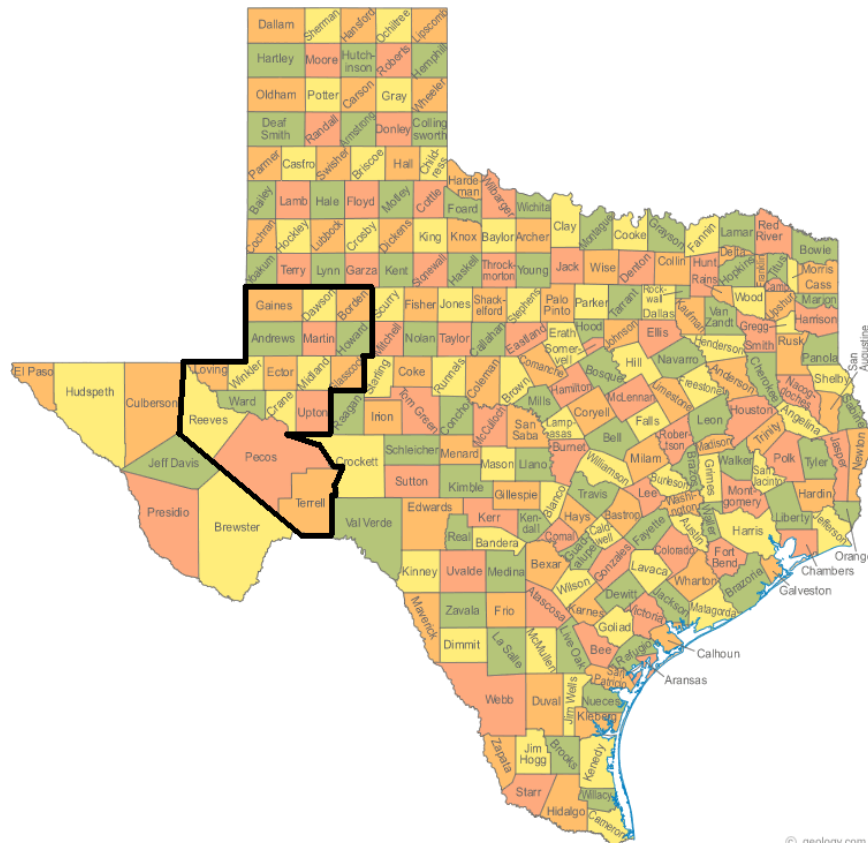


# Permian Basin Comprehensive Economic Development Strategy

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2008 -2013

Texas Counties of Andrews, Borden, Crane, Dawson, Ector, Gaines, Glasscock, Howard, Loving, Martin, Midland, Pecos, Reeves, Terrell, Upton, Ward, and Winkler



## ACKNOWLEDGEMENTS

This comprehensive strategic plan document is the result of the hard work of a broad group of individuals committed to seeing the Permian Basin region truly become a region of economic growth and prosperity.

The Permian Basin Regional Planning Commission seeks to realize the vision of an economic development district designation, supports the efforts of the CEDS committee in the plan's development, and is dedicated to moving this project forward. The Planning Commission would like to acknowledge these individuals for participating in the economic development forum:

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*The Honorable Robert Zap, Mayor City of Andrews*  
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*Tracy Dau, Workforce Development Coordinator, Midland Development Corporation*  
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# I. INTRODUCTION

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In January 2008, the Permian Basin Regional Planning Commission (PBRPC) received a U.S. Department of Commerce Economic Development Administration grant to develop a Comprehensive Economic Development Strategy (CEDS) for the 17 county- region located in the Permian Basin planning area of Texas. The Commission's board of directors, representing each of the counties, recognized economic threats to the region that could possibly improve in time through a coordinated regional economic plan, and by bringing resources and expertise together for the benefit of the region. Twelve counties have per capita income that is less than 80% of the national average. Additionally, three of these counties are defined as border *colonias* meaning these small communities have a majority population composed of individuals and families of low and very low income who lack safe, sanitary and sound housing, together with basic services such as potable water, adequate sewage systems, drainage, streets and utilities. Lastly, the need for industry diversification becomes more important in preventing the region's economic downfall when the price of oil and gas declines globally.

Along with demographic and economic changes, the PBRPC and its membership realized the need to address some new and recurring issues that include transportation, health care, water supply, social services, emergency preparedness and economic development. The CEDS gives a picture of current economic conditions in the region and seeks to develop a roadmap of opportunities to help the region's stakeholders drive the economic growth process.

The PBRPC completed a CEDS plan and will seek Economic Development District designation in order to enhance the services the PBRPC provides to meet the needs of the region. Where many of the cities within the region have developed local economic development plans and formal organizations to enhance the economic strength of their communities, the region will benefit from a regional platform to coordinate regional economic development activities and provide the resources and technical assistance to areas with limited resources and technical abilities.

The CEDS provides a description of the region as a tool to identify the assets and challenges to economic growth and prosperity for the future of the area. The inclusion of the primary industry clusters provides the basis for identifying opportunities in industry diversification, new ancillary business opportunities and for promoting entrepreneurship. The economic analysis of the region indicates healthy and steady growth in jobs and retail spending with a decline in unemployment, all inter-connected to the petroleum industry. However, the smaller communities in the region continue to face multi-faceted challenges. Representatives from local government, economic development, education, business and workforce development helped identify challenges, opportunities and strategies to address economic development in terms of regional activities. The CEDS is designed to identify regional opportunities for entrepreneurship, industry diversification, improvements in quality of life and strengthening the infrastructure so that all counties, small and large, have active and vibrant economies.

The formulation of the CEDS process began with the staff of the PBRPC meeting with and interviewing stakeholders from throughout the region. Interviews and CEDS Workforce Committee meetings provided valuable information and feedback. Participants in the interviews and CEDS Workforce Committee meetings were as follows:

- Dr. Robert Trentham, University of Texas Permian Basin Director of the Center for Economic and Energy Diversification and a private sector Geologist/Consultant
- W. Hoxie Smith, P.G., Director of the Petroleum Professional Development Center, Midland College
- Doug May, Economic Development Director, Fort Stockton, Texas and from the private sector
- Honorable Ovidio Martinez, Mayor, Seagraves, Texas and in the education field
- Tommy Baker, Director of the Permian Basin Small Business Development Center
- Bobby Burns, Director of the John Ben Sheppard Leadership Institute, University of Texas Permian Basin
- Virginia Belew, Director of Workforce Development, Permian Basin Regional Planning Commission
- Arleene Loyd, Business Retention and Expansion Director, Odessa Economic Development Corporation
- Terry Wegman, Director of Big Spring Workforce Development Corporation
- Tracy Dau, Workforce Development Coordinator, Midland Economic Development Corporation
- Vanessa Garcia, Workforce Recruiter, Andrews Economic Development Corporation
- Lupe Villanueva, Area Manager, Workforce Solutions
- Morse Haynes, Director of Monahans Economic Development Corporation

The culmination of the process led to a community forum held October 17, 2008 at the University of Texas Permian Basin campus in Odessa. One hundred-fifty stakeholders from around the region and state, including government, education, private business, and community leaders, were invited. Thirty seven community partners attended the forum (see list on page 2). The purpose of the meeting was to share economic information compiled to date and invite further input on the direction the region should take to achieve economic stability and build competitive advantage.

Following an overview of the economic analysis conducted by Karr Ingham of Ingham Economic Reporting, the group divided into four brainstorming sessions where an analysis of the region's assets and challenges were discussed. Goals and strategies were identified to maximize the region's strengths and opportunities and to mitigate the weaknesses and threats.

Subsequent to the forum the recommended goals and objectives were posted on an advertised website to encourage further participation by partners and the general public. The vision statement, goals and objectives were then adopted and are presented herein as part of the Comprehensive Economic Development Strategy for the Permian Basin.

## II. THE PERMIAN BASIN - GENERAL DESCRIPTION

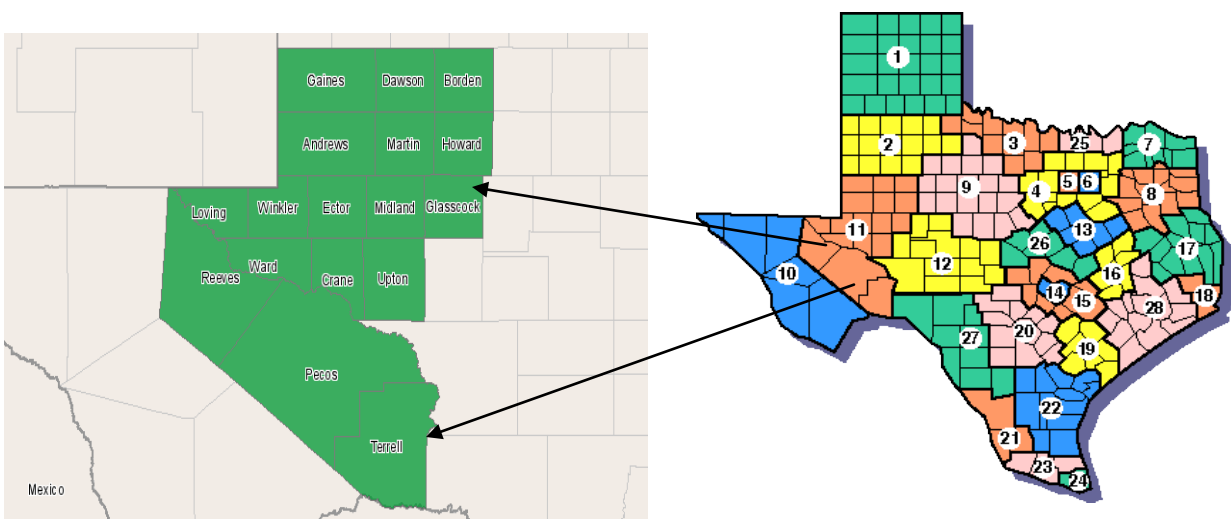
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### A. GEOGRAPHY

The Permian Basin multi-county region consists of 17 counties: Andrews, Borden, Crane, Dawson, Ector, Gaines, Glasscock, Howard, Loving, Martin, Midland, Pecos, Reeves, Terrell, Upton, Ward and Winkler counties. The region extends 250 miles wide and 300 miles long and consists of 23,484 square miles with a population density of 16.04 residents per square mile compared to a statewide density of 79.54 residents per square mile.

The Permian Basin is a sedimentary basin largely contained in the western part of the state of Texas. It is so named because it has one of the world's thickest deposits of rocks deposited from the Permian geologic period. Although it is structurally a basin in the subsurface, much of the basin lies under the Llano Estacado and the northwestern portion of the Edwards Plateau, which are topographically high. On the west and south it extends across the Pecos River valley to mountain ranges in both New Mexico and West Texas. The southernmost county, Terrell, borders the country of Mexico along the Rio Grande River.

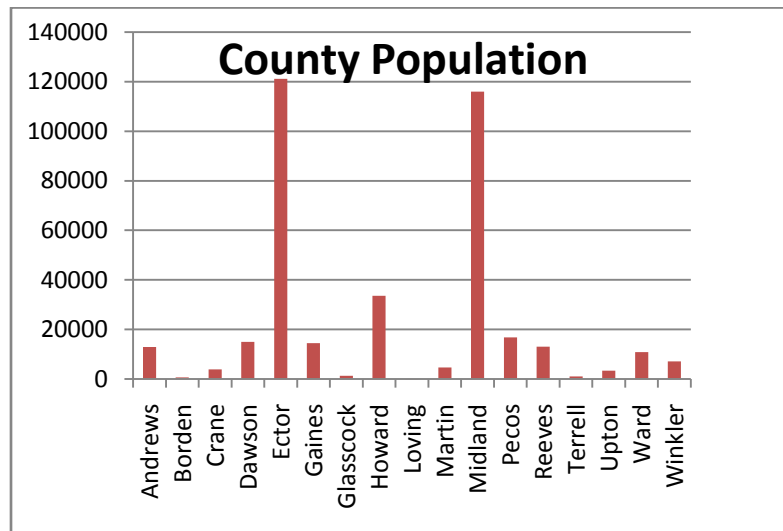
Because of good grasslands, most of the Permian Basin was inviting to both ranchers and farmers in the early days of settlement. Since surface water was almost nonexistent (0.1 percent compared to 2.5% statewide), ranchers and farmers drilled water wells to sustain themselves and their livestock and they often found evidence of oil or gas. Several oilfields were discovered in Upton and Crane counties in 1925, as a result of random drilling or surface and subsurface mapping. Today, the Permian Basin is a large oil and natural gas producing area, and considered a part of the Mid-Continent Oil Producing Area. The Texas Railroad Commission reports that in 2007, the Permian Basin accounted for 68% of the crude oil production in Texas.



## B. PERMIAN BASIN DEMOGRAPHICS

According to the 2000 Census, the multi-county Permian Basin region had a 1.6% increase in population compared to the 1990 Census. During the same time, the state of Texas census experienced a 22.8% growth rate.

2000 Population by County



Andrews	13,004
Borden	729
Crane	3,996
Dawson	14,985
Ector	121,123
Gaines	14,467
Glasscock	1,406
Howard	33,627
Loving	67
Martin	4,746
Midland	116,009
Pecos	16,809
Reeves	13,137
Terrell	1,081
Upton	3,404
Ward	10,909
Winkler	7,173
Total	376,672

Sites on Texas, an online source for demographic reports, maps, charts, and data, as of April 15, 2008, estimates the 2007 population for the region to be 383,442 and for 2012 it is projected to be 394,229. This represents a 2.8% increase for years covering 2007 to 2012.

The number of households for the region increased 2.6% from the 1990 Census to the 2000 Census (133,269). The household count in 2007 is estimated to be 139,364 with the household projection for 2012 to be 144,662, an increase of 3.8%.

In addition, the median age in 1990 was 30.08, 34.1 in 2007 and is predicted to change in five years to 34.2. In 2007, females represented 50.1% of the population with a median age of 35.6 and males represented 49.9% of the population with a median age of 32.7.

The demographic table on the next page indicates that in 2000, the predominant race was white and remains so for 2007 and the 2012 projection. The race and ethnicity category least represented is American Indian or Alaska Native. Of significance, the Hispanic ethnicity represented 31.9% of the population in 1990; 39.6% in 2000; 44.8% in 2007, and is projected to represent 47.9% of the Permian Basin population in 2012. Additional data gives us population and household income figures.



Demographic detail summary from Sites on Texas, April 15, 2008, reflects the following data:

Population by Race/Ethnicity									Percent Change	
	1990 Census		2000 Census		2007 Estimate		2012 Projection		1990 to 2000	2007 to 2012
White	288,351	77.8%	287,754	76.4%	311,766	81.3%	329,847	83.7%	-0.2%	5.8%
Black	17,643	4.8%	18,819	5.0%	18,388	4.8%	18,250	4.6%	6.7%	-0.8%
American Indian or Alaska Native	1,646	0.4%	2,593	0.7%	1,667	0.4%	1,330	0.3%	57.5%	20.2%
Asian or Pacific Islander	2,021	0.6%	2,509	0.7%	2,779	0.7%	3,051	0.8%	24.1%	9.8%
Some other race	61,122	16.5%	56,144	14.9%	42,210	11.0%	36,453	9.3%	-8.1%	-13.6%
2 or more races			8,853	2.4%	6,632	1.7%	5,368	1.4%		-19.1%
Hispanic Ethnicity	118,371	31.9%	148,982	39.6%	171,776	44.8%	188,930	47.9%	25.9%	10.0%
Not Hispanic or Latino	252,411	68.1%	227,690	60.5%	211,666	55.2%	205,369	52.1%	-9.8%	-3.0%

Population by Age					
	1990 Census	2000 Census	2007 Estimate	2012 Projection	% Change 2000 to 2012
Under 15	100,591	90,784	86,810	87,979	-3.1%
15 – 24	50,722	57,189	60,598	58,606	2.5%
25 – 44	114,854	105,801	95,737	98,862	- 6.6%
45 -64	66,955	77,988	92,999	97,976	25.6%
65 – 74	22,654	25,481	24,757	27,045	6.1%
75+	15,008	19,429	22,521	23,802	2.3%
Total	370,784	376,672	383,422	394,270	4.7%

Average Household Income						
Permian Basin	1990 Census	2000 Census	% Change 1990 - 2000	2007 Estimate	2012 Projection	% Change 2007-2012
Average Household Income	\$33,301	\$45,101	35.4%	\$47,801	\$49,920	4.4%
Median Household Income	\$25,147	\$32,942	31%	\$39,803	\$44,314	11.3%
2005 Personal Per Capita Income*						
Permian Basin	\$29,623					
Texas	\$32,460					

\*Data from Labor Market Information from Texas Workforce Commission

Additional data for each county can be found in Appendix B, County Fact Sheets.

Additional data from Sites on Texas estimates owner occupied homes in 2007 in the Permian Basin region was 62.2%; renters occupied 25.7% of housing units and 12.2% of housing units were vacant. The total numbers of housing units in 2000 was 133,269 with 12.5% being mobile homes. The total number of new housing structures built in the Permian Basin area between 1995 and March 2000 was 8,050 or 5.2% compared to 13.2% statewide. Total housing units in the Permian Basin are projected to increase 3.4% by 2012.

Marital status of the 296,601 individuals age 15 and over in the 2007 estimation for the Permian Basin:

Married, spouse present	55.7%
Married, spouse absent	7.3%
Divorced	9.6%
Widowed	6.7%
Never married	20.8%

The total number of school districts in the Permian Basin region for the school year 2006 -2007 was 31 according to the Texas EDGE (Economic Data for Growth and Expansion). The overall daily attendance for the same year was 74,590 (excluding Glasscock County who had no data reported). This number represents a 2.9% increase in enrollments from the previous year.

The 2000 Census data for persons over 25 years of age indicates 15% have less than a 9<sup>th</sup> grade education; 14.9% do not have a high school diploma; 27.1% have a high school degree or equivalency; 5% have an associate's degree; 11.4% have a bachelor's degree and 4.4% have a graduate or professional degree.

Of particular interest, the statistics show that the percent of high school graduates or higher was 70.2% for the region compared to 75.7% statewide. Also, the percent of residents in the Permian Basin with a Bachelor's degree or higher was 15.7% as compared to 23.2% for Texas residents.

It was reported in the 2000 Census for the Permian Basin region that 6.8% of persons (100,682) ages 5 to 20 years conveyed having a disability. In Texas, the percent with disabilities in this same age bracket was 7.9%. In the working age population group – ages 21 to 64 years (192,461), the region had approximately 20% of which were categorized to be in a disability status and 53.6% of those were employed. For those who had no disability, 73.3% were employed. For the retirement age group of 65 years of age and older, 42,768 resided of which 43.1% reported to be disabled.

Twelve counties in the region have per capita income of less than 80% of the national average which defines them as being economically distressed: Crane, Dawson, Ector, Gaines, Howard, Martin, Pecos, Reeves, Terrell, Upton, Ward, and Winkler. Terrell, Reeves and Pecos are also considered border colonias meaning the majority of the population is families with low income and lack adequate city services.

### III. PERMIAN BASIN ECONOMIC PROFILE

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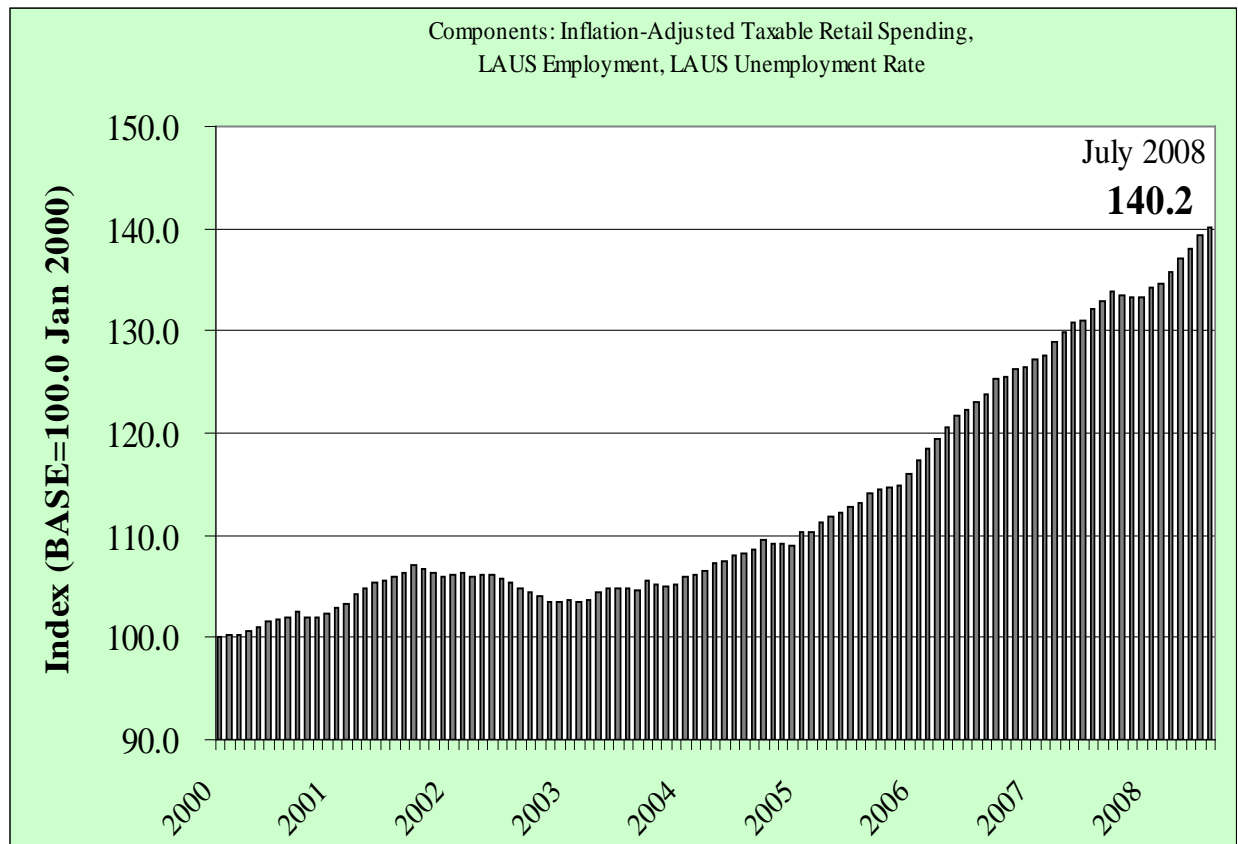
This section provides information on the overall assessment of the region's economy, its workforce, top industries and industry clusters, local assets and the regional analysis of strengths, weaknesses, opportunities and threats.

#### A. ECONOMY

Karr Ingham, Economist with Ingham Economic Reporting, conducted a study in October 2008 for the Permian Basin state planning region as requested by the PBRPC. Mr. Ingham calculated the Permian Basin's Regional Economic Index by using timely and reliable monthly economic data by city and/or county. He uses the monthly data over time to calculate a single monthly number that gives a clear picture of the regional economy over that period of time.

Components used by Mr. Ingham to calculate the Permian Basin WDA Regional Economic Index were inflation-adjusted taxable spending, the number of employed persons residing within the WDA, and the unemployment rate for the WDA as a whole. Mr. Ingham states, "The most important of these are employment and inflation-adjusted retail spending. They are the most reliable in terms of assessing the state of the local and regional economy; in fact, when both are on the increase, it would be difficult to argue that the economy is not growing. So, the concurrent trends in these two sectors of the local economy serve as the best evidence as to how the economy is faring." The facts that retail spending is strong throughout the 17-county region and more citizens are employed are indicators of a healthy economy at this time.

The base month and year of the economic index was January 2000 calibrated to 100.0. The regional economy has been a growing economy since 2000, and that growth has been substantial, particularly since 2003. As of July 2008, the index peaked at 140.2 as indicated in the following graph.



Mr. Ingham reports “The general economy of the region is arguably more directly connected to the oil & gas industry than any other region in Texas (perhaps even the entire US) to its base industry and economy. The general economy of the region is hyper-sensitive to trends and movements within the regional oil & gas economy; when the industry grows and expands, the overall regional economy does the same, and when the industry contracts, the regional economy declines – without fail. Without question, though, in recent years, the dramatic expansion in the regional oil & gas exploration and production industry has fueled impressive growth in the region’s economy as a whole. This is true not just simply of the metro areas of Midland and Odessa to the exclusion of the balance of the region; both the metro areas and the region as a whole have derived great economic benefit from the industry’s growth and expansion.”

Mr. Ingham’s study identifies the obvious dilemma – “Price increases and industry expansion that result in strong economic growth mean that price decreases and industry contraction bring about economic decline and job loss in the Permian Basin. More sobering is the realization that these commodity price movements are completely and entirely out of the hands of local oil & gas producers or any other player in the regional economy. The end result is that the fate of the regional economy largely rests in the hands of global markets and prices for crude oil and natural gas.”

Mr. Ingham reports that for most of the current decade, however, the outcome has been very positive for the Permian Basin regional economy. The Permian Basin WDA Regional Economic Index expanded to well over 40% since January 2000.

The economic study conducted by Mr. Ingham reflects the number of employed residents of the region has grown by over 32,000 – about 20% -- from 2000 to 2008. The unemployment rate across the region, in the 9-10% range in 1999 on the heels of the oil & gas industry crash, had decreased to around 3% in 2008, one of the lowest in the state. Taxable retail spending in the region has *more than doubled* from 2000 to 2008, \$2.88 billion to \$5.14 billion annually.

Mr. Ingham's study states "Even though oil & gas prices remain high relative to historical levels, they have fallen significantly since the peaks established in July. The regional oil & gas economy will reflect those price drops in short order; the value of production will decline, and the number of drilling permits issued and the area rig count will likely level off. Soon enough, the overall economy will begin to show the signs of flattening out as well. As to what the future holds – short-term and longer-term – that depends on the sustained price trends for crude oil and natural gas."

Mr. Ingham's report concludes, "The oil and gas business has clearly been good to the regional economy in recent years. Higher prices and industry expansion have revived the economic spirits of the region, and have brought a new sense of excitement and vibrancy to the entire area.

"The regional economy of the Permian Basin is not simply 'connected' to the petroleum industry; in many respects, the regional petroleum industry *is* the regional economy. Of the top ten listed employers in the WDA, six of those are industry companies – a drilling company, a geophysical services company, three oilfield service companies, and an oilfield pipeline construction company.

"In the first quarter of 2008, some 16% of all jobs in the WDA were categorized as "mining and natural resources" jobs, and in the Permian Basin of Texas that means oil & gas jobs of one sort or another. The inclination to think the industry makes up only 16% of the regional economy should be resisted, however, for that is not the case at all. In the state of Texas as a whole, only about 2% of all jobs are categorized as mining/natural resources jobs, and yet the industry makes up well over 10% of the state's economy. By that same math, the industry would make up a staggering 80% of the Permian Basin Regional Economy. It may or may not be quite that high – but it is extraordinarily high, and about that there is simply no doubt."

Mr. Ingham's report points out the obvious challenges for the economic developers and leaders in the region: Although retail spending and the number of employed persons are on the increase and the unemployment rate is on the decline, the regional economy may be considered unstable and less resilient. The region's economy fluctuates based on the oil and gas industry. When oil and gas prices are on the incline, so is the Permian Basin region's economy. Conversely, the region's economy suffers when the price of oil and gas decline. Therefore, the need to diversify and take proactive steps to bring new industry to the region that is unconnected to oil & gas with the goal of decoupling the region's

economy from the industry becomes more and more apparent. Other strategies to consider are targeting businesses that are connected to the industry, and that complement the industry but somehow help to shield the regional economy from the sharp downturns it has endured in the past; and continuing to capitalize on the upstream oil & gas industry as it now exists, but with an eye toward new production technologies. A final challenge is targeting development efforts toward maintaining the vitality of the smaller cities and counties in the region.

As mentioned by Mr. Ingham, the region has done extraordinarily well in the energy producing industry which has benefitted the citizens of the Permian Basin, and of Texas as a whole.

## **B. WORKFORCE OVERVIEW**

The most critical challenges for the Permian Basin Workforce Development Board and employers in the area are workforce availability and skills deficiencies.

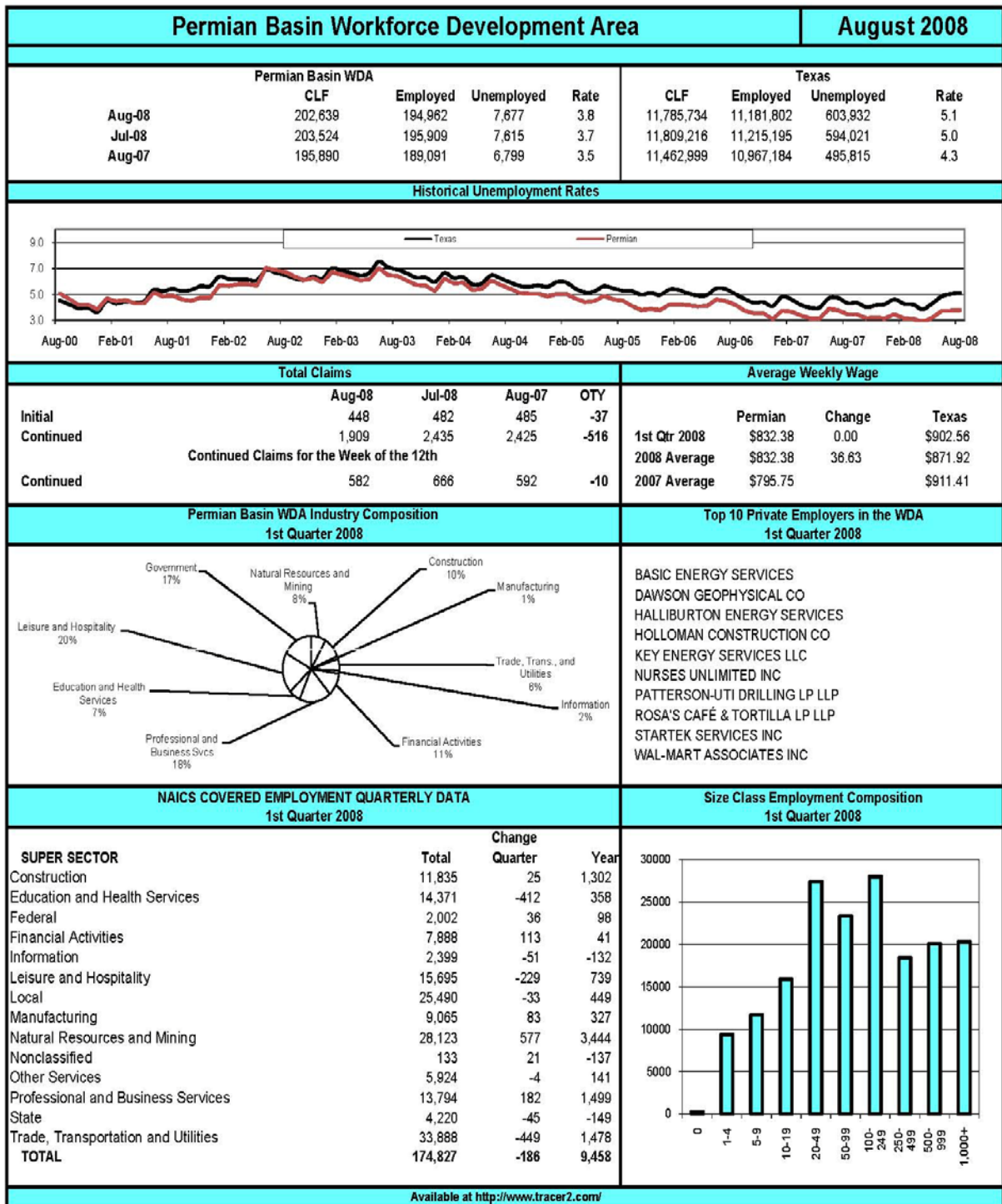
*Workforce Availability* – Low unemployment rates, the current economy and the lack of transportation to mobilize individuals across the region continue to be identified as major obstacles to the Workforce Solutions Permian Basin in assisting employers in meeting their demand for workers.

*Skills Deficiencies* – Basic education, aptitude and workforce preparation skills are critical for the success of individuals entering the workforce. The P-16 initiative in the Permian Basin recognized the need for an integrated effort of representatives from local ISDs, higher education, private sector and government to collaborate and plan for workforce preparedness to meet present and future industry demands.

Data from Sites on Texas dated April 15, 2008, indicates in 1990 that 62.9% of the age 16 and above population was employed. The 2000 Census shows a decline of 1.5%, however it is projected to increase 3.6% from 2007 to 2012. The 2000 Census reflects 45% of workers were employed in blue collar professions with 55% employed in white collar occupations.

The tables and graphs on the next page provide a snapshot of the region's employment, unemployment, and industry information as of August 2008. There were 202,639 workers in the Civilian Labor Force (CLF). Of that number, 96.2% or 194,962 were employed. Only around 3.8% were unemployed. These rates relate positively with the state (5.1%) for the same time period. For those employed in the region, the 2008 year-to-date average weekly wage was \$832.38, a 4.4% increase from the previous year. However, this is 4.4% less than the state year-to-date average wages. This data shows the Permian Basin region tends to lag behind Texas in terms of wage rates. Despite its strong economic growth over the past seven years, many of the jobs in the region are still low-skill, low wage jobs.

As stated previously, much of the region's economy is centered on the petroleum industry. Presently, the world's financial market is uncertain and the price of crude oil is dropping. Given this combination, the region could see an increase in the unemployment rate.



## **C. TOP INDUSTRIES AND INDUSTRY CLUSTERS**

The top five industry sectors in the region during the 1<sup>st</sup> quarter of 2008 were: Leisure and Hospitality (20%); Professional and Business Services (18%); Government (17%); Financial Activities (11%); and Construction (10%). These sectors employed approximately 80,924 or nearly 46% of the workforce in the region. Natural Resources and Mining composes 8% of the industry, employing about 16% of the workforce. Data from Texas Workforce Commission and the Texas Comptroller of Public Accounts indicates workers in the Natural Resources and Mining industry earn an average of \$78,052 per year compared to the next highest industry annual wage of \$58,822 for those in Manufacturing.

The five industry clusters identified as critical to sustaining the economy of the Permian Basin are supported by the Texas Governor's Industry Cluster Initiative and global market trends. The clusters identified are energy, manufacturing, transportation, medical, and education. These industry clusters help identify the high demand occupations and high wage occupations.

### Industry Cluster: Energy

#### **Oil and Gas**

The Permian Basin is a large oil and natural gas producing area, part of the Mid-Continent Oil Producing Area. The cities of Midland and Odessa serve as the headquarters for oil production activities in the basin. As stated previously, 16% of the workforce is employed in the Natural Resources and Mining industry (28,123). Projections indicate employment numbers in this industry will increase by at least 4% over the next six years.

The Texas Railroad Commission reports that in 2007 Texas produced 341,679,253 barrels of crude oil. The Permian Basin accounts for 68% of that production and holds 80% of Texas' reserves. As of February 2008, there were 44,745 oil and 4,235 gas wells in production in the region.

Currently, there is only one remaining refinery in the Permian Basin. The Big Spring Refinery, owned and operated by ALON USA, produces 70,000 barrels per day. The Texas Workforce Commission estimates the employment in petroleum and coal products manufacturing in the Permian Basin from the years 2004-2012 will remain at 250.

Governor Rick Perry's Industry Cluster Initiative, which began in 2004, involved regional forums to solicit industry and stakeholder input to gain a vision of the economic development opportunities and threats for the Texas energy industry. Permian Basin representatives and focus groups were included in state collaborative efforts to accomplish an enormous task of discovering the strategies to maximize the opportunities provided by this sector. Meetings were held in Midland where attendees included independent oil and gas operators, operations managers from local plants and refineries, academics, community college, economic development professionals, and managers from major service firms. In



every meeting, the major topics that emerged included education, workforce requirements, industry image, plant expansion and technology transfer/commercialization.

The Governor's final report completed in 2005 agreed that Texas and the Permian Basin's advantages in this sector included the opportunity for innovation, research, commercialization of new technologies in the traditional oil, gas and wind energy sectors, and in the new sectors of emerging energy sources. The recommendations from the Governor's Energy Cluster Team's final report included findings that support the need for the state and region to address collaboration, workforce, and regulatory issues.

### **Alternative Energy**

In September 2005, the West Texas Coalition for Innovation and Commercialization (WTCIC) was established to encourage innovation and entrepreneurship in the region. It received initial funding from the Texas Emerging Technology Fund, in part to work collaboratively to support innovation through the identification and support of viable projects throughout its 83 county region. It has provided a \$12,500 grant to the University of Texas-Permian Basin (UTPB) to promote new energy technology.

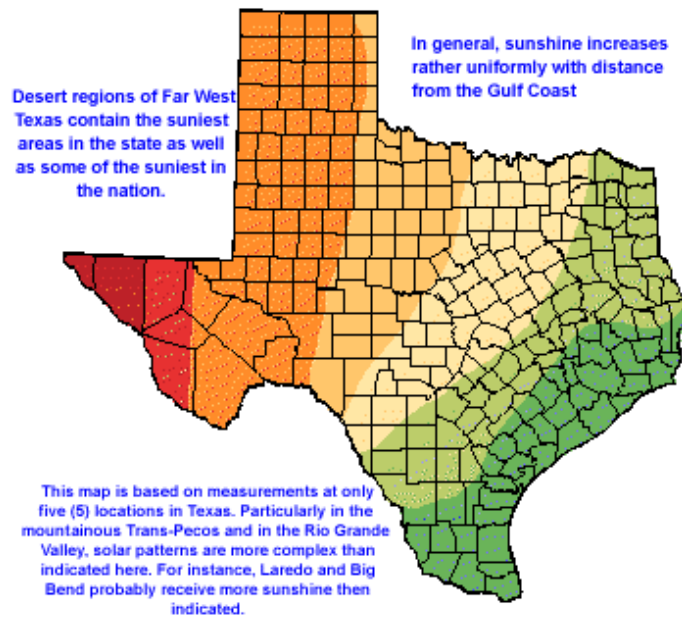
UTPB formed the Alliance for Innovative Energy Technology Commercialization. The Alliance has supported UTPB School of Business students who researched alternative energy sources, including geothermal, solar, and nuclear as they relate to the Permian Basin region.











These and other initiatives demonstrate the interest in developing sources of energy that do not rely solely on oil and petroleum based resources. Stepping beyond interest to implementation of these alternative sources of energy can be accomplished by understanding the technologies associated with these resources. They are briefly described below.

### **Solar Energy**

There are basically two types of solar energy: **direct radiation** and **diffuse radiation**. Direct radiation, also known as insolation, is the radiation that arrives at the earth's surface in an unbroken line from the sun; the scattered radiation that reaches the earth from all parts of the sky is called diffuse. According to National Renewable Energy Laboratory (NREL), this distinction is important because diffuse radiation cannot be effectively focused; only direct radiation is relevant to the solar technologies that use mirrors and lenses to concentrate the sun's rays. West Texas has the highest level of direct normal insolation in Texas; according to the NREL, West Texas experiences 75 percent more direct solar radiation than East Texas. The map on the following page illustrates the Texas Direct Normal Insolation for the state.

## Texas Direct Normal Insolation



AVERAGE DIRECT NORMAL INSOLATION MAP LEGEND			
COLOR KEY	per day (kWh/m <sup>2</sup> -day)	per YEAR	
		(MJ/m <sup>2</sup> )	(quads/100 mi <sup>2</sup> )
	<3.0	<3,940	<1.0
	3.0 - 3.5	3,940 - 4,600	1.0 - 1.1
	3.5 - 4.0	4,600 - 5,260	1.1 - 1.3
	4.0 - 4.5	5,260 - 5,910	1.3 - 1.5
	4.5 - 5.0	5,910 - 6,570	1.5 - 1.6
	5.0 - 5.5	6,570 - 7,230	1.6 - 1.8
	5.5 - 6.0	7,230 - 7,880	1.8 - 1.9
	6.0 - 6.5	7,880 - 8,540	1.9 - 2.1
	6.5 - 7.0	8,540 - 9,200	2.1 - 2.3
	>7.0	>9,200	>2.3

Since wholesale energy markets are dictated almost solely on price, solar power plants trying to compete in this arena will need to be located in regions with very good direct radiation. Proponents of solar energy often boast that “just a few hundred square kilometers’ worth of photovoltaic solar panels installed in Southwestern deserts could power the United States” (*Technology Review*, Sept. 27, 2007). The unspoken caveat remains, however; without backup power plants or expensive investments in energy-storage systems such as batteries or flywheels, the solar-power supply would fluctuate wildly

with each passing cloud. Solutions have been offered; one of them involves turning sunlight into steam that efficiently stores heat for cloudy days.

With a two-year average rate of sunshine of 74 percent, the Permian Basin region could readily position itself as a prime location for solar energy production. The Permian Basin region is in an optimal geographic position to increase significantly the power harnessed directly by the sun. While Texas specific data for solar industry revenues are not available, a 2007 study by IC2 indicates the solar industry will create more jobs and contribute billions of dollars in investment and income to the national economy over the next decade if long-term incentives are offered to encourage the solar industry.

### **Geothermal Energy**

Geothermal energy comes from the immense thermal reservoir of the earth's interior. Heat from molten rock or magma beneath the earth's crust transfers to rock and water closer to the surface. According to NREL, regions where the hot waters are close enough to the surface can be exploited commercially in heating applications; in the case of high-grade steam reserves, electrical power can be generated with geothermal resources.

Texas does not possess any easily accessible field with the high temperatures required for electric power generation. There are, however, low-temperature hydrothermal reserves in the central and western part of the state (portions of the Permian Basin) and in an area that borders the Rio Grande in the Trans-Pecos region that can be used in low-temperature applications such as space heating or aquaculture. It also is possible that geothermal energy is available from deep oil wells, i.e., those drilled to depths exceeding 10,000 feet.

Notwithstanding the absence of naturally occurring geothermal resources, the Permian Basin's greatest weakness — its finite supply of hydrocarbons — could become its greatest strength. Using the oilfield infrastructure that exists today, researchers at the UTPB Center for Energy and Economic Diversification suggest the Permian Basin could become a reliable source of geothermal energy. The Permian Basin has a ready supply of hot, subterranean brine. Running hot brine through a heat exchanger would produce steam, which in turn, would produce clean, green electrical power. The location of such resources would enable the Permian Basin region to become a major supplier of electrical power within a 600 mile radius; this would include a large portion of Texas, almost all of Oklahoma, most of New Mexico and part of Mexico.

### **Nuclear Energy**

There are two operating nuclear power facilities in Texas: Comanche Peak in Glen Rose and the South Texas Project located near Bay City in Matagorda County. More than 2,000 people are employed at the two facilities with a combined payroll of nearly \$200 million annually. The two facilities together produced 10.3 percent of the state's electricity which goes to the state's electric grid for purchase by commercial, industrial, and retail consumers.

There is a nuclear waste site in Andrews County together with an ongoing project with Eunice, NM uranium facility. This forms the basis for a nuclear corridor within the Permian Basin region. Amarillo Power, LLC announced plans to build a nuclear power plant in the Texas panhandle. Luminant, a competitive power generation business, plans to add two advanced pressurized water reactors at Comanche Peak; one of the partners in the South Texas Project has submitted an application to add two advanced boiling water reactors at the site in Matagorda County. In addition, Exelon Nuclear, a business unit of Exelon Corporation, announced plans to submit a combined construction and operating license application for two reactors in November 2008; the current site is 20 miles south of Victoria in Victoria County. If all eight proposed reactors are built and operating in Texas, they and the four existing nuclear reactors would have the capacity to generate more than 17,000 MW of electricity, or about 16 percent of Texas' total 2006 capacity, compared to the 4.6 percent of capacity that the four existing reactors contributed in 2006.

With eight new reactors anticipated in Texas, several thousand workers will be required. These will be well paid workers – hourly wages at South Texas Project average \$31, about \$64,000 annually without overtime. This is nearly double the average annual salary for Texans in 2006.

The aging of existing nuclear reactors, a new generation of advanced reactors, rising global energy demands and the cost of natural gas coupled with the need to reduce greenhouse gas emissions all point to a renaissance for nuclear energy. But several regulatory and economic hurdles must be addressed before the next generation of nuclear reactors comes on line.

### **Wind Energy**

Although the state is better known for oil wells than wind turbines, it is second only to California in the amount of energy generated by wind power. Wind energy maintains a significant presence in the Permian Basin; seven counties are home to wind energy farms and local economies are enjoying the benefits of this growing industry within the region.

In 1999, the Permian Basin had approximately 159 wind turbine units providing roughly 110 megawatts (MW) of power. In the same region eight years later, 630 wind turbines created almost 705 MW of power. Growth between 1999 and 2007 averaged an annual increase of almost 80 wind turbine units and 90 additional MW of power. Currently the bottleneck of wind energy growth is the capacity of current transmission lines; a matter that concerned leaders in the Permian Basin have been working on for several years. The production of power from wind has the potential to increase significantly before 2030, but the capacity of transmissions must be improved to do so.

Targeted occupations defined for the energy industry cluster include:

- Technicians
- Operators
- Roustabouts
- Pumpers

### Major employers

The following Energy Industry companies are among the largest employers in the Permian Basin:

- Basic Energy Services LP
- Dawson Geophysical Co
- Endeavor Petroleum LP
- Halliburton Energy Services Inc
- Key Energy Shared Services LLC
- National Oilwell Varco LP
- Patterson-UTi Drilling West LP LLP
- Schlumberger Technology Corp.

Educational preparation for the Energy industry is available at post-secondary institutions in the Permian Basin. The University of Texas Permian Basin offers undergraduate degree programs to support the energy industry such as chemistry and geology. Midland College provides continuing education for the petroleum industry through the Petroleum Professional Development Center, and Odessa College offers an associate degree in Petroleum Technologies. The Texas State Technical College in Sweetwater, east of the Permian Basin on I-20, has a multi-level Wind Energy certification program.

### Transportation Industry Cluster

The Transportation industry cluster provides approximately 43,000 jobs in the Permian Basin, providing support for all industries, including the energy industry. The geographic location of the region, the access to state and federal highways for trucking, the availability of airports, and immediate access to two railroad systems provides the connectivity to state and federal business hubs which allow for major employment in this industry sector.

The targeted occupations identified for this industry cluster include:

- Truck Drivers
- Heavy Equipment Mechanics
- Automotive Service Technicians and Mechanics

The transportation sector is identified as one of the occupations with the highest average annual job openings within the Permian Basin.

To support the growing need in the transportation sector, the community colleges in the Permian Basin offer training and certificates in truck driving and automotive and aviation technologies.

### Medical Industry Cluster

There are 23 acute and psychiatric care hospitals in the Permian Basin with an average bed capacity of 66.6 per hospital. Each county has at least one hospital and the largest hospitals in the region are Medical Center Hospital in Odessa and Midland Memorial Hospital. There are 691 direct patient care and primary care physicians, 2510 registered nurses, 1411 licensed vocational nurses, 956 emergency

medical technicians, and 23 occupational therapists in the region. In addition, there are 217 pharmacists, 111 licensed pharmacies, and 114 dentists. In total, the medical industry provides over 10,000 jobs in the Permian Basin.

The Medical Center Hospital in Odessa works in partnership with Texas Tech Medical Center to provide professional medical training for the Permian Basin in the areas of physical therapy, physician assistants, internal medicine, family and community medicine, obstetrics and gynecology, and nursing.

Odessa College, Midland College, and Howard College all provide medical training programs including emergency medical services, licensed vocational nursing, health information technologies, medical assistants, and surgical technologies.

The targeted occupations defined for the medical industry cluster include:

- Licensed vocational nurses
- Registered nurses
- Medical assistants
- Medical and clinical laboratory technicians
- Radiologic technologists and technicians
- Respiratory therapists
- Dental hygienists
- Nursing aides, orderlies and attendants

#### Manufacturing Industry Cluster

The manufacturing industry provides approximately 8,300 jobs in the Permian Basin with a projected growth to 8,700 by the year 2012.

The community colleges in the Permian Basin provide certificates and training in areas that support manufacturing such as welding, air conditioning, heating and refrigeration, machining, and building technologies.

The targeted occupations defined for the manufacturing industry in the Permian Basin include:

- Carpenters, building trades
- Electricians
- Heating Air Conditioning & refrigeration mechanics & installers.
- Machinists

The top 10 manufacturers for the Permian Basin are:

- Flint Hills Corporation
- Big Tex Trailer Manufacturing, Inc.
- Rotary Compressor Systems, Inc.
- Compressor Systems, Inc.
- ALON USA-Refinery

- Western Container Corporation
- Kirby Company
- Permian Tank
- Warren Cat Power
- Transpecos Foods

#### Education Industry Cluster

Educational services provide over 16,000 jobs in the Permian Basin with a projected growth to over 20,000 in the year 2012.

There are currently 31 independent school districts in the Permian Basin. There are three community colleges with 4 other satellite campuses and one major university. These institutions work with the different industries to provide training and continuous education for the workforce. In addition, there are two career colleges licensed by the Proprietary Schools Program of the Texas Workforce Commission.

The University of Texas Permian Basin offers a teaching certificate program for undergraduates and a Master of Arts in Education program, and each of the community colleges offer associate of arts in teaching programs. The Region 18 Education Service Center offers an accelerated teaching certificate program for individuals with an existing undergraduate degree.

## D. LOCAL ASSETS

The Permian Basin is strategically located on two major interstate highways with railroad service to much of the region. With stable weather and plenty of wide open spaces, there are numerous local assets of value.

### Local and Regional Economic and Industrial Development Resources

Economic development entities stimulate and enhance trade and industry expansion in the Permian Basin. Eleven cities within the region have an economic development corporation, chamber of commerce and/or industrial foundation involved in economic development: Andrews, Big Spring, Fort Stockton, Lamesa, McCamey, Midland, Monahans, Odessa, Pecos, Seminole and Stanton.

### Financial Institutions

According to the 2007 Multi-County Narrative Profile from Texas Workforce Commission, the Permian Basin region had 61 commercial banks as reported by the Federal Deposit Insurance Corporation (FDIC) with total deposits of over \$6 billion and assets in excess of \$4 billion. The deposit to population ratio was higher for this region compared to the state ratio.

The FDIC reported having one savings and loan institution for the region and 30 credit unions. Total deposits for these institutions in 2007 were over \$800 million and assets were over \$650 million.

### Transportation

#### Highways

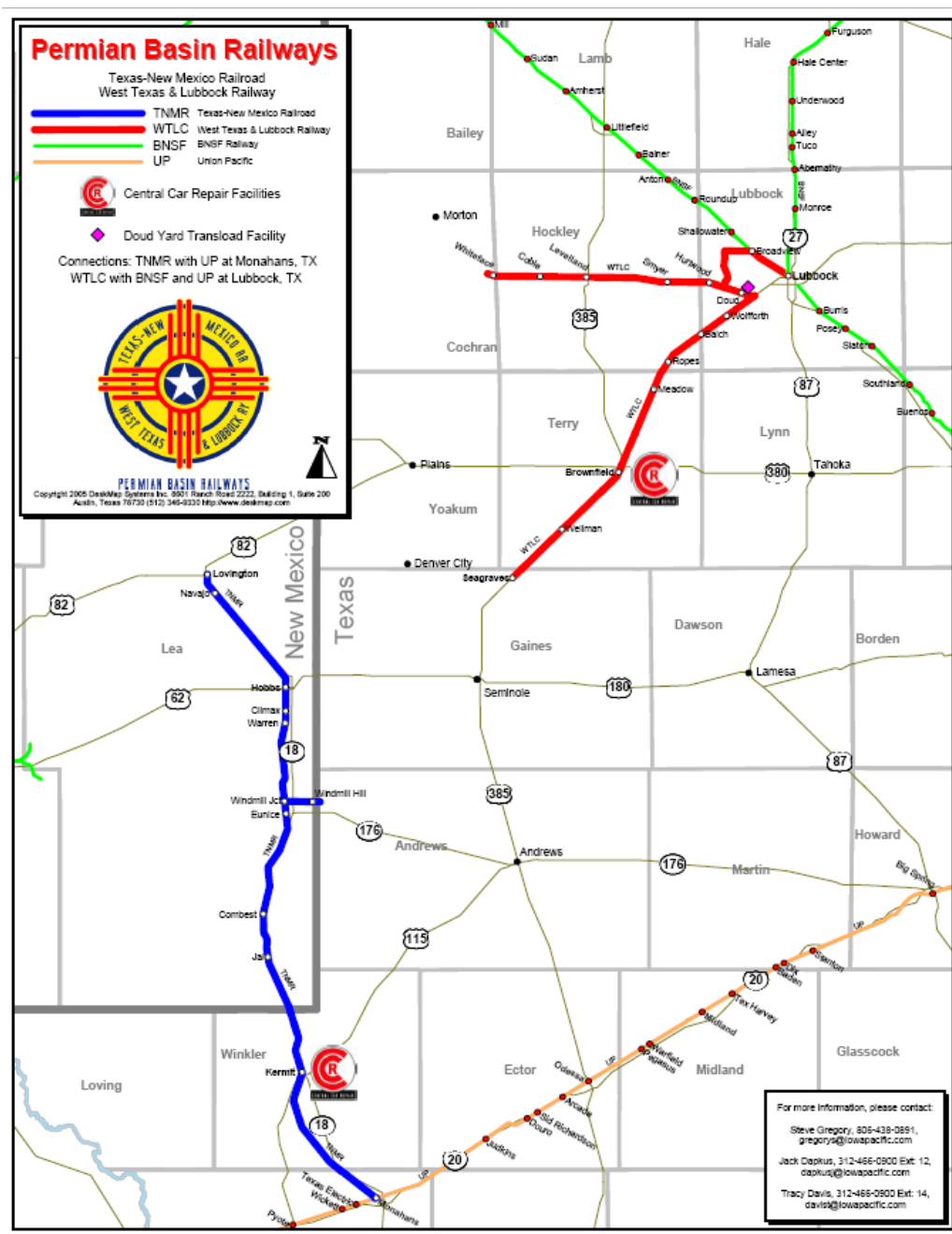
According to the Texas Department of Transportation, there are approximately 4,623 miles of highways and roads in the Permian Basin region. There are two U.S. Interstate highways that pass through the region: I-20 which passes through Reeves, Ward, Ector, Midland, Martin, and Howard counties; and I-10 which passes through Pecos and Reeves counties. Other major highways include U.S. 87 and 180.

Local government, business and industry leaders in the Permian Basin are working together on two initiatives designed to improve the transportation of goods and services from Mexico, through the US and into Canada. The first initiative is the Ports-to-Plains Corridor, a planned, multi-modal transportation corridor that will facilitate the efficient transportation of goods and services from Mexico, through West Texas, New Mexico, Colorado, and Oklahoma, and ultimately on into Canada and the Pacific Northwest. The second initiative is the La Entrada al Pacifico, a state and federally designated trade corridor from Texas to Chihuahua City, Chihuahua, Mexico, and continuing to the Mexican Pacific Port of Topolobampo in the Mexican state of Sinaloa. The project involves the completion of a highway from Chihuahua City, Mexico to Topolobampo, Mexico, and improvement of rail facilities that will offer Texas long-term access to a Pacific deep water port that is approximately 500 miles closer and much less expensive than the Port of Los Angeles.



## Railroads

The Union Pacific Railroad line passes through Howard, Martin, Midland, Ector, Ward, Terrell, and Reeves counties, parallel in most areas to I-20 and I-10. The Texas Pacific Transportation Limited Railroad passes through Upton and Pecos counties. Permian Basin Railways serves Gaines, Ward and Winkler counties. Depending on the route, the primary commodities hauled are fertilizer, construction aggregates, grain, cotton, chemicals, peanuts, oilfield chemicals and minerals, and industrial waste and scrap. The Texas New Mexico Railroad operates a freight service from a connection with Union Pacific at Monahans to Lovington, New Mexico. The Texas Pacific Railroad is not pictured in the map below.



### Aviation

Midland International Airport is the only major airport in the Permian Basin. Midland International connects individual travelers, air carriers, and private, business, and commercial transportation to major cities in the United States and the global community.

Thirteen cities or counties in the Permian Basin operate an airport, providing small private, business, or commercial air transportation. These are:

- Big Spring – McMahon Wrinkle Airport
- Lamesa Municipal Airport
- Stanton Municipal Airport
- Andrews County Airport
- Fort Stockton Pecos County Airport
- Upton County Airport
- Roy Hurd Memorial Airport (Monahans)
- Odessa Schlemeyer Field
- Pecos Municipal Airport
- Gaines County Airport
- Winkler County Airport
- Crane County Airport
- Iraan Municipal Airpark
- Midland Airpark
- Skywest Inc., Midland

### Public Transportation

Public transportation is available on a limited scale within the Permian Basin.

EZ RIDER is the public transportation provider in Midland and Odessa, and provides fixed-route bus service and ADA curb-to-curb service within the urbanized areas of both cities.

The West Texas Opportunities Permian Basin Rural Transit District program provides professional, cost effective, coordinated passenger transportation services to the general public in the seventeen counties of the Permian Basin from 8:00 a.m. to 5:00 p.m. The demand-response service is used mainly to take people shopping or to medical appointments in their community or to other cities. It is not widely used to transport people to and from work. In 2007, there were 128,084 one-way riders. This number fluctuates year to year based on various grants the district has received.

Recently receiving a rural transportation grant, the transit district now offers daily rides to work into Midland and Odessa from 3 rural communities – Big Springs, Andrews and Monahans. The Big Spring route has started, and ridership recruitment is under way for the other two routes.

## Education

Within the 17 counties of the Permian Basin, there are 171 school campuses in 31 independent school districts (grades K-12). Each campus receives an accountability rating from the Texas Education Agency (TEA) based on academic performance of their students. According to data gathered from the TEA 2008 Accountability Rating System (does not include West Texas State School), 89% of the campuses received a rating of academically acceptable or above. Of special note, campuses in four counties had a rating of exemplary – El Magnet at Reagan EL campus in Ector County; Sanderson Elementary campus in Terrell County; Forsan Elementary in Howard County and Grady campus in Martin County. Five campuses in three counties were rated academically unacceptable.

The institutions of Higher Education in the Permian Basin include the University of Texas Permian Basin, three community colleges: Howard College in Big Spring with a satellite campus in Lamesa; Midland College in Midland with a satellite campus in Fort Stockton; and Odessa College in Odessa with satellite campuses in Andrews and Reeves counties, and one independent senior college: Southwestern Christian College in Terrell, Texas. The combined enrollment for all campuses for the fall 2007 semester was 17,610 students, a 2.5% increase from the fall 2006 enrollments.

The two proprietary schools, American Commercial College in Odessa and Southeastern Career Institute in Midland, offer career-focused education and job training. Areas of study in one or both of the schools include:

- Computers – Business Systems, Support Technician, Administrative Assistant, Accounting Specialist
- Health Care – Dental Assistant, Medical Assistant, Office Specialist, Health Information Coding/Billing
- Professional – Electrical Technician and Data Entry

The West Texas P-16 Council is actively working to meet the goals of the Texas Higher Education Coordinating Board's *Closing the Gaps* education plan. The Council is working with education, community, and industry leaders to determine better ways to prepare students for college and the workforce and to establish a "college going" culture in West Texas. Strategies for success include developing and enhancing engineering, technology, petroleum and alternative energy, business, and medical field programs; attracting and retaining students from underrepresented groups; recruiting and preparing quality educators; and building and maintaining strong collaborations between schools, institutions of higher education, and industry leaders.

The following table lists the school districts, colleges, universities and training institutions by county:

County	I.S.D./Charter Schools	College/University	Population	Proprietary Training Institutions
Andrews	Andrews I.S.D.	Odessa College Satellite Campus	K – 12 College	
Borden	Borden I.S.D.		K – 12	
Crane	Crane I.S.D.		K – 12	
Dawson	Lamesa I.S.D. Dawson I.S.D. Klondike I.S.D. Sands I.S.D.	Howard College Satellite Campus, Lamesa	K – 12 College	
Ector	Ector C. I.S.D.	University of Texas Permian Basin, Odessa Odessa College	K – 12 College University	Commercial College of Odessa
Gaines	Seminole I.S.D. Seagraves I.S.D. Loop I.S.D.		K – 12	
Glasscock	Glasscock I.S.D.		K – 12	
Howard	Big Spring I.S.D. Forsan I.S.D. Coahoma I.S.D.		K – 12 College	
Loving	Wink Loving I.S.D.		K – 12	
Martin	Stanton I.S.D. Grady I.S.D.		K – 12	
Midland	Midland I.S.D. Greenwood I.S.D.	Midland College, Midland	K – 12 College	Southeastern Career Institute
Pecos	Fort Stockton I.S.D. Buena Vista I.S.D. Iraan Sheffield I.S.D.	Midland college Satellite Campus, Fort Stockton	K – 12 College	
Reeves	Pecos, Barstow, Toya I.S.D. Baltimore I.S.D.	Odessa College Satellite Campus, Pecos	K – 12 College	
Terrell	Terrell Co. I.S.D.		K – 12	
Upton	McCamey I.S.D. Rankin I.S.D.		K – 12	
Ward	Monahans-Wickett-Pyote I.S.D. Grandfalls I.S.D. West Texas State School		K – 12	
Winkler	Kermit I.S.D.		K – 12	

### Medical and Health Services

The medical and health services industry provides over 10,000 jobs in the Permian Basin. Within the 17 counties of the Permian Basin, there are 23 acute care and psychiatric hospitals. As stated previously, there is at least one hospital in each county, with the largest medical facilities being Midland Memorial Hospital and the Medical Center Hospital in Odessa.

Midland Memorial, a publicly owned non-profit hospital, is a fully accredited, acute-care institution with 320 licensed beds, over 1,400 employees, and more than 200 admitting physicians. In addition to the main hospital, Midland Memorial has three other facilities: an 87,000 square foot medical office building connected to the hospital; the Abell Hanger Medical Pavilion which houses the MRI Department and the Occupational and Physical Therapy Center; and the Midland Memorial Hospital West Campus which offers services for women and children.

The Medical Center Hospital in Odessa (MCH) is a four square block medical center and is the second largest employer in Ector County employing more than 1,400 employees. MCH has more than 200 practicing physicians in over 30 specialties. It is home to a variety of service centers: Center for Heart Disease, Outpatient Services, Radiology Services, Cancer Center, Family Health Dental Clinic and The Perinatal Center. These centers offer a full range of health care services to people of all ages in the 17-county region. MCH, along with several community partners, created a state-of-the-art mobile care program in September 2007. The Care Mobile is a pediatric medical clinic on wheels that has provided services to thousands of patients with little access to health care.

Also in Odessa is the Texas Tech University Health Sciences Center at the Permian Basin providing higher medical education in allied health sciences, medicine and nursing. The Permian Basin campuses include The School of Allied Health Sciences, The School of Medicine, and The School of Nursing. Patient health care is provided by the Texas Tech Physicians of the Permian Basin in the facilities located in Odessa and Midland. Texas Tech University Health Sciences Center at the Permian Basin currently operates 21 Women, Infant and Children (WIC) clinics located in Andrews, Big Lake, Crane, Fort Stockton, Iraan, Kermit, McCamey, Midland, Monahans, Odessa, Ozona, Pecos, Saragosa and Stanton. The Texas Tech University Health Sciences Center F. Marie Hall Institute for Rural and Community Health directs much of its effort in the areas of health care workforce development, enhanced access with technology such as telemedicine, and rural research. Their mission is to improve the health of West Texans.

The community colleges in the Permian Basin also provide medical training for licensed vocations nurses (LVNs), emergency medical technicians (EMTs), and medical laboratory technicians.

## **E. REGIONAL ANALYSIS**

Interviews, observations and discussions with stakeholders in the region identified assets and challenges in the Permian Basin region. An analysis of the economy revealed strong economic growth, largely due to the oil and gas industry. Regional leaders recognize opportunities for industry diversification, entrepreneurship and regional collaboration. In turn, leaders voiced awareness of threats to the region – lack of housing, unskilled workforce and adequate infrastructure – as major barriers to economic expansion.

The CEDS Committee agreed the following strengths, weaknesses, opportunities and threats paint a picture of the Permian Basin region. Based on these factors, goals, objectives, implementation groups and performance measures were developed as the roadmap to driving immediate and deliberate actions to economic stability and prosperity.

## Strengths, Weaknesses, Opportunities, and Threats in the Permian Basin Region

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Abundance of land in some areas</li> <li>• Available alternative energies – wind, solar, oil, gas, geothermal, and nuclear</li> <li>• Energy business is booming</li> <li>• Expertise being shared between private and public sectors to promote energy industry</li> <li>• Stable weather</li> <li>• Attainment area; no major pollutants</li> <li>• Plentiful industrial water supplies</li> <li>• Regional leadership meetings</li> <li>• Location – on I-20 and I-10 with I-27 expansion planned and reliever routes being built to I-20</li> <li>• Education – UTPB, 3 community colleges, the West Texas Regional P-16 Council, and the UTPB Center for Energy &amp; Diversification</li> <li>• SBA using technology for business development</li> <li>• Combined efforts of Workforce staff and EDCs to recruit out-of-region workers</li> <li>• East/West railroad service</li> <li>• Midland International Airport</li> <li>• Building of Performing Arts Center</li> <li>• Large capacity road systems</li> <li>• Low congestion on roadways</li> <li>• Texas Pecos Trails Program</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of skilled workforce, especially in rural areas</li> <li>• Workforce availability with low unemployment</li> <li>• Capital investments</li> <li>• Rural areas losing business/people to Midland/Odessa</li> <li>• Affordable housing and building thereof</li> <li>• Lack of alternative energy transmission capability specifically to metropolitan areas</li> <li>• No North/South railroad service</li> <li>• Competitiveness and lack of cohesiveness between communities in region</li> <li>• Highways and county roads deteriorating</li> <li>• “Quality of Life” not attractive to young people</li> <li>• Lack of minorities in professional positions</li> <li>• Lack of marketing plan for region</li> <li>• Lack of funds to support dedicated economic and community development staff in rural areas</li> <li>• Lack of technology centers in rural areas that would support long-distance learning</li> <li>• Size of the communities limit industry development in the rural areas</li> <li>• Transportation infrastructure between communities not adequate to support industrial distribution</li> <li>• Lack of cooperation of Union Pacific</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Build up tourism throughout region</li> <li>• Strengthening of out-of-region recruitment</li> <li>• Entrepreneurship training and assistance</li> <li>• Development of a skilled workforce through planned training and educational opportunities, starting with youth</li> <li>• Organized effort to request money for research and development of alternative energy, product development and diversification opportunities</li> <li>• Partner with government entities, and state and federal elected officials to support the region. Example is to leverage state investment dollars in wind energy transmission capability</li> <li>• Diversification of economic base</li> <li>• Establishment of a conduit to sell alternative energy products</li> <li>• Unified regional plan for economic development</li> <li>• Raise awareness level of alternative energy opportunities in region</li> <li>• Establishment of rural hubs for distance learning</li> <li>• Clean coal plant being built</li> <li>• Public transportation interconnectivity</li> <li>• Regionalism – uniting efforts to promote and market the region as a great place to live and work</li> <li>• Development of an intermodal rail yard to assist with the delivery of supplies for energy drilling projects</li> </ul>	<ul style="list-style-type: none"> <li>• Competition with other regions for skilled workforce</li> <li>• Competition for federal funding with cities east of I-35 – dependent on federal dollars</li> <li>• Growth outpacing building of infrastructure</li> <li>• Lack of housing keeps workers away</li> <li>• Rising cost of fuel for business operations</li> <li>• Deterioration of city/county buildings</li> <li>• Non-diversified population – minorities feel more accepted when diversity is promoted</li> <li>• Nuclear family is diminishing – youth inclined to leave area</li> <li>• Lack of housing threatens economic expansion</li> </ul>

## **F. CONCLUSION**

The Permian Basin derives much of its economic success from the petroleum industry. The basin produced more than half of the crude oil production for Texas and has the majority of crude oil reserves in the state. Due to the location of the Permian Basin, the region has the unique opportunity to diversify its energy production through solar and wind energies. The region also has the opportunity to develop nuclear and geothermal energy.

Independent school districts throughout the region serve the educational needs of elementary and secondary level students. Increasing the high school graduation rate is important to school officials as they search for new ways to engage students and parents in the educational system. Higher education institutions are accessible and experienced at providing workplace skills training. Enrollment has increased over the past year at UTPB and the community colleges. Through coordination and collaboration, higher education can be within reach for more and more of the region's population.

Public transportation within the region exists, but is limited in daily transportation routes to and from the rural areas and hours of operation. The region needs a transportation infrastructure that can support the development of the region.

Industry diversification, workforce preparedness and available housing are three of the major threats facing the region and thus represent three areas of deliberated, planned activity on the pages that follow.

If the Permian Basin region is to continue economic growth and prosperity through comprehensive strategic planning and collaborative intra-regional partnerships, leadership will be paramount. In the face of declining oil prices, the region is at risk for losing the momentum created through the planning effort. The following plan provides a roadmap for progress that will fully mobilize the region's human capital, resources and assets.

Leadership will bear the burden of sustaining optimism and focusing resources on action. The resounding message from forum participants was a call to action. What follows is their plan for moving forward for progress in the Permian Basin.



## IV. VISION STATEMENT, GOALS, OBJECTIVES AND IMPLEMENTATION PLAN

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**VISION STATEMENT:** *The Permian Basin is a region enjoying economic growth and prosperity through industry diversification, strategic planning and collaborative regional partnerships.*

In order to achieve this vision, the Permian Basin Regional Planning Commission and Comprehensive Economic Development Strategy Committee developed the following plans focusing on five key areas for the region: Education and Workforce Development, Transportation and Infrastructure, Housing, Industry Diversification and Regional Marketing and Outreach. Central to this plan is the creation of a regional Economic Development District partnership and the regular convening of work groups to keep progress moving forward.

## EDUCATION AND WORKFORCE DEVELOPMENT

Goal: Ensure that the Permian Basin offers employers a qualified workforce well prepared to meet the needs of existing and future industry within the region.

Objectives	Performance Measures	Implementation Groups	Time
Develop a comprehensive regional plan for Career and Technology Education	Plan completed	Participants from CTE training providers; Region 17 and 18 Education Service Centers; Howard College; Midland College; Odessa College; UTPB; 31 ISD's in region; PBRPC; CEED; Permian Basin Workforce Solutions; Industry leaders	Year 1
Implement the plan	Plan implemented and shared with education partners	CTE Steering Committee	Year 2-5
Support and promote programs aimed at improving high school graduation rates and college enrollment	New programs; increase in high graduation rates and college enrollments	Participants from ISD's; PTO's; UTPB; Region 17 and 18 Education Service Centers; Howard College; Midland College; Odessa College; West Texas P-16 Council; PB Workforce Solutions	Year 1-5
Support UTPB in establishing and developing academic programs that are relevant to industry needs	Program development; increase in skills development programs	Participants from UTPB; industry leaders; Texas Department of Agriculture; PB Workforce Solutions	Year 1-5
Develop a comprehensive regional workforce recruiting plan	Recruitment plan developed	Participants from Economic Development Corporations; Chamber of Commerce organizations; PB Workforce Solutions; PBRPC	Year 1
Implement the recruitment plan	Plan implemented; recruitment numbers are tracked with 2 <sup>nd</sup> year showing 10% increase in numbers	Recruitment Steering Committee	Year 2-3

## TRANSPORTATION AND INFRASTRUCTURE

Goal: Explore and promote comprehensive planning solutions to ensure the Permian Basin transportation infrastructure meets the needs of employers and citizens.

Objectives	Performance Measures	Implementation Groups	Time
Market transportation options throughout the region	Increase in ridership of public transportation systems	Participants from West Opportunities Transit District; EZ Rider; Permian Basin Workforce Solutions; Cities and Counties; PBRPC; Industry leaders	Year 1
Support the creation of regional water/wastewater management strategies	Regional strategies developed	Participants from Economic Development Corporations; Chamber of Commerce organizations; PBRPC; Cities and Counties; Industrial Parks	Year 1
Create a master, multi-modal regional transportation infrastructure plan	Plan completed	Participants from Cities and Counties; Economic Development Corporations; TxDOT; West Opportunities Transit District; EZ Rider; PBRPC; Midland International Airport; Union Pacific; Permian Basin Railways; Texas Pacific Railroad; PBRPC; Industry leaders	Year 2
Implement the plan	Plan implemented	Transportation Steering Committee	Year 3-5
Support the development of community/county land use, transportation and economic development plans	Plans developed for each community and/or county	Participants from Economic Development Corporations; Chamber of Commerce organizations, Industrial Parks; CEED; PBRPC; Cities and Counties; Industry leaders	Year 2-3

## HOUSING

Goal: Support the expansion of housing options throughout the Permian Basin Region.

Objectives	Performance Measures	Implementation Groups	Time
Support the establishment of a Permian Basin Housing Alliance	Alliance established	Participants from Cities and counties; Economic Development Corporations; CEED; PB Home Builders Association; Texas Department of Agriculture; PBRPC; Small Business Development Corporation; Housing Development Corporations; HUD; Section 8 Housing	Year 1
Develop an innovative rural housing development model	Model developed	Permian Basin Housing Alliance	Year 2
Implement the model	Model implemented	Permian Basin Housing Alliance	Year 2-3
Promote the use of rehabilitation loan and other funding sources to improve/expand housing in target neighborhoods	Increase in funding sources and increase in low-income housing units	Participants from Economic Development Corporations; PBRPC; Cities and Counties; Section 8 Housing; HUD	Year 1

## INDUSTRY DIVERSIFICATION

Goal: Work as a Region united to attract and expand industry and entrepreneurship throughout the Permian Basin.

Objectives	Performance Measures	Implementation Groups	Time
Establish a single regional partnership for promotion and advocacy of Permian Basin economic development	Partnership established; Executive Director hired	Economic Development Corporations; Small Business Development Center; CEED; Cities and Counties; PBRPC; Chamber of Commerce organizations; Industrial Park members; UTPB; Industry leaders	Year 1
Identify and pursue industry expansion among new and emerging energy markets	Documentation of workforce and natural assets	Permian Basin Economic Development Partnership	Year 2
Establish a Permian Basin energy innovation/entrepreneurship initiative	Energy initiative developed	Permian Basin Economic Development Partnership	Year 2
Implement the initiative	Energy initiative implemented	Permian Basin Economic Development Partnership	Year 3-5
Establish venture capital/investor network to support Permian Basin entrepreneurs	Venture/Capital Network established	Permian Basin Economic Development Partnership	Year 4-5

## REGIONAL MARKETING AND OUTREACH

Goal: Work as a Region united to promote the Permian Basin as a great place to work and live.

Objectives	Performance Measures	Implementation Groups	Time
Develop a comprehensive regional marketing and branding strategy and campaign for the Permian Basin	Strategy and campaign developed	Permian Basin Economic Development Partnership with participants from Cities and Counties; PBRPC; Economic Development Corporations; Chamber of Commerce organizations; CEED; UTPB; Area Community Colleges; Industry leaders; Industrial Parks	Year 1-2
Implement the campaign	Campaign implemented	Permian Basin Economic Development Partnership and Regional Marketing Team	Year 2-3
Host periodic regional economic development summits to encourage education and planning among the region's economic developers and encourage regional collaboration and promotion	2 summits held per year; at least half of economic development organizations in region attend summits	Permian Basin Economic Development Partnership, PBRPC, Regional Marketing Team	Year 2
Establish a regional advocacy committee to educate local, regional, state and federal officials regarding the importance of the Permian Basin to state and national economies	Advocacy committee established	Permian Basin Economic Development Partnership, PBRPC, Regional Marketing Team	Year 2
Implement advocacy plan	Advocacy plan developed and implemented	Regional Advocacy Committee	Year 3-5

## V. RESOURCES

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U. S. Census Bureau	<a href="http://www.census.gov">www.census.gov</a>
Texas Workforce Commission	<a href="http://www.twc.state.tx.us">www.twc.state.tx.us</a>
Sites on Texas	<a href="http://sitesontexas.extendthereach.com/">http://sitesontexas.extendthereach.com/</a>
Labor Market and Career Information	<a href="http://www.tracer2.com">www.tracer2.com</a>
Ingham Economic Reporting	Excerpts of <i>the Economy of the Permian Basin Workforce Development Area Report</i>
Bureau of Economic Analysis	<a href="http://www.bea.gov">www.bea.gov</a>
Texas Railroad Commission	<a href="http://www.rrc.state.tx.us">www.rrc.state.tx.us</a>
Texas EDGE (Economic Data for Growth and Expansion)	<a href="http://www.window.state.tx.us/texasedge">www.window.state.tx.us/texasedge</a>
Texas Education Agency	<a href="http://www.tea.state.tx.us">www.tea.state.tx.us</a>
Texas State Data Center	<a href="http://txsdc.utsa.edu/">http://txsdc.utsa.edu/</a>
Texas Higher Education Coordinating Board	<a href="http://www.thecb.state.tx.us">www.thecb.state.tx.us</a>
University of Texas Permian Basin	<a href="http://www.utpb.edu">www.utpb.edu</a>
Union Pacific Railroad	<a href="http://www.uprr.com">www.uprr.com</a>
Permian Basin Railways	<a href="http://www.permianbasinrailways.com">www.permianbasinrailways.com</a>
West Texas P-16 Initiative	<a href="http://www.texasp-16.com">www.texasp-16.com</a>
Texas Department of Transportation	<a href="http://www.txdot.state.tx.us">www.txdot.state.tx.us</a>
National Renewable Energy Laboratory	<a href="http://www.nrel.gov">www.nrel.gov</a>
Technology Review, MIT	<a href="http://www.technologyreview.com">www.technologyreview.com</a>

# APPENDIX A

## PERMIAN BASIN REGIONAL PLANNING COMMISSION Economic Development District Board of Directors 2009

First Name	Last Name	Area	Req 1	Req 2	Req 3	Affiliation
Lester	Baker	City of Stanton	✓			Business Owner (Catering)
Mark	Barr	Howard County	✓			Business Owner (Rancher)
Wilburn	Bednar	Glasscock County			✓	County Judge
Corky	Blocker	Martin County			✓	County Judge
Mike	Bradford	Midland County			✓	County Judge
Vikki	Bradley	Upton County			✓	County Judge
Sam	Contreras	Reeves County			✓	County Judge
Richard	Dolgener	Andrews County		✓		Ex-Officio – Andrews CC & EDC , PB Workforce Development Board
John	Farmer	Crane County			✓	County Judge
Greg	Holly	Ward County			✓	County Judge
Joe	Hurt	Ector and Crain Counties	✓			Sandhills Soil & Water Dist. BoD & Business Owner (PBP Fabrication)
Skeet	Jones	Loving County	✓			Business Owner (Contracting)
Tom	Keyes	Gaines County			✓	County Judge
Bonnie	Leck	Winkler County			✓	County Judge
Ovidio	Martinez	City of Seagraves		✓		Seagraves EDC BoD
Larry	Melton	City of Odessa		✓		Odessa CC BoD, City Council, & EDC
Wesley	Perry	City of Midland	✓			Chairman, EGL Resources; River Foundation BoD; UTG Insurance BoD
Susan	Redford	Ector County		✓		Ex-Officio – Odessa CC
Sam	Saleh	Dawson County			✓	County Judge
Joe	Shuster	Pecos County		✓		Advisory Board, Midland College, Fort Stockton Campus WRTTC
Leo	Smith	Terrell County			✓	County Judge
Ted	Westmoreland	City of Kermit			✓	Mayor
Van L.	York	Borden County	✓			Business Owner (Cattle Ranch)
<b>TOTALS</b>			<b>6</b>	<b>5</b>	<b>12</b>	
<b>Percentage</b>			<b>48%</b>		<b>52%</b>	

Special Requirements – Code of Federal Regulations, Title 13, Vol1; CITE: 13CFR304.2

The District Organization must demonstrate that its governing body is broadly representative of the principal economic interests of the Region, and, unless otherwise prohibited by applicable State or local law, must include:

- 1) At least one (1) Private Sector Representative,
- 2) At least one (1) or more of the following: Executive Directors of Chambers of Commerce, or representatives of institutions of post-secondary education, workforce development groups or labor groups,
- 3) At least a simple majority (51%) of its membership who are elected officials and/or employees of a general purpose unit of State, local or Indian tribal government who have been appointed to represent the government.

NOTE: The first two requirements must comprise in the aggregate a minimum of thirty-five (35) percent of the District Organization's governing body.

NOTE: Upon the District Organization's showing of its inability to locate a Private Sector Representative to serve on its governing body following extensive due diligence, the Assistant Secretary may waive the Private Sector Representative requirement.



**PERMIAN BASIN REGIONAL PLANNING COMMISSION**  
**Comprehensive Economic Development Strategy Committee**

<b>First Name</b>	<b>Last Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Private Sector</b>
Tommy	Baker	Director	University of Texas Permian Basin Small Business Development Center	
Lester	Baker	City of Stanton	Business Owner (Catering)	✓
Mark	Barr	Howard County	Business Owner (Rancher)	✓
Wilburn	Bednar	Glasscock County	County Judge	
Mandy	Bingham		Scenic Mt. Medical Center	✓
Corky	Blocker	Martin County	County Judge	
Mike	Bradford	Midland County	County Judge	
Vikki	Bradley	Upton County	County Judge	
Kyle	Carroll	Operations Manager	Union Pacific Railroad	✓
Sam	Conteras	Reeves County	County Judge	
Richard	Dolgener	Andrews County	Ex-Officio – Andrews CC & EDC , PB Workforce Development Board	✓
John	Farmer	Crane County	County Judge	
Suzanne	Gentry	Director of Volunteers in Politics	West Texas Central Union, AFL-CIO	
Morris	Haynes	Facilitator Executive Director	Permian Basin Regional Housing Alliance Monahans Economic Development Corporation	✓
Greg	Holly	Ward County	County Judge	
Joe	Hurt	Ector and Crain Counties	Sandhills Soil & Water Dist. BoD & Business Owner (PBP Fabrication)	✓
Tom	Jones		Waste Control Specialists: Nuclear Waste Facility	✓
Skeet	Jones	Loving County	Business Owner (Contracting)	✓
Tom	Keyes	Gaines County	County Judge	
Bonnie	Leck	Winkler County	County Judge	
Rudy	Martinez	General Manager	Quell Petroleum	✓
Ovidio	Martinez	City of Seagraves	Seagraves EDC BoD	✓
Doug	Mays	Owner	Rancher	✓
Larry	Melton	City of Odessa	Odessa CC BoD, City Council, & EDC	✓
Felipe	Morales	President	Morales and Maes Financial	✓
Wesley	Perry	City of Midland	Chairman, EGL Resources; River Foundation BoD; UTG Insurance BoD	✓
Michel	Powers	Owner	Powers Diesel	✓
Susan	Redford	Ector County	Ex-Officio – Odessa CC	✓
Sam	Saleh	Dawson County	County Judge	
Joe	Shuster	Pecos County	Advisory Board, Midland College, Fort Stockton Campus WRTTC	✓
Hoxi	Smith	Director of	Petroleum Professional Development , Midland College	
Leo	Smith	Terrell County	County Judge	
Willie	Taylor	Executive Director	Workforce Solutions Permian Basin, Permian Basin Workforce Development Board	
Robert	Tobias	Executive Director	Pecos Economic Development Corporation	
Vivian	Vinegas		Florida Power and Light	✓
Ted	Westmoreland	City of Kermit	Mayor	
Van L.	York	Borden County	Business Owner (Cattle Ranch)	✓
			<b>Total Members</b>	<b>37</b>
			<b>Total Private Sector</b>	<b>52%</b>
			<b>Total Public/Other</b>	<b>48%</b>

NOTE: The CEDS committee must comprise of at least 51 percent private sector representatives

Definition – Code of Federal Regulations, Title 13, Vol 1: CITE 13CFR300.3

Private Sector Representative means, with respect to any for-profit enterprise, any senior management official or executive holding a key decision-making position, or that person's designee.

### **COUNTY FACT SHEETS**

County Fact Sheets from each of the 17 counties in the Permian Basin obtained from the Labor Market and Career Information Department of the Texas Workforce Commission.

Andrews  
Borden  
Crane  
Dawson  
Ector  
Gaines  
Glasscock  
Howard  
Loving  
Martin  
Midland  
Pecos  
Reeves  
Terrell  
Upton  
Ward  
Winkler