ambulance	71
Dispatchers, police, fire, and ambulance	14

Meter readers, utilities	17
Order fillers, wholesale and retail sales	139
Procurement clerks	13
Production, planning, and expediting clerks	28
Stock clerks, stockroom, warehouse, or yard	339
Traffic, shipping, and receiving clerks	227
Transportation agents	10
Weighers, meas., check., and samp., recordkeep.	14
All other mat. rec., sched., and dist. workers	107
Records processing occupations, exc. financial	350
Advertising clerks	87
Brokerage clerks	14
File clerks	63
Library assistants and bookmobile drivers	29
Order clerks, materials, merch., and service	103
Personnel clerks, exc. payroll and timekeeping	25
Statement clerks	29
Secretaries, stenographers, and typists	710
Secretaries	537
Stenographers	28
Typists	145
Other clerical and administrative support workers	2,378
Court clerks	27
Credit authorizers	37
Credit checkers	53
Customer service representatives, utilities	12
Data entry keyers, exc. composing	66
Data keyers, composing	363
General office clerks	602
Loan and credit clerks	23
Municipal clerks	14
Proofreaders and copy markers	47
Real estate clerks	5
Statistical clerks	32
Teacher aides and educational assistants	44
Tellers	698
All other clerical and admin. support workers	354
SERVICE WORKERS	13,467
Clean. and bldg. serv. occup., exc. pvt. hshld.	826
Janitors and cleaners, inc. maids/hskpg. clean.	770
Pest controllers and assistants	56

Food and beverage prep. and service occupations	7,489
Bakers, bread and pastry	124
Bartenders	446
Cooks, except short order	707
Cooks, institution or cafeteria	102
Cooks, restaurant	606
Cooks, sh. order and spec. fast food	566
Din. rm. and cafet. attendants and bar. helpers	318
Food preparation and service workers, fast food	1,745
Food preparation workers	971
Hosts and hostesses, rest./lounge/coffee shop	195
Waiters and waitresses	1,960
All other food service workers	456
Health service and related occupations	1,013
Ambulance drivers and attendants, except EMTs	12
Dental assistants	193
Medical assistants	96
Nursing aides and psychiatric aides	577
Nursing aides, orderlies, and attendants	537
Psychiatric aides	40
Occupational therapy assistants and aides	5
Pharmacy assistants	66
Phys. and correct. therapy assistants and aides	65
Personal service occupations	609
Amusement and recreation attendants	121
Baggage porters and bellhops	7
Barbers	31
Child care workers	41
Cosmetologists and related workers	304
Hairdressers, hairstylists, and cosmetologists	229
Manicurists	32
Shampooers	43
Flight attendants	36
Guides	8
Social welfare service aides	37
Ushers, lobby attendants, and ticket takers	24
Private household workers	2,324
Cooks, private household	54
Housekeepers and butlers	100
Child care workers, private household	923
Cleaners and servants, private household	1,247

Protective service occupations	890
Correction officers and jailers	38
Fire fighting occupations	224
Fire fighters	175
Fire fighting and prevention supervisors	43
Fire inspectors	6
Police and detectives	328
Police and detective supervisors	63
Police detectives and investigators	28
Police patrol officers	237
Sheriffs and other law enforcement workers	28
Bailiffs	4
Fish and game wardens	0
Parking enforcement officers	5
Sheriffs, deputy sheriffs, and U.S. marshalls	18
Other protective service workers	273
Crossing guards	2
Detectives and investigators, except public	52
Guards	189
All other protective service workers	31
All other service occupations	315
Housekeepers, institutional	74
All other service workers	241
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	887
Supervisors, farming, forestry, and ag. related occ.	46
Agriculture related occupations	238
Animal caretakers, except farm	30
Gardeners and groundskeepers, except farm	162
Graders and sorters, agricultural products	46
Farm occupations	463
Farm workers	453
Nursery workers	11
Farm operators and managers	74
Farmers	20
Farm managers	53
Fishers, hunters, and trappers	11
Captains and other officers, fishing vessels	1
Fishers, hunters, and trappers	10
Forestry and logging occupations	53
Choke setters	21
Fallers and buckers	1

Forest and conservation workers	9
Logging tractor operators	4
Log graders and scalers	10
Log handling equipment operators	2
All oth. timber cut. and related logging workers	6
All oth. agric., forest., fish., and related wkrs.	2
BLUE COLLAR WORKER SUPERVISORS	225
CONSTRUCTION TRADES	2,848
Air hammer operators	31
Bricklayers and stone masons	88
Brick masons	45
Stone masons	43
Carpenters	125
Carpet installers	39
Coil. tile installers and acoustical carpenters	21
Concrete and terrazzo finishers	45
Drywall installers and finishers	1,098
Drywall installers	627
Tapers	326
Lathers	144
Electricians	191
Fence erectors	109
Glaziers	86
Hard tile setters	13
Highway maintenance workers	74
Insulation workers	30
Painters and paperhangers, const. and maint.	85
Pipelayers	23
Pipelaying fitters	108
Plasterers	196
Plumbers, pipefitters, and steamfitters	135
Rail-track laying and maint. equip. operators	8
Roofers	50
Septic tank servicers and sewer pipe cleaners	11
Structural and reinforcing metal workers	259
Reinforcing metal workers	232
Structural metal workers	27
All other construction trades workers	26

EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	1,925
Blasters and explosives workers	6
Continuous mining machine operators	8
Derrick operators, oil and gas extraction	218
Mine cutting and channeling machine operators	24
Roof bolters	8
Rotary drill operators, oil and gas extraction	343
Roustabouts	1,144
Service unit operators	160
All other extractive workers, except helpers	13
 MECHANICS, INSTALLERS, AND REPAIRERS	 4,573
Communications equip. mech., install, and rep.	24
Central office and PBX installers and repairers	12
Frame wirers, central office	4
Radio mechanics	3
Signal or track switch maintainers	4
All oth. comm. equip. mech., install., and rep.	1
Electrical and elec. equip. mech./install./rep.	391
Data processing equipment repairers	17
Electrical installers and repairers, tr. equip., mfg.	2
Electrical powerline installers and repairers	4
Electric motor, transformer, and related repairers	56
Electronic home entertainment equip. repairers	84
Electronics repairers, commer. and ind. equip.	11
Station installers and repairers, telephone	29
Tel. and cable TV line installers and repairers	189
Machinery and related mech., install., and rep.	1,964
Industrial machinery mechanics	1,663
Machinery maintenance mechanics, marine equip.	1,538
Machinery maintenance mechanics, sewing mach.	11
Machinery maintenance mechanics, textile mach.	1
Machinery maintenance mechanics, water/power pl.	30
Mine machinery mechanics	21
All other machinery maintenance mechanics	62
Machinery maintenance workers	9
Maintenance repairers, general utility	201
Millwrights	91
Vehicle and mobile equip. mech. and rep.	1,102
Aircraft mechanics and engine specialists	48
Automotive body and related repairers	166
Automotive and motorcycle mechanics	535

Bus and truck mechanics and diesel eng. special	75
Farm equipment mechanics	9
Mobile heavy equipment mechanics, exc. engines	224
Rail car repairers	20
Small engine specialists	27
Other mechanics, installers, and repairers	1,092
Bicycle repairers	31
Coin and vending mach. servicers and repairers	56
Electric meter installers and repairers	3
Electromedical and biomedical equip. repairers	7
Heat., a/c, and refrig. mechanics and installers	67
Home appliance and power tool repairers	119
Locksmiths and safe repairers	4
Mech. cont. and valve installers and repairers	4
Menders, garments, linens, and related	15
Mobile home repairers	43
Musical instrument repairers and tuners	23
Office machine and cash register servicers	370
Precision instrument repairers	27
Riggers	36
Tire repairers and changers	222
Watchmakers	18
All other mechanics, installers, and repairers	45
PRECISION PRODUCTION OCCUPATIONS	2,681
Precision food workers	579
Bakers, manufacturing	197
Butchers and meat cutters	241
Food batchmakers	94
All other precision food and tobacco workers	46
Precision metal workers	1,149
Boilermakers	15
Etchers and engravers, hand or mach., precision	7
Hand workers, jewelry and related prod., precision	29
Instrument makers, precision	15
Jewelers and silversmiths	46
Layout workers, metal, precision	41
Machinists	39
Pattern and model makers, metal	2
Sheet metal workers	885
Shipfitters	36
Tool and die makers	27
All other precision metal workers	9

Precision printing workers	273
Bookbinders	25
Compositors, typesetters, and arrangers, prec.	38
Lithography and photoengraving workers, prec.	187
All other precision printing workers	23
Precision text., app., and furnishings workers	254
Custom tailors and sewers	153
Patternmakers and layout workers, fab. and app.	15
Shoe and leather workers and repairers, prec.	33
Upholsterers	33
All other prec. text., app., and furnish. wkr.	20
Precision woodworkers	163
Cabinetmakers and bench carpenters	46
Furniture finishers	22
Pattern and model makers, wood	2
Wood machinists	91
All other precision woodworkers	2
Inspectors and related occupations	109
Inspectors, testers, and graders, precision	49
Other prod. inspectors, testers, graders, & sorters	61
Other precision workers	154
Dental lab technicians, precision	49
Detail design decorators and painters, prec.	11
Foundry mold and core makers, precision	4
Molders/shapers, exc. jewel and found., prec.	3
Patternmakers, model makers, & related workers, prec.	1
Photographic process workers, precision	19
All other precision workers	66
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	3,212
Num. cont. mach. tool op. and tend., met./plas.	5
Comb. mach. tool set., set-up op., op., and tend.	24
Comb. mach. tool op. and tend., met. and plas.	18
Comb. mach. tool set. and set-up op., met./plas.	6
Mach. tool cut. & form. set./oper./tend., met. & plas.	160
Drill. mach. tool set. and set-up op., met. and pl.	7
Ext. and draw. mach. set. and set-up op., met./pl.	13
Forging mach. set. and set-up op., met./pl.	25
Grinding mach. set. and set-up op., met. and plas.	12
Lathe mach. tool set. and set-up op., met. and pl.	9
Machine forming op. and tend., met. and plas.	27
Mach. tool cut. op. and tend., met. and plas.	26



Milling mach. set. and set-up op., met. and plas.	3
Press mach. set. and set-up op., met. and plas.	6
Punch. mach. set. and set-up op., met. and plas.	21
Rolling mach. set. and set-up op., met. and plas.	2
Sawing mach. tool set. & set-up op., met. & plas.	2
Shear mach. set. and set-up op., met. and plas.	5
Met. fab. mach. set., oper., and related workers	308
Metal fabricators, structural metal products	218
Solder. and braz. mach. operators and tenders	2
Solder. and braz. mach. setters and set-up op.	1
Welding machine operators and tenders	65
Welding machine setters and set-up operators	21
Met. & pl. proc. mach. set., oper., & related workers	108
Elec. plat. mach. oper. and tend., met. and plas.	6
Elec. plat. mach. set. and set-up op., met. and pl.	4
Foundry mold assembly and shakeout workers	24
Furnace operators and tenders	7
Heaters, metal and plastic	1
Heat. equip. set. and set-up oper., met. and plas.	1
Heat treating mach. oper. and tend., met. and plas.	2
Metal molding mach. operators and tenders	4
Met. molding mach. setters and set-up operators	3
Nonel. plat. mach. oper. and tend., met. and plast.	2
Nonel. plat. mach. set. & set-up op., met. & plast.	1
Plastic molding mach. operators and tenders	41
Plas. molding mach. setters and set-up operators	12
All oth. met./pl. mach. set., oper., related workers	22
Printing, binding, and related workers	870
Bindery machine operators	89
Bindery machine setters and set-up operators	130
Printing press operators	384
Letterpress setters and set-up operators	79
Offset lithographic press setters and set-up op.	259
Printing press mach. operators and tenders	41
All oth. print. press setters & set-up operators	5
Photoeng. and lithogr. mach. oper. and tend.	12
Photoengraving and lithographing photographers	83
Screen print. mach. setters and set-up operators	14
Typesetting and composing mach. oper. and tend.	146
All other printing, binding, and related wkrs.	12
Text. & related setters, operators, & related workers	806
Ext. and forming mach. oper. and tend.. syn. fib.	19

Lau. and drycl. mach. opeer. and tend., exc. press	92
Press. mach. oper. & tend., text., gar. & related	130
Sewing maching operators, garment	383
Sewing maching operators, non-garment	67
Shoe sewing machine operators and tenders	94
Text. bleaching and dyeing mach. oper. and tend.	1
Textile draw-out mach. operators and tenders	2
Textile mach. oper. and tend., winding	14
Textile machine setters and set-up operators	4
Woodworking mach. set., oper., & oth. related workers	22
Head sawyers	1
Sawing machine operators and tenders	5
Sawing machine setters and set-up operators	2
Woodworking machine operators and tenders	10
Woodworking mach. setters and set-up operators	4
Oth. mach. set., set-up oper., oper., and tend.	887
Boiler operators and tenders, low pressure	7
Cement, and gluing mach. operators and tenders	7
Chemical equip. controllers and operators	13
Chemical equipment tenders	9
Cooking mach. oper. and tend., food and tobacco	69
Crushing and mixing mach. oper. and tend.	26
Cutting and slicing mach. operators and tenders	14
Dairy process. equip. operators, incl. setters	80
Electronic semiconductor processors	11
Extruding and forming mach. oper. and tend.	14
Furnace, kiln, or kettle operators and tenders	17
Motion picture projectionists	7
Packaging and filling mach. oper. and tend.	118
Painting machine operators and tenders	16
Painters, transportation equipment	138
Paper goods mach. setters and set-up operators	19
Photographic processing mach. oper. and tend.	22
Roasting mach. oper. and tend., food and tob.	59
Separating and still mach. oper. and tend.	12
Tire building machine operators	52
All other machine operators and tenders	157
All other machine setters and set-up operators	20
 HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	 1,344
Precision assemblers	223
Aircraft assemblers, precision	69

Electrical and electronic equip. assem., prec.	14
Electromechanical equip. assemblers, precision	43
Fitters, structural metal, precision	65
Mach. builders and oth. prec. mach. assemblers	10
Watch & clock assemblers & related workers, prec.	11
All other precision assemblers, metal	10
Oth. hand workers, incl. assemb. and fabricators	1,121
Cannery workers	44
Coil winders, tapers, and finishers	145
Cutters and trimmers, hand	15
Electrical and electronic assemblers	20
Glaziers, manufacturing	3
Machine assemblers	21
Meat, poultry, and fish cutters and trimmers, hand	500
Metal pourers and casters, basic shapes	52
Molders and casters, hand	6
Painting, coating, and decorating workers, hand	8
Portable machine cutters	13
Pressers, hand	28
Sewers, hand	10
Welders and cutters	68
All other assemblers and fabricators	138
All other hand workers	51
PLANT AND SYSTEM OCCUPATIONS	192
Auxiliary equipment operators, power	2
Chemical plant and system operators	4
Guagers	28
Petroleum refinery and control panel operators	63
Power distributors and dispatchers	9
Stationary engineers	11
Water and liq. waste treat. pl. and sys. oper.	41
All other plant and system operators	34
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	2,016
Aircraft pilots and flight engineers	16
Motor vehicle operators	803
Bus drivers	70
Bus drivers	8
Bus drivers, school	61
Taxi drivers and chauffeurs	24
Truck drivers	710

Rail transportation workers	87
Locomotive engineers	10
Locomotive firers	4
Railroad brake, signal, and switch operators	34
Railroad conductors and yardmasters	22
Rail yard engineers, dinkey op., and hostlers	15
Subway and streetcar operators	3
Water transportation and related workers	44
Captains, water vessel	9
Mates and able seamen	9
Ordinary seamen and marine oilers	15
Pilots, ship	2
Ship engineers	9
All other transportation and related workers	523
Parking lot attendants	9
Service station attendants	514
Material moving equipment operators	513
Conveyor operators and tenders	9
Hoist, winch, and crane operators	22
Industrial truck and tractor operators	64
Loading machine operators, underground mining	31
Oil pumpers, except well head	165
Operating engineers	71
Shuttle car operators	11
Tank car and truck loaders	5
Well head pumpers	135
All other transportation and mat. mov. equip. op.	29
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	4,029
Helpers, construction trades	2,033
Helpers, extractive workers	429
Machine feeders and offbearers	75
Freight, stock, and material movers, hand	645
Refuse collectors	15
All other freight, stock, and mat. movers, hand	630
All other helpers, labor., and mat. movers, hand	847
Hand packers and packagers	76
Vehicle washers and equipment cleaners	289
All oth. helpers, labor., and mat. movers, hand	482

TOTAL Ongoing Effects (New Development): Case II



The Total Potential Annual Impact of Ongoing Operations, Royalties, and Cost Savings (Case II) Associated with the Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$534,952,558	\$141,949,736	\$96,675,670	1,658
Forestry & Fishery Products	\$13,116,819	\$10,521,975	\$3,902,400	51
Coal Mining	\$47,065,868	\$13,545,596	\$14,273,882	99
Crude Petroleum & Natural Gas	\$1,218,368,488	\$266,960,715	\$123,121,942	644
Miscellaneous Mining	\$25,207,489	\$10,980,262	\$6,454,673	71
New Construction	\$84,662,033	\$36,578,815	\$30,143,209	458
Maintenance & Repair Construction	\$534,640,769	\$280,915,553	\$231,491,947	3,512
Food Products & Tobacco	\$868,073,698	\$218,538,615	\$111,639,997	2,006
Textile Mill Products	\$13,536,571	\$3,276,772	\$2,772,427	64
Apparel	\$153,812,932	\$85,129,919	\$43,136,595	1,261
Paper & Allied Products	\$154,965,059	\$69,592,412	\$31,462,215	511
Printing & Publishing	\$195,381,972	\$98,342,418	\$64,190,332	1,168
Chemicals & Petroleum Refining	\$1,203,762,543	\$212,627,492	\$99,840,967	793
Rubber & Leather Products	\$138,565,803	\$58,867,601	\$34,413,706	734
Lumber Products & Furniture	\$72,880,650	\$25,200,135	\$17,966,307	399
Stone, Clay, & Glass Products	\$99,307,848	\$52,182,238	\$27,291,528	474
Primary Metal	\$120,860,953	\$32,584,419	\$24,254,248	388
Fabricated Metal Products	\$198,602,013	\$75,074,055	\$48,467,926	890
Machinery, Except Electrical	\$167,795,158	\$68,461,790	\$48,909,395	555
Electric & Electronic Equipment	\$163,697,685	\$92,013,264	\$55,008,649	488
Motor Vehicles & Equipment	\$65,766,633	\$15,014,911	\$9,754,652	142
Transp. Equip., Exc. Motor Vehicles	\$46,975,048	\$22,051,256	\$14,409,695	179
Instruments & Related Products	\$30,142,654	\$12,804,187	\$9,732,354	128
Miscellaneous Manufacturing	\$49,296,707	\$19,279,663	\$13,297,420	222
Transportation	\$747,306,398	\$489,749,856	\$323,903,063	4,816
Communication	\$541,215,910	\$333,675,497	\$142,456,784	1,352
Electric, Gas, Water, Sanitary Services	\$3,224,110,196	\$752,536,934	\$328,387,069	1,491
Wholesale Trade	\$911,747,195	\$616,855,158	\$355,684,187	4,281
Retail Trade	\$2,769,454,328	\$2,294,808,323	\$1,372,222,035	38,719
Finance	\$372,158,682	\$191,664,137	\$111,606,575	1,065
Insurance	\$391,612,971	\$241,378,554	\$144,305,591	1,866
Real Estate	\$3,365,770,395	\$643,857,941	\$103,739,473	984
Hotels, Lodging Places, Amusements	\$376,320,311	\$192,662,856	\$126,393,457	3,311
Personal Services	\$577,961,806	\$357,013,333	\$277,762,169	5,035
Business Services	\$998,700,799	\$615,324,682	\$501,947,229	6,574
Eating & Drinking Places	\$1,306,677,967	\$765,201,409	\$407,128,016	19,811
Health Services	\$1,020,165,389	\$706,375,266	\$597,246,851	10,618
Miscellaneous Services	\$764,397,177	\$323,900,136	\$280,794,440	7,219
Households	\$48,995,251	\$25,833,648	\$25,287,018	1,881
Total	\$23,618,032,724	\$10,473,331,532	\$6,261,476,096	125,915

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group



**TOTAL Ongoing Effects (New Development):
Occupational Profile (Case II)**

Occupational Profile for the Potential Annual Impact of the Anticipated Ongoing Operations, Royalties, and Cost Savings (Case II) Associated with the Implementation of the CREZ Power Transmission Initiative on Business Activity in Texas

TOTAL, ALL OCCUPATIONS	125,915
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	9,230
Managerial and administrative occupations	6,473
Elem. & sec. sch. principals and asst. principals	130
Assistant principals	43
Principals	89
Food service and lodging managers	1,173
Postmasters and mail superintendents	35
Public admin. chief exec., legis., and gen. admin.	163
All other managers and administrators	4,972
Management support occupations	2,757
Accountants and auditors	342
Assessors	24
Claims examiners, prop. and casual. insurance	56
Compliance and enforce. inspectors, exc. const.	75
Construction and building inspectors	190
Cost estimators	898
Personnel specialists and related workers	279
Claims takers, unemployment benefits	0
Employ. interviewers, pvt. or pub. emp. serv.	192
Personnel, training, and labor related spec.	76
Special agents, insurance	10
Purchasing agents and buyers	717
Purchasing agents, exc. wh., ret., and farm pr.	59
Wholesale and retail buyers, exc. farm products	657
Tax examiners, collectors, and revenue agents	15
Tax preparers	69
Underwriters	24
All other management support workers	69
ENGINEERS, ARCHITECTS, AND SURVEYORS	613
Engineers	571
Aeronautical and astronautical engineers	29
Chemical engineers	50
Civil engineers, including traffic engineers	62
Electrical and electronics engineers	143

Industrial engineers, except safety engineers	50
Mechanical engineers	69
Matallurgists and met., cer., and mat. engineers	17
Mining engineers, inc. mine safety engineers	6
Nuclear engineers	16
Petroleum engineers	67
Other engineers	59
Safety engineers, except mining engineers	7
All other engineers	52
Architects and surveyors	42
Architects, inc. landscape architects	30
Surveyors	12
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	408
Computer systems analysts, electronic data processing	123
Life scientists	113
Agricultural and food scientists	23
Biological scientists	39
Foresters and conservation scientists	9
Medical scientists	23
All other life scientists	19
Mathematical scientists	48
Actuaries	15
Statisticians	18
Mathematicians and all other mathematical scientists	15
Physical scientists	125
Chemists	68
Geologists, geophysicists, and oceanographers	33
Meteorologists	2
Physicists and astronomers	12
All other physical scientists	9
SOCIAL SCIENTISTS	93
Economists	23
Psychologists	36
Sociologists	2
Urban and regional planners	16
All other social scientists	15
SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	505
Clergy	164
Directors, religious activities and education	64

Recreation workers	82
Social workers	196
LAWYERS AND JUDGES	75
Judges, magistrates, and other jud. workers	27
Lawyers	49
TEACHERS, LIBRARIANS, AND COUNSELORS	2,549
Teachers, preschool and elementary	258
Teachers, preschool	53
Teachers, kindergarten and elementary	205
Teachers, secondary school	1,059
College and university faculty	683
Other teachers and instructors	471
Farm and home management advisors	24
Graduate assistants, teaching	140
Instructors, adult (nonvocational) education	39
Instructors and coaches, sports and phys. train.	196
Teachers and instructors, voc. ed. and training	30
All other teachers and instructors	42
Librarians, archivists, curators, and related workers	44
Audio-visual specialists	7
Curators, archiv., museum techn., and restorers	4
Librarians, professional	33
Counselors	33
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	2,849
Chiropractors	36
Dentists	77
Dietitians and nutritionists	46
Opticians, dispensing and measuring	142
Optometrists	37
Pharmacists	373
Podiatrists	7
Physician assistants	56
Physicians and surgeons	369
Registered nurses	1,319
Therapists	359
Occupational therapists	23
Physical therapists	57
Recreational therapists	18
Respiratory therapists	198

Speech pathologists and audiologists	46
All other therapists	18
Veterinarians and veterinary inspectors	28
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	1,029
Artists and commercial artists	123
Athletes, coaches, umpires, and related workers	41
Dancers and choreographers	19
Designers, except interior designers	139
Merchandise displayers and window trimmers	78
Musicians	129
Music dir., singers, composers, and related workers	25
Musicians, instrumental	104
Photographers and camera operators	74
Camera operators, television and motion picture	7
Photographers	68
Producers, directors, actors, and entertainers	59
Public related specialists and publicity writers	34
Radio and TV announcers and newscasters	28
Announcers, radio and television	25
Broadcast news analysts	3
Reporters and correspondents	239
Writers and editors, inc. tech. writers	64
TECHNICIAN OCCUPATIONS	2,774
Health technicians and technologists	1,644
Dental hygienists	89
Dietetic technicians	57
Electrocardiograph technicians/technologists	43
Electroencephalograph technicians/technologists	21
Emergency medical technicians	50
Licensed practical nurses	603
Medical and clinical lab technol. and techn.	260
Medical and clinical laboratory technicians	106
Medical and clinical laboratory technologists	154
Medical records technicians and technologists	40
Radiologic technologists and technicians	258
Surgical technicians	127
All other health prof. and paraprofessionals	97
Engineering and science technicians and technologists	769
Engineering technicians	379
Civil engineering technicians and technologists	36

Electrical and electronic technicians/technol.	246
Industrial engineering technicians and technol.	10
Mechanical engineering technicians and technol.	38
All other engineering technicians and technol.	48
Drafters	103
Phys. and life sci. technicians/technologists	286
Petroleum technicians and technologists	143
All other science technicians and technologists	143
Technicians, exc. health and engineering and science	362
Air traffic controllers	27
Broadcast technicians	13
Computer programmers	145
Legal assistants and technicians, exc. clerical	80
Law clerks	16
Paralegal personnel	23
Title examiners, searchers, and clerks	41
Programmers, numerical, tool, and proc. control	5
Radio operators	1
Technical assistants, library	27
All other technicians	64
ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	216
MARKETING AND SALES OCCUPATIONS	15,529
Cashiers	3,776
Counter and rental clerks	219
Insurance sales workers	67
Real estate agents and brokers	140
Brokers, real estate	11
Sales agents, real estate	129
Real estate appraisers	9
Salespersons, retail	5,369
Securities and financial services sales workers	31
Stock clerks, sales floor	1,763
Travel agents	61
All other sales and related workers	4,094
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL	13,732
Adjusters and investigators	441
Adjustment clerks	143
Bill and account collectors	77
Ins. adjusters, examiners, and investigators	26

Insurance appraisers, auto damage	125
Insurance claims clerks	11
Insurance examining clerks	3
Insurance policy processing clerks	14
License clerks	9
Welfare eligibility workers and interviewers	34
Communications equipment operators	301
Telephone operators	258
Central office operators	31
Directory assistance operators	13
Switchboard operators	214
Telegraph and teletype operators	2
All other communications equipment operators	41
Computer operators and peripheral equipment operators	152
Computer operators, exc. peripheral equipment	109
Peripheral EDP equipment operators	43
Duplicating, mail, and other office machine operators	83
Duplicating machine operators	20
Transit clerks	4
All other office machine operators	59
Financial records processing occupations	1,565
Billing, cost, and rate clerks	175
Billing, posting, and calc. mach. operators	91
Bookkeeping, accounting, and auditing clerks	1,195
Payroll and timekeeping clerks	104
Information clerks	1,402
Hotel desk clerks	747
New accounts clerks	299
Receptionists and information clerks	318
Reservation & trans. ticket agents & travel clerks	38
Reservation and transportation ticket agents	22
Travel clerks	16
Mail and message distribution workers	835
Mail clerks, exc. mail mach. op. and postal serv.	60
Messengers	56
Postal mail carriers	349
Postal service clerks	370
Mat. rec., sched., disp., and dist. occupations	2,018
Dispatchers	174
Dispatchers, exc. police, fire, and ambulance	148
Dispatchers, police, fire, and ambulance	26
Meter readers, utilities	29

Order fillers, wholesale and retail sales	285
Procurement clerks	26
Production, planning, and expediting clerks	54
Stock clerks, stockroom, warehouse, or yard	710
Traffic, shipping, and receiving clerks	471
Transportation agents	17
Weighers, meas., check., and samp., recordkeep.	29
All other mat. rec., sched., and dist. workers	225
Records processing occupations, exc. financial	708
Advertising clerks	175
Brokerage clerks	27
File clerks	128
Library assistants and bookmobile drivers	56
Order clerks, materials, merch., and service	214
Personnel clerks, exc. payroll and timekeeping	51
Statement clerks	56
Secretaries, stenographers, and typists	1,443
Secretaries	1,095
Stenographers	56
Typists	293
Other clerical and administrative support workers	4,785
Court clerks	49
Credit authorizers	78
Credit checkers	104
Customer service representatives, utilities	21
Data entry keyers, exc. composing	134
Data keyers, composing	744
General office clerks	1,237
Loan and credit clerks	45
Municipal clerks	25
Proofreaders and copy markers	94
Real estate clerks	10
Statistical clerks	64
Teacher aides and educational assistants	89
Tellers	1,369
All other clerical and admin. support workers	721
SERVICE WORKERS	27,456
Clean. and bldg. serv. occup., exc. pvt. hshld.	1,691
Janitors and cleaners, inc. maids/hskpg. clean.	1,579
Pest controllers and assistants	112

Food and beverage prep. and service occupations	15,804
Bakers, bread and pastry	264
Bartenders	942
Cooks, except short order	1,480
Cooks, institution or cafeteria	207
Cooks, restaurant	1,273
Cooks, sh. order and spec. fast food	1,199
Din. rm. and cafet. attendants and bar. helpers	673
Food preparation and service workers, fast food	3,691
Food preparation workers	2,032
Hosts and hostesses, rest./lounge/coffee shop	409
Waiters and waitresses	4,156
All other food service workers	960
Health service and related occupations	2,035
Ambulance drivers and attendants, except EMTs	21
Dental assistants	388
Medical assistants	194
Nursing aides and psychiatric aides	1,167
Nursing aides, orderlies, and attendants	1,088
Psychiatric aides	80
Occupational therapy assistants and aides	10
Pharmacy assistants	132
Phys. and correct. therapy assistants and aides	122
Personal service occupations	1,198
Amusement and recreation attendants	239
Baggage porters and bellhops	13
Barbers	62
Child care workers	82
Cosmetologists and related workers	610
Hairdressers, hairstylists, and cosmetologists	464
Manicurists	62
Shampooers	84
Flight attendants	60
Guides	15
Social welfare service aides	70
Ushers, lobby attendants, and ticket takers	47
Private household workers	4,468
Cooks, private household	103
Housekeepers and butlers	193
Child care workers, private household	1,774
Cleaners and servants, private household	2,397



Protective service occupations	1,616
Correction officers and jailers	65
Fire fighting occupations	385
Fire fighters	301
Fire fighting and prevention supervisors	74
Fire inspectors	10
Police and detectives	563
Police and detective supervisors	108
Police detectives and investigators	48
Police patrol officers	407
Sheriffs and other law enforcement workers	47
Bailiffs	7
Fish and game wardens	1
Parking enforcement officers	8
Sheriffs, deputy sheriffs, and U.S. marshalls	31
Other protective service workers	556
Crossing guards	4
Detectives and investigators, except public	108
Guards	383
All other protective service workers	62
All other service occupations	644
Housekeepers, institutional	149
All other service workers	495
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	1,752
Supervisors, farming, forestry, and ag. related occ.	91
Agriculture related occupations	470
Animal caretakers, except farm	58
Gardeners and groundskeepers, except farm	322
Graders and sorters, agricultural products	90
Farm occupations	915
Farm workers	894
Nursery workers	21
Farm operators and managers	145
Farmers	40
Farm managers	105
Fishers, hunters, and trappers	22
Captains and other officers, fishing vessels	3
Fishers, hunters, and trappers	19
Forestry and logging occupations	105
Choke setters	42
Fallers and buckers	2



Forest and conservation workers	18
Logging tractor operators	8
Log graders and scalers	20
Log handling equipment operators	3
All oth. timber cut. and related logging workers	12
All oth. agric., forest., fish., and related wkrs.	4
BLUE COLLAR WORKER SUPERVISORS	454
CONSTRUCTION TRADES	5,867
Air hammer operators	65
Bricklayers and stone masons	184
Brick masons	94
Stone masons	90
Carpenters	263
Carpet installers	83
Coil. tile installers and acoustical carpenters	44
Concrete and terrazzo finishers	93
Drywall installers and finishers	2,257
Drywall installers	1,289
Tapers	671
Lathers	296
Electricians	395
Fence erectors	224
Glaziers	181
Hard tile setters	27
Highway maintenance workers	127
Insulation workers	63
Painters and paperhangers, const. and maint.	176
Pipelayers	46
Pipelaying fitters	222
Plasterers	408
Plumbers, pipefitters, and steamfitters	280
Rail-track laying and maint. equip. operators	14
Roofers	104
Septic tank servicers and sewer pipe cleaners	21
Structural and reinforcing metal workers	538
Reinforcing metal workers	481
Structural metal workers	56
All other construction trades workers	54

EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	3,988
Blasters and explosives workers	12
Continuous mining machine operators	16
Derrick operators, oil and gas extraction	450
Mine cutting and channeling machine operators	50
Roof bolters	17
Rotary drill operators, oil and gas extraction	713
Roustabouts	2,373
Service unit operators	330
All other extractive workers, except helpers	27
 MECHANICS, INSTALLERS, AND REPAIRERS	 9,300
Communications equip. mech., install, and rep.	39
Central office and PBX installers and repairers	18
Frame wirers, central office	6
Radio mechanics	6
Signal or track switch maintainers	7
All oth. comm. equip. mech., install., and rep.	2
Electrical and elec. equip. mech./install./rep.	773
Data processing equipment repairers	34
Electrical installers and repairers, tr. equip., mfg.	4
Electrical powerline installers and repairers	6
Electric motor, transformer, and related repairers	113
Electronic home entertainment equip. repairers	173
Electronics repairers, commer. and ind. equip.	19
Station installers and repairers, telephone	44
Tel. and cable TV line installers and repairers	380
Machinery and related mech., install., and rep.	3,911
Industrial machinery mechanics	3,292
Machinery maintenance mechanics, marine equip.	3,040
Machinery maintenance mechanics, sewing mach.	22
Machinery maintenance mechanics, textile mach.	3
Machinery maintenance mechanics, water/power pl.	58
Mine machinery mechanics	44
All other machinery maintenance mechanics	125
Machinery maintenance workers	18
Maintenance repairers, general utility	410
Millwrights	191
Vehicle and mobile equip. mech. and rep.	2,300
Aircraft mechanics and engine specialists	86
Automotive body and related repairers	351
Automotive and motorcycle mechanics	1,127

Bus and truck mechanics and diesel eng. special	153
Farm equipment mechanics	18
Mobile heavy equipment mechanics, exc. engines	473
Rail car repairers	35
Small engine specialists	56
Other mechanics, installers, and repairers	2,277
Bicycle repairers	63
Coin and vending mach. servicers and repairers	113
Electric meter installers and repairers	4
Electromedical and biomedical equip. repairers	15
Heat., a/c, and refrig. mechanics and installers	139
Home appliance and power tool repairers	250
Locksmiths and safe repairers	9
Mech. cont. and valve installers and repairers	6
Menders, garments, linens, and related	30
Mobile home repairers	89
Musical instrument repairers and tuners	48
Office machine and cash register servicers	784
Precision instrument repairers	53
Riggers	76
Tire repairers and changers	469
Watchmakers	36
All other mechanics, installers, and repairers	93
PRECISION PRODUCTION OCCUPATIONS	5,508
Precision food workers	1,173
Bakers, manufacturing	397
Butchers and meat cutters	499
Food batchmakers	184
All other precision food and tobacco workers	92
Precision metal workers	2,398
Boilermakers	30
Etchers and engravers, hand or mach., precision	13
Hand workers, jewelry and related prod., precision	56
Instrument makers, precision	29
Jewelers and silversmiths	93
Layout workers, metal, precision	85
Machinists	77
Pattern and model makers, metal	4
Sheet metal workers	1,867
Shipfitters	72
Tool and die makers	53
All other precision metal workers	18



Precision printing workers	548
Bookbinders	51
Compositors, typesetters, and arrangers, prec.	77
Lithography and photoengraving workers, prec.	375
All other precision printing workers	45
Precision text., app., and furnishings workers	524
Custom tailors and sewers	322
Patternmakers and layout workers, fab. and app.	29
Shoe and leather workers and repairers, prec.	66
Upholsterers	67
All other prec. text., app., and furnish. wkr.	40
Precision woodworkers	336
Cabinetmakers and bench carpenters	94
Furniture finishers	45
Pattern and model makers, wood	4
Wood machinists	189
All other precision woodworkers	3
Inspectors and related occupations	219
Inspectors, testers, and graders, precision	99
Other prod. inspectors, testers, graders, & sorters	120
Other precision workers	311
Dental lab technicians, precision	99
Detail design decorators and painters, prec.	22
Foundry mold and core makers, precision	7
Molders/shapers, exc. jewel and found., prec.	5
Patternmakers, model makers, & related workers, prec.	3
Photographic process workers, precision	39
All other precision workers	135
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	6,422
Num. cont. mach. tool op. and tend., met./plas.	9
Comb. mach. tool set., set-up op., op., and tend.	44
Comb. mach. tool op. and tend., met. and plas.	32
Comb. mach. tool set. and set-up op., met./plas.	12
Mach. tool cut. & form. set./oper./tend., met. & plas.	313
Drill. mach. tool set. and set-up op., met. and pl.	13
Ext. and draw. mach. set. and set-up op., met./pl.	26
Forging mach. set. and set-up op., met./pl.	49
Grinding mach. set. and set-up op., met. and plas.	25
Lathe mach. tool set. and set-up op., met. and pl.	18
Machine forming op. and tend., met. and plas.	52
Mach. tool cut. op. and tend., met. and plas.	52

Milling mach. set. and set-up op., met. and plas.	5
Press mach. set. and set-up op., met. and plas.	12
Punch. mach. set. and set-up op., met. and plas.	41
Rolling mach. set. and set-up op., met. and plas.	5
Sawing mach. tool set. & set-up op., met. & plas.	5
Shear mach. set. and set-up op., met. and plas.	10
Met. fab. mach. set., oper., and related workers	617
Metal fabricators, structural metal products	442
Solder. and braz. mach. operators and tenders	4
Solder. and braz. mach. setters and set-up op.	3
Welding machine operators and tenders	127
Welding machine setters and set-up operators	41
Met. & pl. proc. mach. set., oper., & related workers	213
Elec. plat. mach. oper. and tend., met. and plas.	11
Elec. plat. mach. set. and set-up op., met. and pl.	9
Foundry mold assembly and shakeout workers	47
Furnace operators and tenders	13
Heaters, metal and plastic	2
Heat. equip. set. and set-up oper., met. and plas.	2
Heat treating mach. oper. and tend., met. and plas.	5
Metal molding mach. operators and tenders	8
Met. molding mach. setters and set-up operators	6
Nonel. plat. mach. oper. and tend., met. and plast.	5
Nonel. plat. mach. set. & set-up op., met. & plast.	2
Plastic molding mach. operators and tenders	80
Plas. molding mach. setters and set-up operators	24
All oth. met./pl. mach. set., oper., related workers	42
Printing, binding, and related workers	1,737
Bindery machine operators	178
Bindery machine setters and set-up operators	255
Printing press operators	771
Letterpress setters and set-up operators	158
Offset lithographic press setters and set-up op.	519
Printing press mach. operators and tenders	84
All oth. print. press setters & set-up operators	9
Photoeng. and lithogr. mach. oper. and tend.	23
Photoengraving and lithographing photographers	166
Screen print. mach. setters and set-up operators	27
Typesetting and composing mach. oper. and tend.	292
All other printing, binding, and related wkrs.	24
Text. & related setters, operators, & related workers	1,615
Ext. and forming mach. oper. and tend.. syn. fib.	37

Lau. and drycl. mach. opeer. and tend., exc. press	186
Press. mach. oper. & tend., text., gar. & related	259
Sewing maching operators, garment	770
Sewing maching operators, non-garment	137
Shoe sewing machine operators and tenders	183
Text. bleaching and dyeing mach. oper. and tend.	3
Textile draw-out mach. operators and tenders	5
Textile mach. oper. and tend., winding	28
Textile machine setters and set-up operators	8
Woodworking mach. set., oper., & oth. related workers	44
Head sawyers	3
Sawing machine operators and tenders	11
Sawing machine setters and set-up operators	4
Woodworking machine operators and tenders	19
Woodworking mach. setters and set-up operators	8
Oth. mach. set., set-up oper., oper., and tend.	1,789
Boiler operators and tenders, low pressure	13
Cement, and gluing mach. operators and tenders	14
Chemical equip. controllers and operators	27
Chemical equipment tenders	17
Cooking mach. oper. and tend., food and tobacco	136
Crushing and mixing mach. oper. and tend.	54
Cutting and slicing mach. operators and tenders	29
Dairy process. equip. operators, incl. setters	156
Electronic semiconductor processors	22
Extruding and forming mach. oper. and tend.	27
Furnace, kiln, or kettle operators and tenders	34
Motion picture projectionists	15
Packaging and filling mach. oper. and tend.	243
Painting machine operators and tenders	31
Painters, transportation equipment	284
Paper goods mach. setters and set-up operators	38
Photographic processing mach. oper. and tend.	43
Roasting mach. oper. and tend., food and tob.	116
Separating and still mach. oper. and tend.	24
Tire building machine operators	101
All other machine operators and tenders	324
All other machine setters and set-up operators	40
HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	2,656
Precision assemblers	440
Aircraft assemblers, precision	139

Electrical and electronic equip. assem., prec.	28
Electromechanical equip. assemblers, precision	85
Fitters, structural metal, precision	127
Mach. builders and oth. prec. mach. assemblers	19
Watch & clock assemblers & related workers, prec.	21
All other precision assemblers, metal	20
Oth. hand workers, incl. assemb. and fabricators	2,216
Cannery workers	87
Coil winders, tapers, and finishers	284
Cutters and trimmers, hand	29
Electrical and electronic assemblers	40
Glaziers, manufacturing	6
Machine assemblers	41
Meat, poultry, and fish cutters and trimmers, hand	982
Metal pourers and casters, basic shapes	101
Molders and casters, hand	12
Painting, coating, and decorating workers, hand	17
Portable machine cutters	25
Pressers, hand	55
Sewers, hand	19
Welders and cutters	138
All other assemblers and fabricators	278
All other hand workers	103
PLANT AND SYSTEM OCCUPATIONS	377
Auxiliary equipment operators, power	2
Chemical plant and system operators	9
Guagers	59
Petroleum refinery and control panel operators	123
Power distributors and dispatchers	14
Stationary engineers	22
Water and liq. waste treat. pl. and sys. oper.	77
All other plant and system operators	71
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	4,119
Aircraft pilots and flight engineers	32
Motor vehicle operators	1,620
Bus drivers	125
Bus drivers	16
Bus drivers, school	109
Taxi drivers and chauffeurs	48
Truck drivers	1,447

Rail transportation workers	157
Locomotive engineers	17
Locomotive firers	6
Railroad brake, signal, and switch operators	60
Railroad conductors and yardmasters	40
Rail yard engineers, dinkey op., and hostlers	28
Subway and streetcar operators	6
Water transportation and related workers	81
Captains, water vessel	16
Mates and able seamen	17
Ordinary seamen and marine oilers	27
Pilots, ship	3
Ship engineers	18
All other transportation and related workers	1,104
Parking lot attendants	18
Service station attendants	1,087
Material moving equipment operators	1,065
Conveyor operators and tenders	19
Hoist, winch, and crane operators	46
Industrial truck and tractor operators	129
Loading machine operators, underground mining	64
Oil pumpers, except well head	348
Operating engineers	147
Shuttle car operators	23
Tank car and truck loaders	11
Well head pumpers	277
All other transportation and mat. mov. equip. op.	60
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	8,411
Helpers, construction trades	4,293
Helpers, extractive workers	885
Machine feeders and offbearers	147
Freight, stock, and material movers, hand	1,345
Refuse collectors	26
All other freight, stock, and mat. movers, hand	1,319
All other helpers, labor., and mat. movers, hand	1,741
Hand packers and packagers	151
Vehicle washers and equipment cleaners	603
All oth. helpers, labor., and mat. movers, hand	987

Potential Economic Development

**The Total Annual Impact of Current Renewable Energy
Equipment Manufacturing (Wind and Solar) on
Business Activity in Texas*—Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$12,212,253	\$3,257,433	\$2,218,496	38
Forestry & Fishery Products	\$275,216	\$212,078	\$78,660	1
Coal Mining	\$1,990,156	\$584,362	\$615,778	4
Crude Petroleum & Natural Gas	\$10,527,543	\$2,304,402	\$1,062,789	5
Miscellaneous Mining	\$726,132	\$280,228	\$164,728	2
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$14,965,648	\$8,007,954	\$6,599,054	100
Food Products & Tobacco	\$29,966,712	\$7,742,815	\$3,955,400	71
Textile Mill Products	\$779,897	\$180,826	\$152,996	4
Apparel	\$6,037,132	\$3,351,448	\$1,698,230	50
Paper & Allied Products	\$9,313,001	\$4,213,645	\$1,904,960	31
Printing & Publishing	\$6,578,054	\$3,270,023	\$2,134,417	39
Chemicals & Petroleum Refining	\$41,570,581	\$8,450,535	\$3,968,014	31
Rubber & Leather Products	\$10,114,159	\$4,178,999	\$2,443,023	52
Lumber Products & Furniture	\$2,041,960	\$699,324	\$498,577	11
Stone, Clay, & Glass Products	\$2,341,960	\$1,250,265	\$653,894	11
Primary Metal	\$33,987,840	\$9,332,923	\$6,946,969	112
Fabricated Metal Products	\$202,790,472	\$93,530,961	\$60,383,712	1,113
Machinery, Except Electrical	\$100,328,665	\$40,629,968	\$29,026,220	333
Electric & Electronic Equipment	\$86,462,374	\$33,012,894	\$19,736,231	176
Motor Vehicles & Equipment	\$2,145,707	\$466,488	\$303,061	4
Transp. Equip., Exc. Motor Vehicles	\$1,299,512	\$566,559	\$370,227	4
Instruments & Related Products	\$811,635	\$344,544	\$261,884	3
Miscellaneous Manufacturing	\$1,713,815	\$672,788	\$464,033	8
Transportation	\$26,672,400	\$17,709,231	\$11,712,256	174
Communication	\$16,221,880	\$10,008,934	\$4,273,139	41
Electric, Gas, Water, Sanitary Services	\$42,501,973	\$9,577,255	\$4,179,260	19
Wholesale Trade	\$40,660,134	\$27,517,263	\$15,866,700	191
Retail Trade	\$70,772,263	\$58,631,128	\$35,059,538	989
Finance	\$12,683,842	\$6,874,320	\$4,002,934	38
Insurance	\$14,219,724	\$8,499,141	\$5,081,122	66
Real Estate	\$79,874,270	\$11,612,930	\$1,871,094	18
Hotels, Lodging Places, Amusements	\$8,052,055	\$4,202,708	\$2,757,122	72
Personal Services	\$15,277,859	\$9,407,881	\$7,319,486	133
Business Services	\$28,860,972	\$17,631,477	\$14,382,767	188
Eating & Drinking Places	\$35,474,166	\$20,788,890	\$11,060,797	538
Health Services	\$24,946,929	\$17,465,698	\$14,767,410	263
Miscellaneous Services	\$21,799,717	\$9,105,307	\$7,893,546	203
Households	\$1,194,878	\$1,194,878	\$1,169,598	87
Total	\$1,018,193,484	\$456,768,502	\$287,038,123	5,226

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

*Assumes that present growth rates anticipated by the US Department of Energy are achieved in wind and solar energy production and manufacturing and that Texas captures a share equivalent to its share of microelectronics following the location of major catalytic facilities (Microelectronics and Computer Technology Corporation and Sematech).



**The Incremental Annual Impact of Renewable Energy Equipment Manufacturing
(Wind and Solar) Assuming that the Implementation of the Competitive Renewable
Energy Zone (CREZ) Transmission Investment Initiative and Associated Generation
Facilities Serve as a Catalyst for Substantial Industry Development on Business
Activity in Texas (as of 2020)*—Detailed Industrial Category**

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$100,360,971	\$26,786,770	\$18,243,290	315
Forestry & Fishery Products	\$2,220,821	\$1,763,202	\$653,954	8
Coal Mining	\$15,363,889	\$4,471,461	\$4,711,864	32
Crude Petroleum & Natural Gas	\$91,237,447	\$19,949,141	\$9,200,525	47
Miscellaneous Mining	\$7,849,160	\$3,012,684	\$1,770,973	20
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$126,638,265	\$67,924,963	\$55,974,405	851
Food Products & Tobacco	\$245,941,455	\$63,580,537	\$32,479,978	584
Textile Mill Products	\$7,276,796	\$1,719,854	\$1,455,154	34
Apparel	\$49,524,154	\$27,434,100	\$13,901,269	409
Paper & Allied Products	\$65,070,015	\$29,285,882	\$13,239,942	216
Printing & Publishing	\$53,120,275	\$26,364,420	\$17,208,659	315
Chemicals & Petroleum Refining	\$389,831,659	\$83,255,975	\$39,093,500	311
Rubber & Leather Products	\$84,750,545	\$35,345,720	\$20,662,936	443
Lumber Products & Furniture	\$16,518,437	\$5,733,289	\$4,087,510	90
Stone, Clay, & Glass Products	\$62,509,840	\$38,136,739	\$19,945,674	349
Primary Metal	\$258,479,686	\$72,205,775	\$53,746,438	869
Fabricated Metal Products	\$845,199,907	\$386,170,497	\$249,312,174	4,596
Machinery, Except Electrical	\$1,321,864,901	\$534,201,294	\$381,635,637	4,373
Electric & Electronic Equipment	\$1,127,149,412	\$428,379,323	\$256,099,737	2,288
Motor Vehicles & Equipment	\$17,813,415	\$3,872,853	\$2,516,066	36
Transp. Equip., Exc. Motor Vehicles	\$12,202,005	\$5,362,081	\$3,503,937	44
Instruments & Related Products	\$6,884,389	\$2,882,580	\$2,191,011	28
Miscellaneous Manufacturing	\$14,096,614	\$5,521,912	\$3,808,533	64
Transportation	\$222,452,472	\$147,330,397	\$97,439,075	1,449
Communication	\$132,905,117	\$82,053,694	\$35,031,371	335
Electric, Gas, Water, Sanitary Services	\$356,625,318	\$80,215,635	\$35,003,965	160
Wholesale Trade	\$342,561,984	\$231,742,667	\$133,624,887	1,608
Retail Trade	\$580,826,969	\$481,213,001	\$287,749,978	8,120
Finance	\$106,553,570	\$58,075,435	\$33,817,489	323
Insurance	\$115,032,681	\$68,776,674	\$41,117,404	533
Real Estate	\$655,483,731	\$95,449,212	\$15,378,933	147
Hotels, Lodging Places, Amusements	\$64,936,579	\$33,928,707	\$22,258,407	584
Personal Services	\$125,355,049	\$77,158,043	\$60,030,217	1,089
Business Services	\$240,321,245	\$146,566,836	\$119,560,980	1,565
Eating & Drinking Places	\$290,970,681	\$170,480,857	\$90,704,914	4,413
Health Services	\$204,706,312	\$143,278,130	\$121,142,990	2,154
Miscellaneous Services	\$179,629,918	\$75,004,158	\$65,022,371	1,671
Households	\$9,738,128	\$9,738,128	\$9,532,078	709
Total	\$8,550,003,812	\$3,774,372,625	\$2,372,858,224	41,181

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

*Assumes that present growth rates anticipated by the US Department of Energy are achieved in wind and solar energy production and manufacturing and that Texas captures a share equivalent to its share of microelectronics following the location of major catalytic facilities (Microelectronics and Computer Technology Corporation and Sematech).



The Total Annual Impact of Renewable Energy Equipment Manufacturing (Wind and Solar) Assuming that the Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative and Associated Generation Facilities Serve as a Catalyst for Substantial Industry Development on Business Activity in Texas (as of 2020)*—Detailed Industrial Category

Category	Total Expenditures (2009 Dollars)	Gross Product (2009 Dollars)	Personal Income (2009 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	\$112,573,225	\$30,044,203	\$20,461,786	353
Forestry & Fishery Products	\$2,496,037	\$1,975,279	\$732,614	8
Coal Mining	\$17,354,044	\$5,055,822	\$5,327,643	37
Crude Petroleum & Natural Gas	\$101,764,990	\$22,253,543	\$10,263,314	52
Miscellaneous Mining	\$8,575,292	\$3,292,912	\$1,935,701	22
New Construction	\$0	\$0	\$0	0
Maintenance & Repair Construction	\$141,603,913	\$75,932,916	\$62,573,459	952
Food Products & Tobacco	\$275,908,167	\$71,323,352	\$36,435,378	655
Textile Mill Products	\$8,056,692	\$1,900,680	\$1,608,150	38
Apparel	\$55,561,285	\$30,785,548	\$15,599,499	458
Paper & Allied Products	\$74,383,016	\$33,499,526	\$15,144,902	247
Printing & Publishing	\$59,698,329	\$29,634,443	\$19,343,076	354
Chemicals & Petroleum Refining	\$431,402,240	\$91,706,510	\$43,061,514	342
Rubber & Leather Products	\$94,864,704	\$39,524,718	\$23,105,959	495
Lumber Products & Furniture	\$18,560,397	\$6,432,613	\$4,586,087	101
Stone, Clay, & Glass Products	\$64,851,800	\$39,387,004	\$20,599,568	361
Primary Metal	\$292,467,525	\$81,538,698	\$60,693,407	981
Fabricated Metal Products	\$1,047,990,379	\$479,701,458	\$309,695,886	5,709
Machinery, Except Electrical	\$1,422,193,565	\$574,831,262	\$410,661,857	4,705
Electric & Electronic Equipment	\$1,213,611,786	\$461,392,217	\$275,835,969	2,465
Motor Vehicles & Equipment	\$19,959,122	\$4,339,341	\$2,819,127	41
Transp. Equip., Exc. Motor Vehicles	\$13,501,517	\$5,928,640	\$3,874,163	49
Instruments & Related Products	\$7,696,024	\$3,227,124	\$2,452,895	32
Miscellaneous Manufacturing	\$15,810,429	\$6,194,700	\$4,272,566	72
Transportation	\$249,124,872	\$165,039,629	\$109,151,330	1,623
Communication	\$149,126,997	\$92,062,628	\$39,304,509	376
Electric, Gas, Water, Sanitary Services	\$399,127,291	\$89,792,890	\$39,183,225	179
Wholesale Trade	\$383,222,118	\$259,259,930	\$149,491,586	1,799
Retail Trade	\$651,599,233	\$539,844,129	\$322,809,516	9,109
Finance	\$119,237,413	\$64,949,754	\$37,820,424	362
Insurance	\$129,252,406	\$77,275,815	\$46,198,526	598
Real Estate	\$735,358,001	\$107,062,142	\$17,250,027	165
Hotels, Lodging Places, Amusements	\$72,988,634	\$38,131,415	\$25,015,529	657
Personal Services	\$140,632,908	\$86,565,924	\$67,349,703	1,221
Business Services	\$269,182,218	\$164,198,313	\$133,943,747	1,753
Eating & Drinking Places	\$326,444,847	\$191,269,748	\$101,765,711	4,951
Health Services	\$229,653,241	\$160,743,828	\$135,910,399	2,417
Miscellaneous Services	\$201,429,635	\$84,109,465	\$72,915,917	1,874
Households	\$10,933,006	\$10,933,006	\$10,701,676	796
Total	\$9,568,197,297	\$4,231,141,127	\$2,659,896,347	46,407

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

*Assumes that present growth rates anticipated by the US Department of Energy are achieved in wind and solar energy production and manufacturing and that Texas captures a share equivalent to its share of microelectronics following the location of major catalytic facilities (Microelectronics and Computer Technology Corporation and Sematech).



Potential Economic Development: Occupational Profile



Occupational Profile for the Total Annual Impact of Renewable Energy Equipment Manufacturing (Wind and Solar) Assuming that the Implementation of the Competitive Renewable Energy Zone (CREZ) Transmission Investment Initiative and Associated Generation Facilities Serve as a Catalyst for Substantial Industry Development on Business Activity in Texas

TOTAL, ALL OCCUPATIONS	46,407
MANAGERIAL AND MANAGEMENT RELATED OCCUPATIONS	3,171
Managerial and administrative occupations	2,113
Elem. & sec. sch. principals and asst. principals	34
Assistant principals	11
Principals	23
Food service and lodging managers	293
Postmasters and mail superintendents	10
Public admin. chief exec., legis., and gen. admin.	47
All other managers and administrators	1,729
Management support occupations	1,058
Accountants and auditors	148
Assessors	7
Claims examiners, prop. and casual. insurance	37
Compliance and enforce. inspectors, exc. const.	21
Construction and building inspectors	48
Cost estimators	239
Personnel specialists and related workers	87
Claims takers, unemployment benefits	0
Employ. interviewers, pvt. or pub. emp. serv.	47
Personnel, training, and labor related spec.	36
Special agents, insurance	4
Purchasing agents and buyers	348
Purchasing agents, exc. wh., ret., and farm pr.	50
Wholesale and retail buyers, exc. farm products	298
Tax examiners, collectors, and revenue agents	4
Tax preparers	20
Underwriters	11
All other management support workers	89
ENGINEERS, ARCHITECTS, AND SURVEYORS	537
Engineers	525
Aeronautical and astronautical engineers	13
Chemical engineers	19

Civil engineers, including traffic engineers	20
Electrical and electronics engineers	193
Industrial engineers, except safety engineers	67
Mechanical engineers	119
Matallurgists and met., cer., and mat. engineers	11
Mining engineers, inc. mine safety engineers	2
Nuclear engineers	6
Petroleum engineers	14
Other engineers	62
Safety engineers, except mining engineers	5
All other engineers	57
Architects and surveyors	12
Architects, inc. landscape architects	8
Surveyors	3
NATURAL, COMPUTER, AND MATHEMATICAL SCIENTISTS	187
Computer systems analysts, electronic data processing	66
Life scientists	62
Agricultural and food scientists	8
Biological scientists	29
Foresters and conservation scientists	5
Medical scientists	16
All other life scientists	5
Mathematical scientists	22
Actuaries	9
Statisticians	8
Mathematicians and all other mathematical scientists	5
Physical scientists	36
Chemists	22
Geologists, geophysicists, and oceanographers	5
Meteorologists	1
Physicists and astronomers	5
All other physical scientists	3
SOCIAL SCIENTISTS	26
Economists	7
Psychologists	9
Sociologists	1
Urban and regional planners	5
All other social scientists	4



SOCIAL, RECREATIONAL, AND RELIGIOUS WORKERS	137
Clergy	43
Directors, religious activities and education	18
Recreation workers	25
Social workers	51
LAWYERS AND JUDGES	27
Judges, magistrates, and other jud. workers	8
Lawyers	19
TEACHERS, LIBRARIANS, AND COUNSELORS	672
Teachers, preschool and elementary	67
Teachers, preschool	14
Teachers, kindergarten and elementary	53
Teachers, secondary school	277
College and university faculty	179
Other teachers and instructors	128
Farm and home management advisors	6
Graduate assistants, teaching	37
Instructors, adult (nonvocational) education	11
Instructors and coaches, sports and phys. train.	53
Teachers and instructors, voc. ed. and training	11
All other teachers and instructors	10
Librarians, archivists, curators, and related workers	13
Audio-visual specialists	2
Curators, archiv., museum techn., and restorers	1
Librarians, professional	10
Counselors	9
HEALTH DIAGNOSING AND TREATING OCCUPATIONS	769
Chiropractors	9
Dentists	18
Dietitians and nutritionists	11
Opticians, dispensing and measuring	98
Optometrists	13
Pharmacists	108
Podiatrists	2
Physician assistants	14
Physicians and surgeons	88
Registered nurses	309

Therapists	91
Occupational therapists	5
Physical therapists	13
Recreational therapists	4
Respiratory therapists	52
Speech pathologists and audiologists	12
All other therapists	4
Veterinarians and veterinary inspectors	7
WRITERS, ARTISTS, ENTERTAINERS, AND ATHLETES	565
Artists and commercial artists	83
Athletes, coaches, umpires, and related workers	11
Dancers and choreographers	10
Designers, except interior designers	45
Merchandise displayers and window trimmers	20
Musicians	39
Music dir., singers, composers, and related workers	11
Musicians, instrumental	29
Photographers and camera operators	41
Camera operators, television and motion picture	1
Photographers	40
Producers, directors, actors, and entertainers	17
Public related specialists and publicity writers	11
Radio and TV announcers and newscasters	6
Announcers, radio and television	5
Broadcast news analysts	1
Reporters and correspondents	250
Writers and editors, inc. tech. writers	31
TECHNICIAN OCCUPATIONS	1,035
Health technicians and technologists	406
Dental hygienists	21
Dietetic technicians	15
Electrocardiograph technicians/technologists	11
Electroencephalograph technicians/technologists	6
Emergency medical technicians	13
Licensed practical nurses	145
Medical and clinical lab technol. and techn.	62
Medical and clinical laboratory technicians	25
Medical and clinical laboratory technologists	37

Medical records technicians and technologists	9
Radiologic technologists and technicians	64
Surgical technicians	33
All other health prof. and paraprofessionals	28
Engineering and science technicians and technologists	463
Engineering technicians	269
Civil engineering technicians and technologists	11
Electrical and electronic technicians/technol.	170
Industrial engineering technicians and technol.	15
Mechanical engineering technicians and technol.	31
All other engineering technicians and technol.	42
Drafters	110
Phys. and life sci. technicians/technologists	84
Petroleum technicians and technologists	38
All other science technicians and technologists	46
Technicians, exc. health and engineering and science	166
Air traffic controllers	8
Broadcast technicians	3
Computer programmers	101
Legal assistants and technicians, exc. clerical	21
Law clerks	4
Paralegal personnel	7
Title examiners, searchers, and clerks	10
Programmers, numerical, tool, and proc. control	8
Radio operators	0
Technical assistants, library	8
All other technicians	17
ALL OTHER PROF., PARAPROF., AND TECHN. WORKERS	90
MARKETING AND SALES OCCUPATIONS	4,368
Cashiers	909
Counter and rental clerks	59
Insurance sales workers	26
Real estate agents and brokers	41
Brokers, real estate	5
Sales agents, real estate	36
Real estate appraisers	4
Salespersons, retail	1,336
Securities and financial services sales workers	15



Stock clerks, sales floor	635
Travel agents	17
All other sales and related workers	1,326
ADMINISTRATIVE SUPPORT OCCUPATIONS, INCLUDING CLERICAL	5,517
Adjusters and investigators	157
Adjustment clerks	42
Bill and account collectors	26
Ins. adjusters, examiners, and investigators	9
Insurance appraisers, auto damage	59
Insurance claims clerks	4
Insurance examining clerks	1
Insurance policy processing clerks	5
License clerks	2
Welfare eligibility workers and interviewers	10
Communications equipment operators	82
Telephone operators	71
Central office operators	6
Directory assistance operators	3
Switchboard operators	63
Telegraph and teletype operators	0
All other communications equipment operators	11
Computer operators and peripheral equipment operators	63
Computer operators, exc. peripheral equipment	49
Peripheral EDP equipment operators	15
Duplicating, mail, and other office machine operators	28
Duplicating machine operators	6
Transit clerks	2
All other office machine operators	20
Financial records processing occupations	537
Billing, cost, and rate clerks	60
Billing, posting, and calc. mach. operators	33
Bookkeeping, accounting, and auditing clerks	402
Payroll and timekeeping clerks	41
Information clerks	478
Hotel desk clerks	196
New accounts clerks	188
Receptionists and information clerks	82
Reservation & trans. ticket agents & travel clerks	13
Reservation and transportation ticket agents	7
Travel clerks	6

Mail and message distribution workers	258
Mail clerks, exc. mail mach. op. and postal serv.	18
Messengers	34
Postal mail carriers	100
Postal service clerks	106
Mat. rec., sched., disp., and dist. occupations	884
Dispatchers	50
Dispatchers, exc. police, fire, and ambulance	38
Dispatchers, police, fire, and ambulance	12
Meter readers, utilities	8
Order fillers, wholesale and retail sales	181
Procurement clerks	18
Production, planning, and expediting clerks	81
Stock clerks, stockroom, warehouse, or yard	255
Traffic, shipping, and receiving clerks	208
Transportation agents	4
Weighers, meas., check., and samp., recordkeep.	15
All other mat. rec., sched., and dist. workers	65
Records processing occupations, exc. financial	313
Advertising clerks	93
Brokerage clerks	11
File clerks	39
Library assistants and bookmobile drivers	20
Order clerks, materials, merch., and service	92
Personnel clerks, exc. payroll and timekeeping	22
Statement clerks	35
Secretaries, stenographers, and typists	570
Secretaries	447
Stenographers	20
Typists	102
Other clerical and administrative support workers	2,147
Court clerks	18
Credit authorizers	22
Credit checkers	27
Customer service representatives, utilities	5
Data entry keyers, exc. composing	51
Data keyers, composing	292
General office clerks	438
Loan and credit clerks	26
Municipal clerks	7



Proofreaders and copy markers	109
Real estate clerks	4
Statistical clerks	20
Teacher aides and educational assistants	23
Tellers	859
All other clerical and admin. support workers	248
SERVICE WORKERS	7,166
Clean. and bldg. serv. occup., exc. pvt. hshld.	480
Janitors and cleaners, inc. maids/hskpg. clean.	453
Pest controllers and assistants	27
Food and beverage prep. and service occupations	3,992
Bakers, bread and pastry	64
Bartenders	236
Cooks, except short order	380
Cooks, institution or cafeteria	55
Cooks, restaurant	325
Cooks, sh. order and spec. fast food	312
Din. rm. and cafet. attendants and bar. helpers	172
Food preparation and service workers, fast food	936
Food preparation workers	511
Hosts and hostesses, rest./lounge/coffee shop	107
Waiters and waitresses	1,036
All other food service workers	239
Health service and related occupations	519
Ambulance drivers and attendants, except EMTs	6
Dental assistants	96
Medical assistants	46
Nursing aides and psychiatric aides	277
Nursing aides, orderlies, and attendants	258
Psychiatric aides	19
Occupational therapy assistants and aides	2
Pharmacy assistants	61
Phys. and correct. therapy assistants and aides	32
Personal service occupations	305
Amusement and recreation attendants	58
Baggage porters and bellhops	3
Barbers	18
Child care workers	21

Cosmetologists and related workers	155
Hairdressers, hairstylists, and cosmetologists	116
Manicurists	16
Shampooers	22
Flight attendants	16
Guides	4
Social welfare service aides	18
Ushers, lobby attendants, and ticket takers	11
Private household workers	1,222
Cooks, private household	28
Housekeepers and butlers	53
Child care workers, private household	485
Cleaners and servants, private household	656
Protective service occupations	474
Correction officers and jailers	18
Fire fighting occupations	110
Fire fighters	86
Fire fighting and prevention supervisors	21
Fire inspectors	3
Police and detectives	161
Police and detective supervisors	31
Police detectives and investigators	14
Police patrol officers	117
Sheriffs and other law enforcement workers	14
Bailiffs	2
Fish and game wardens	0
Parking enforcement officers	2
Sheriffs, deputy sheriffs, and U.S. marshalls	9
Other protective service workers	171
Crossing guards	2
Detectives and investigators, except public	26
Guards	117
All other protective service workers	26
All other service occupations	174
Housekeepers, institutional	38
All other service workers	136
AGRIC., FORESTRY, FISHING, AND RELATED OCCUPATIONS	504
Supervisors, farming, forestry, and ag. related occ.	39



Agriculture related occupations	153
Animal caretakers, except farm	19
Gardeners and groundskeepers, except farm	81
Graders and sorters, agricultural products	52
Farm occupations	195
Farm workers	189
Nursery workers	6
Farm operators and managers	31
Farmers	9
Farm managers	22
Fishers, hunters, and trappers	5
Captains and other officers, fishing vessels	1
Fishers, hunters, and trappers	4
Forestry and logging occupations	80
Choke setters	33
Fallers and buckers	1
Forest and conservation workers	10
Logging tractor operators	2
Log graders and scalers	20
Log handling equipment operators	1
All oth. timber cut. and related logging workers	12
All oth. agric., forest., fish., and related wkrs.	2
BLUE COLLAR WORKER SUPERVISORS	424
CONSTRUCTION TRADES	2,127
Air hammer operators	25
Bricklayers and stone masons	68
Brick masons	32
Stone masons	36
Carpenters	62
Carpet installers	23
Coil. tile installers and acoustical carpenters	16
Concrete and terrazzo finishers	25
Drywall installers and finishers	893
Drywall installers	510
Tapers	266
Lathers	117
Electricians	144
Fence erectors	89



Glaziers	45
Hard tile setters	9
Highway maintenance workers	36
Insulation workers	19
Painters and paperhangers, const. and maint.	53
Pipelayers	12
Pipelaying fitters	87
Plasterers	169
Plumbers, pipefitters, and steamfitters	88
Rail-track laying and maint. equip. operators	4
Roofers	28
Septic tank servicers and sewer pipe cleaners	5
Structural and reinforcing metal workers	210
Reinforcing metal workers	192
Structural metal workers	18
All other construction trades workers	18
EXTRACTIVE AND RELATED WORKERS, INCL. BLASTERS	1,517
Blasters and explosives workers	3
Continuous mining machine operators	4
Derrick operators, oil and gas extraction	171
Mine cutting and channeling machine operators	18
Roof bolters	4
Rotary drill operators, oil and gas extraction	274
Roustabouts	910
Service unit operators	125
All other extractive workers, except helpers	7
MECHANICS, INSTALLERS, AND REPAIRERS	2,965
Communications equip. mech., install, and rep.	9
Central office and PBX installers and repairers	3
Frame wirers, central office	1
Radio mechanics	2
Signal or track switch maintainers	2
All oth. comm. equip. mech., install., and rep.	0
Electrical and elec. equip. mech./install./rep.	275
Data processing equipment repairers	26
Electrical installers and repairers, tr. equip., mfg.	1
Electrical powerline installers and repairers	1
Electric motor, transformer, and related repairers	38

Electronic home entertainment equip. repairers	44
Electronics repairers, commer. and ind. equip.	12
Station installers and repairers, telephone	9
Tel. and cable TV line installers and repairers	144
Machinery and related mech., install., and rep.	1,369
Industrial machinery mechanics	1,086
Machinery maintenance mechanics, marine equip.	919
Machinery maintenance mechanics, sewing mach.	10
Machinery maintenance mechanics, textile mach.	1
Machinery maintenance mechanics, water/power pl.	38
Mine machinery mechanics	15
All other machinery maintenance mechanics	103
Machinery maintenance workers	20
Maintenance repairers, general utility	192
Millwrights	72
Vehicle and mobile equip. mech. and rep.	605
Aircraft mechanics and engine specialists	27
Automotive body and related repairers	91
Automotive and motorcycle mechanics	282
Bus and truck mechanics and diesel eng. special	49
Farm equipment mechanics	8
Mobile heavy equipment mechanics, exc. engines	123
Rail car repairers	10
Small engine specialists	15
Other mechanics, installers, and repairers	706
Bicycle repairers	41
Coin and vending mach. servicers and repairers	50
Electric meter installers and repairers	1
Electromedical and biomedical equip. repairers	4
Heat., a/c, and refrig. mechanics and installers	42
Home appliance and power tool repairers	61
Locksmiths and safe repairers	4
Mech. cont. and valve installers and repairers	2
Menders, garments, linens, and related	9
Mobile home repairers	38
Musical instrument repairers and tuners	30
Office machine and cash register servicers	194
Precision instrument repairers	24
Riggers	22
Tire repairers and changers	115



Watchmakers	28
All other mechanics, installers, and repairers	41
PRECISION PRODUCTION OCCUPATIONS	3,512
Precision food workers	733
Bakers, manufacturing	205
Butchers and meat cutters	357
Food batchmakers	121
All other precision food and tobacco workers	49
Precision metal workers	1,185
Boilermakers	14
Etchers and engravers, hand or mach., precision	5
Hand workers, jewelry and related prod., precision	15
Instrument makers, precision	8
Jewelers and silversmiths	67
Layout workers, metal, precision	39
Machinists	255
Pattern and model makers, metal	10
Sheet metal workers	563
Shipfitters	20
Tool and die makers	153
All other precision metal workers	38
Precision printing workers	541
Bookbinders	56
Compositors, typesetters, and arrangers, prec.	109
Lithography and photoengraving workers, prec.	283
All other precision printing workers	94
Precision text., app., and furnishings workers	333
Custom tailors and sewers	83
Patternmakers and layout workers, fab. and app.	16
Shoe and leather workers and repairers, prec.	100
Upholsterers	116
All other prec. text., app., and furnish. wkr.	18
Precision woodworkers	296
Cabinetmakers and bench carpenters	117
Furniture finishers	49
Pattern and model makers, wood	11
Wood machinists	115
All other precision woodworkers	3



Inspectors and related occupations	313
Inspectors, testers, and graders, precision	140
Other prod. inspectors, testers, graders, & sorters	173
Other precision workers	112
Dental lab technicians, precision	26
Detail design decorators and painters, prec.	8
Foundry mold and core makers, precision	12
Molders/shapers, exc. jewel and found., prec.	2
Patternmakers, model makers, & related workers, prec.	2
Photographic process workers, precision	19
All other precision workers	42
MACH. SETTERS, SET-UP OPER., OPER., AND TENDERS	4,664
Num. cont. mach. tool op. and tend., met./plas.	55
Comb. mach. tool set., set-up op., op., and tend.	103
Comb. mach. tool op. and tend., met. and plas.	56
Comb. mach. tool set. and set-up op., met./plas.	47
Mach. tool cut. & form. set./oper./tend., met. & plas.	773
Drill. mach. tool set. and set-up op., met. and pl.	57
Ext. and draw. mach. set. and set-up op., met./pl.	24
Forging mach. set. and set-up op., met./pl.	26
Grinding mach. set. and set-up op., met. and plas.	75
Lathe mach. tool set. and set-up op., met. and pl.	93
Machine forming op. and tend., met. and plas.	167
Mach. tool cut. op. and tend., met. and plas.	140
Milling mach. set. and set-up op., met. and plas.	27
Press mach. set. and set-up op., met. and plas.	48
Punch. mach. set. and set-up op., met. and plas.	66
Rolling mach. set. and set-up op., met. and plas.	10
Sawing mach. tool set. & set-up op., met. & plas.	17
Shear mach. set. and set-up op., met. and plas.	23
Met. fab. mach. set., oper., and related workers	417
Metal fabricators, structural metal products	211
Solder. and braz. mach. operators and tenders	9
Solder. and braz. mach. setters and set-up op.	9
Welding machine operators and tenders	96
Welding machine setters and set-up operators	92
Met. & pl. proc. mach. set., oper., & related workers	233
Elec. plat. mach. oper. and tend., met. and plas.	36
Elec. plat. mach. set. and set-up op., met. and pl.	27

Foundry mold assembly and shakeout workers	34
Furnace operators and tenders	15
Heaters, metal and plastic	4
Heat. equip. set. and set-up oper., met. and plas.	6
Heat treating mach. oper. and tend., met. and plas.	15
Metal molding mach. operators and tenders	14
Met. molding mach. setters and set-up operators	11
Nonel. plat. mach. oper. and tend., met. and plast.	8
Nonel. plat. mach. set. & set-up op., met. & plast.	7
Plastic molding mach. operators and tenders	40
Plas. molding mach. setters and set-up operators	16
All oth. met./pl. mach. set., oper., related workers	71
Printing, binding, and related workers	1,286
Bindery machine operators	189
Bindery machine setters and set-up operators	176
Printing press operators	544
Letterpress setters and set-up operators	119
Offset lithographic press setters and set-up op.	390
Printing press mach. operators and tenders	28
All oth. print. press setters & set-up operators	6
Photoeng. and lithogr. mach. oper. and tend.	9
Photoengraving and lithographing photographers	125
Screen print. mach. setters and set-up operators	10
Typesetting and composing mach. oper. and tend.	220
All other printing, binding, and related wkrs.	13
Text. & related setters, operators, & related workers	712
Ext. and forming mach. oper. and tend.. syn. fib.	12
Lau. and drycl. mach. opoer. and tend., exc. press	48
Press. mach. oper. & tend., text., gar. & related	81
Sewing maching operators, garment	366
Sewing maching operators, non-garment	46
Shoe sewing machine operators and tenders	131
Text. bleaching and dyeing mach. oper. and tend.	1
Textile draw-out mach. operators and tenders	5
Textile mach. oper. and tend., winding	17
Textile machine setters and set-up operators	4
Woodworking mach. set., oper., & oth. related workers	33
Head sawyers	2
Sawing machine operators and tenders	5
Sawing machine setters and set-up operators	8

Woodworking machine operators and tenders	12
Woodworking mach. setters and set-up operators	6
Oth. mach. set., set-up oper., oper., and tend.	981
Boiler operators and tenders, low pressure	6
Cement, and gluing mach. operators and tenders	7
Chemical equip. controllers and operators	13
Chemical equipment tenders	7
Cooking mach. oper. and tend., food and tobacco	89
Crushing and mixing mach. oper. and tend.	26
Cutting and slicing mach. operators and tenders	12
Dairy process. equip. operators, incl. setters	102
Electronic semiconductor processors	28
Extruding and forming mach. oper. and tend.	16
Furnace, kiln, or kettle operators and tenders	23
Motion picture projectionists	4
Packaging and filling mach. oper. and tend.	97
Painting machine operators and tenders	39
Painters, transportation equipment	133
Paper goods mach. setters and set-up operators	23
Photographic processing mach. oper. and tend.	11
Roasting mach. oper. and tend., food and tob.	76
Separating and still mach. oper. and tend.	11
Tire building machine operators	72
All other machine operators and tenders	121
All other machine setters and set-up operators	64
HAND WORKING OCCUPATIONS, INCL. ASS. AND FABRIC.	2,338
Precision assemblers	392
Aircraft assemblers, precision	38
Electrical and electronic equip. assem., prec.	116
Electromechanical equip. assemblers, precision	66
Fitters, structural metal, precision	88
Mach. builders and oth. prec. mach. assemblers	55
Watch & clock assemblers & related workers, prec.	6
All other precision assemblers, metal	22
Oth. hand workers, incl. assemb. and fabricators	1,947
Cannery workers	36
Coil winders, tapers, and finishers	101
Cutters and trimmers, hand	29
Electrical and electronic assemblers	163

Glaziers, manufacturing	12
Machine assemblers	48
Meat, poultry, and fish cutters and trimmers, hand	645
Metal pourers and casters, basic shapes	73
Molders and casters, hand	12
Painting, coating, and decorating workers, hand	6
Portable machine cutters	12
Pressers, hand	19
Sewers, hand	19
Welders and cutters	113
All other assemblers and fabricators	534
All other hand workers	125
PLANT AND SYSTEM OCCUPATIONS	178
Auxiliary equipment operators, power	0
Chemical plant and system operators	8
Guagers	20
Petroleum refinery and control panel operators	87
Power distributors and dispatchers	6
Stationary engineers	8
Water and liq. waste treat. pl. and sys. oper.	25
All other plant and system operators	22
TRANSP. AND MAT. MOVING MACH. AND VEH. OPERATORS	1,338
Aircraft pilots and flight engineers	11
Motor vehicle operators	520
Bus drivers	35
Bus drivers	7
Bus drivers, school	29
Taxi drivers and chauffeurs	14
Truck drivers	470
Rail transportation workers	57
Locomotive engineers	5
Locomotive firers	2
Railroad brake, signal, and switch operators	22
Railroad conductors and yardmasters	13
Rail yard engineers, dinkey op., and hostlers	13
Subway and streetcar operators	2
Water transportation and related workers	25
Captains, water vessel	4



Mates and able seamen	5
Ordinary seamen and marine oilers	9
Pilots, ship	1
Ship engineers	6
All other transportation and related workers	276
Parking lot attendants	6
Service station attendants	269
Material moving equipment operators	425
Conveyor operators and tenders	12
Hoist, winch, and crane operators	31
Industrial truck and tractor operators	119
Loading machine operators, underground mining	24
Oil pumpers, except well head	87
Operating engineers	33
Shuttle car operators	6
Tank car and truck loaders	7
Well head pumpers	105
All other transportation and mat. mov. equip. op.	25
HELPERS, LABORERS, AND MATERIAL MOVERS, HAND	2,574
Helpers, construction trades	1,069
Helpers, extractive workers	336
Machine feeders and offbearers	95
Freight, stock, and material movers, hand	418
Refuse collectors	8
All other freight, stock, and mat. movers, hand	411
All other helpers, labor., and mat. movers, hand	654
Hand packers and packagers	115
Vehicle washers and equipment cleaners	153
All oth. helpers, labor., and mat. movers, hand	386