Council's Report to the Governor

Governor's Competitiveness Council

July 2008

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Chief executive officers recently ranked Texas as the number one state to do business in the nation, citing a strong and growing economy, low cost of living, and high quality of life.[1] Since July 2003, Texas added more than 1.2 million jobs, built nearly 1,000 new plants by companies like Microsoft, Samsung, and Fujitsu, and since 2005, created 345,000 new jobs by foreign-owned companies.[2] Over the 12-month period ending in April 2008, Texas added 262,000 jobs – more than half of the total jobs added in the U.S. – and saw the unemployment rate drop to 4.1 percent in April 2008, nearly 1 percent lower than the national average. Despite the tremendous growth and opportunity created, Governor Perry recognizes the state must continually work to stay competitive in a fast-paced global economy.

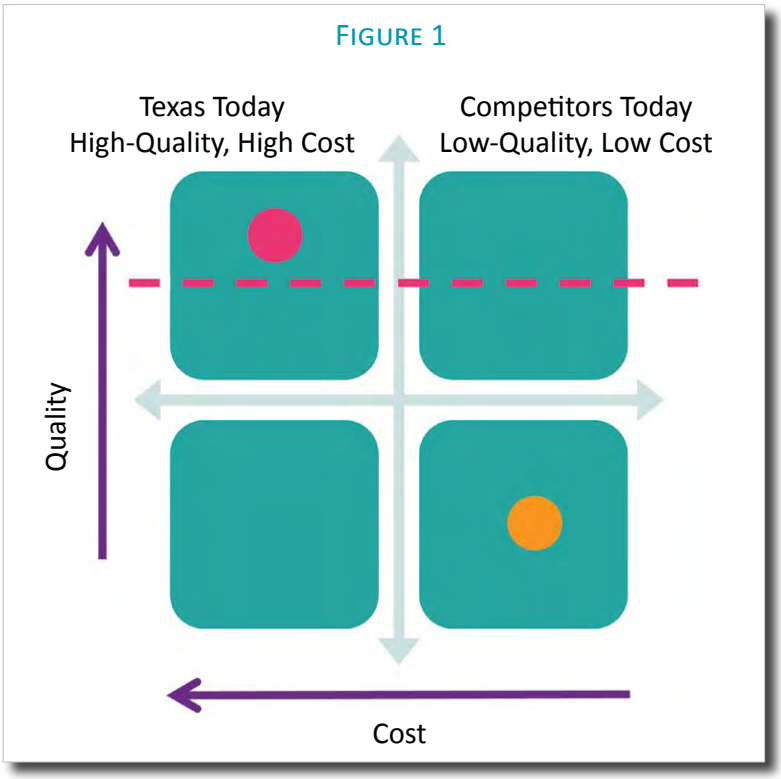
> *"To remain competitive in the 21st century global economy, Texas must create a seamless system of opportunity and innovation, starting when young Texans enter grade school and continuing until they graduate from college, qualified for jobs that will keep our state at the forefront of the global market."*
>
> *– Governor Rick Perry*

Texas has demonstrated economic success over the past several years, but the marketplace is changing and becoming increasingly complex and competitive. Today, Texas primarily competes for new and existing business by offering high-quality business conditions. When compared to regions around the globe, Texas is a competitive location for industries requiring high-quality business conditions at a premium for that quality.

Currently, Texas escapes direct competition from some emerging global competitors with lower costs, such as Bangalore and South Korea, because those regions do not offer the high-quality conditions that many industries, such as biotechnology, require. The difference in quality and cost primarily relate to the talent available in Texas' workforce. (See Figure 1)

Texas should anticipate that competition to attract business and become a global leader in certain industry clusters will increase sharply in the next five to 10 years because the trends that have increased global economic competition thus far are accelerating. IBM's recently completed CEO Survey 2008 finds that CEOs around the world will dramatically increase their investments in different countries and become "globally integrated enterprises."

FIGURE 1



1 "CEOs Weigh In On Best, Worst States To Do Business." Chief Executive. 22 Jan 08. 7 July 08 <http://www.chiefexecutive.net>. Path: Search; CEOs Weigh In.
2 "Texas v. Ohio: Two Different Approaches." Wall Street Journal. 3 Mar 2008. 7 July 08 <http://online.wsj.com/article/SB120450306595906431.html>

In a complementary but disturbing trend, the best talent in emerging economies, such as India and China, is beginning to stay home instead of migrating to America because globalization is creating attractive opportunities and a more favorable quality of life in their home countries.

As emerging competitors retain more of the talent that their governments and U.S. universities are helping produce, the quality of their business conditions will improve without a significant increase in cost. Improved business conditions lead to greater foreign investment in those economies and will permit emerging economies to migrate into a sharply competitive high-quality, low-cost "sweet spot," represented by the red circle in Figure 2.

Texas, like many other leading economic regions in the U.S., does not have a viable strategy for migrating toward the high-quality, low-cost sweet spot quadrant; it could only do so by dramatically lowering the cost of the workforce. Therefore, for Texas to remain highly competitive, the most viable option is to increase the business quality dimension. (See Figure 3)

While there are a number of ways to improve business quality, a prominent factor will continue to be the level of workforce talent. Talent is the foundation for the next generation of emerging industries, which will serve as the engines of prosperity in the coming decades. The talent market is becoming incredibly competitive.

Recognizing the importance of continuing to improve its business conditions, Texas is taking active and deliberate measures to ensure it remains competitive in a globally integrated economy. In 2003, Governor Perry supported and signed Senate Bill 275, calling for the development of strategies to strengthen the competitiveness of several key industry clusters. Clusters are defined in the legislation as:

> *"A concentration of businesses and industries in a geographic region that are interconnected by the markets they serve, the products they produce, their suppliers, the trade associations to which their employees belong, and the educational institutions from which their employees or prospective employees receive training."*

FIGURE 2

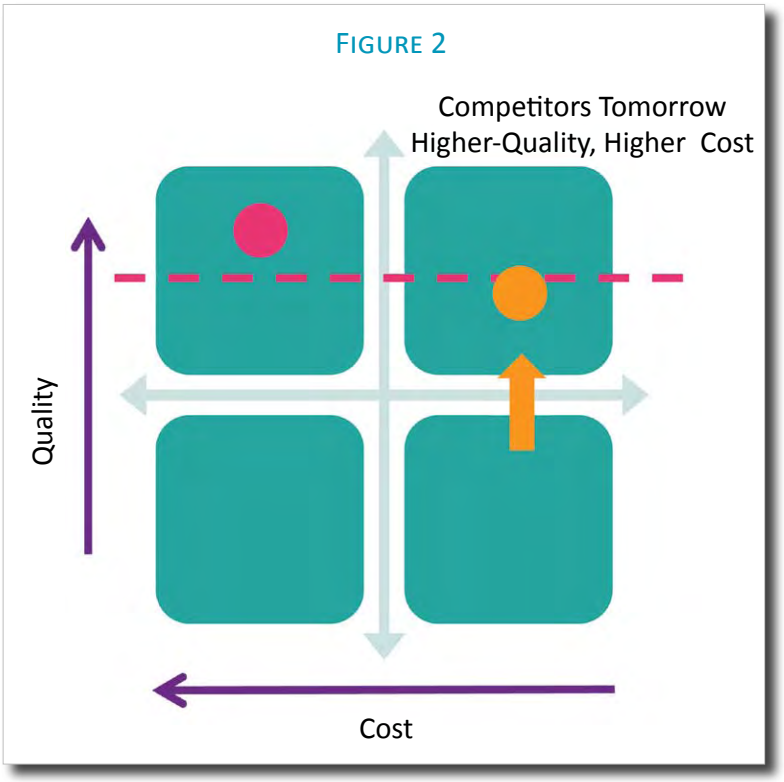
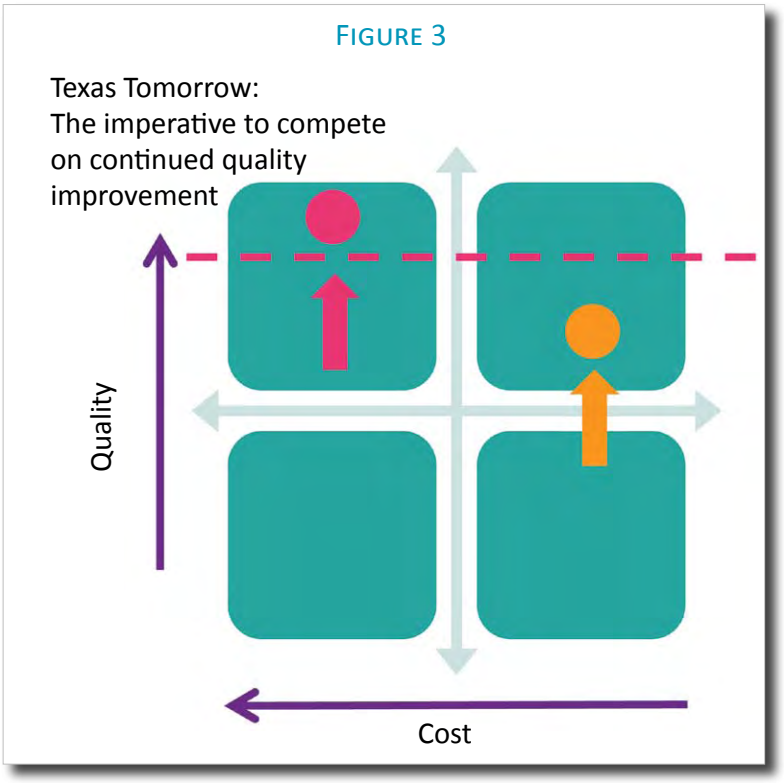


FIGURE 3



From this legislation, the Office of the Governor (OOG) created the Texas Cluster Initiative. The objectives of the Texas Cluster Initiative were to identify the clusters that would drive Texas job creation in the 21st century, and to stimulate the long-term and sustained economic growth of the clusters by developing a strategy focusing state resources on cluster success. The six clusters identified by the Texas Cluster Initiative are:

- Energy;
- Petrochemical;
- Aerospace and Defense;
- Advanced Technologies and Manufacturing;
- Biotech and Life Sciences; and
- Computer and Information Technology.

By focusing on the needs of these clusters, Texas will be able to maximize its limited resources and better position itself to compete globally in the 21st century. Other industries linked to the target clusters will also benefit from this approach, as success in these core clusters increases long-term competitiveness and regional prosperity in other industries. As part of the initiative, the OOG, including the Economic Development and Tourism office, along with the Texas Workforce Commission (TWC), and other state agencies, worked to form state and regional partnerships to foster growth and development in the six target clusters. The initiative also led to the development of industry-based strategies for recruitment and expansion within the state.

In November 2007, building upon and continuing the efforts of the initiative, Governor Perry appointed 29 public and private sector leaders to the Governor's Competitiveness Council (GCC). He charged the Council with:

- identifying significant competitiveness issues and opportunities arising from follow-up research on the six targeted industry clusters, and
- making recommendations to the Governor to establish an agenda for action for both the State of Texas and state agencies, whereby opportunities for increasing Texas' competitiveness are leveraged and barriers or weaknesses are eliminated or minimized.

In order to guide the GCC in completing its charges, the GCC adopted the following definition for competition as it relates to Texas' economic positioning in the target clusters:

> *"Competitiveness is the edge. It is the advantage. It is the leg up. It is the desire to not just succeed but to surpass others. It is the essential value in an economy and country based on capitalism. It is the ability of the State of Texas to foster a dynamic economy that allows critical industries to produce goods, services, and new technologies more efficiently and effectively than its relevant competitors while providing consumers with a greater selection at a better value. It is the recognition that Texas competes not just with other states, but with India, China, Ireland, and other countries around the world in the high tech economy. It is the willingness of the State of Texas to invest in the educational and regulatory policies and the human capital that position our key industries to compete successfully in international markets. And it is the recognition that competition benefits all Texans as consumers and citizens."*

In January 2008, to assist the GCC in identifying cluster issues and potential recommendations for improvement, the OOG and TWC, tasked two consulting firms, International Business Machines (IBM) and ICF International (ICF), with preparing a detailed analysis of the six target industry clusters. IBM was tasked with assessing the Advanced Technologies and Manufacturing; Aerospace and Defense; Biotechnology and the Life Sciences; and Information and Computer Technology clusters. ICF was tasked with assessing the Petrochemical and Energy clusters.

Specifically, IBM and ICF International were asked to assess trends in these clusters and Texas' competitive position compared to other global players; to identify barriers to cluster growth for sub-sectors within these clusters and for individual regions within Texas; and to provide specific recommendations on the priorities and programs that will enhance Texas' competitive position. Copies of IBM's and ICF International's reports are provided in appendices A and B, respectively.

In conducting their analyses, IBM and ICF received input through meetings, interviews, and workshops with members of the GCC and several Texas agencies including:

- Governor's Office of Economic Development and Tourism
- Emerging Technology Fund
- Public Utility Commission of Texas
- Railroad Commission
- Secretary of State's Office
- Texas Commission on Environmental Quality
- Texas Comptroller of Public Accounts
- Texas Department of Agriculture
- Texas Department of Transportation
- Texas Education Agency
- Texas Higher Education Coordinating Board
- Texas Workforce Commission
- Texas Workforce Investment Council

Additionally, four work sessions were convened in Austin to solicit input from a range of industry stakeholders from the Energy and Petrochemical clusters and meetings and interviews were conducted with economic development leaders and stakeholders across various regions in Texas including:

- Amarillo
- Austin
- Brownsville
- Greater Dallas
- El Paso
- Houston, including the Bay Area
- McAllen
- San Antonio
- Tyler

The purpose of this report is to recommend actions to the governor that the State of Texas should take to improve its business quality conditions and thereby improve its competitive position in the six industry clusters. These recommendations were informed by the findings of IBM's and ICF International's analyses.

The following is a brief summary and analysis of Texas' competitiveness in each of the six clusters.

2.1 ENERGY

Energy is crucial to the overall competitive performance of the Texas economy. This cluster's performance and ability to adapt to changes in resources and external policies will affect every industry in the state. Texas has a broad and diverse portfolio of energy subclusters and is able to support the full value chain of its energy economy. The Texas Energy cluster employs more than 140,000 people, which is 70 percent of the total U.S. energy workforce. The cluster is competitive and rapidly evolving into new fields of generation and transmission. Energy growth is driven by Texas' overall economic health, strong demand growth, and dynamic market environment. Texas should do more to improve each value-added activity across every segment of the energy sector, from construction to equipment to services for natural gas, coal, nuclear, wind, and solar generation.

Texas leads the nation in overall electricity production and installed wind capacity, and its competitive wholesale power market is among the most robust and demand responsive in the country. The sector however, faces a number of significant challenges. Increased natural gas prices have led to a significant diversification of the state's generation mix. Ensuring additional nuclear, coal, and wind facilities are developed and integrated into the grid is essential for long-term competitiveness. Federal carbon legislation could have significant and potentially negative impacts on wholesale and retail electricity prices and many segments of the Texas economy. To better understand these and other issues, such as the impact of demand-response technology and the need to expand transmission capacity, the Council will submit a comprehensive Energy Plan to accompany this report. This plan provides an objective analysis of these issues and offers recommendations to the governor and the legislature.

2.2 PETROCHEMICAL

Texas has the nation's largest conglomeration of petrochemical businesses, from extraction to refining and petrochemical production. Industry stakeholders characterized Texas as the "nation's kitchen, from which everyone eats." Texas' Petrochemicals cluster maintains a workforce of more than 460,000 employees, representing 15 percent of the total U.S. employment for this cluster. This industry is critical to Texas for its revenue generation and exports. Texas' full petrochemical value chain enables the state to fully support the spectrum of cluster activity and remain domestically and internationally competitive. The cluster has a very high degree of stability, and employment is concentrated in large, established firms.

The Petrochemical Cluster is mature, competing from a world-class base in Texas, facing pressures from external markets, and anticipating increasing environmental pressures. The cluster is experiencing modest job growth but with substantial economic multipliers. While expansion continues, growth may be slowed by the ability to pass on costs and externally imposed regulatory mandates not faced by overseas competitors.

2.3 Aerospace and Defense

Texas is well positioned in the Aerospace and Defense cluster, particularly in aircraft maintenance and aerospace manufacturing. These sub-sectors, along with aerospace research and development, were the focus of analysis in IBM's report. The Texas Aerospace and Defense cluster maintains a workforce of more than 40,000 employees, which is 13 percent of the U.S. total. The strength and leadership of this cluster lies in Texas' ready access to low-cost suppliers via Mexico, the state's existing cluster of airlines and the National Aeronautics and Space Agency (NASA), coupled with the healthy number of defense contracts awarded to state vendors. The presence of a large talent pool and workforce of skilled manufacturing and industry specific employees continue to position Texas as a leader in this cluster.

2.4 Advanced Technologies and Manufacturing

Analysis in the Advanced Technologies and Manufacturing cluster focused on robotics, automobile component manufacturing, and nanotechnology manufacturing sub-sectors. In this cluster, global leadership varies for each sub-sector. Singapore leads in the robotics sector; Monterrey and Shanghai lead in the automobile component sector; and Shanghai, Singapore and Raleigh-Durham lead the nanotechnology sub-sectors. In Texas, Dallas-Fort Worth and Austin have average competitiveness rankings in all three sub-sectors, while San Antonio is competitive for automobile component manufacturing. Robotics and nanotechnology are relatively new fields with an emerging and limited Texas workforce. The San Antonio area maintains the majority of Texas' 26,000 automobile component manufacturing workforce, which is 2 percent of the total U.S. workforce in this cluster.

2.5 Biotech and Life Sciences

The three sub-sectors examined in the Biotechnology and Life Sciences cluster were biopharmaceutical manufacturing, medical device manufacturing, and nano-health. While Singapore is the market leader in this cluster, Texas possesses a number of competitive advantages. Houston and Dallas-Fort Worth rank high in airport and highway infrastructure and possess large populations for subject testing. The presence of the University of Texas provides Austin with strong research and development (R&D) capabilities and commercialization potential. Despite significant strengths, Texas has comparatively few companies currently working in these areas. This is reflected in the relatively small workforce in Texas of about 10,000, which is less than 4 percent of the national workforce in the Biotech and Life Sciences cluster. To remain competitive, Texas must continue to build a workforce to support this cluster and implement focused strategies to increase the number of companies. The state's new Cancer Prevention and Research Institute may present new opportunities for research and growth in this cluster.

2.6 Computer and Information Technology

Analysis in the Computer and Information Technology cluster focused on wireless telecommunications, digital media, and supercomputing sub-sectors. As with biotechnology, governments throughout the world offer incentives and education specific to these sectors. In this highly competitive cluster, Singapore generally scores near or at the top of the intersection of quality and cost. Nevertheless, Houston, Dallas-Fort Worth, and Austin have strong positions in wireless and supercomputing sub-sectors, while all Texas cities compete well in digital media. These sub-sectors make up the majority of Texas' 69,000 employees in this cluster, representing 10 percent of the U.S. workforce in Computer and Information Technology companies.

Over the past few decades, in order to cope with sustained global competitive pressure, America's leading businesses have had to transform the way they operate. Companies that have not transformed have not fared well, as shown by the high rate of turnover in the Fortune 500.

Today, the primary basis of competition has become business model innovation: changing the fundamental elements of what organizations produce, how they produce it, and how they make money. Dell, for example, revolutionized the personal computer business by changing the business model for how personal computers were manufactured and sold. Apple Inc. has prospered by entering a fundamentally different business via the business model innovation that delivered the iPod and iTunes service. CEOs are forecasting unprecedented changes in their organizations over the next five years and business model innovation will be central to those changes.

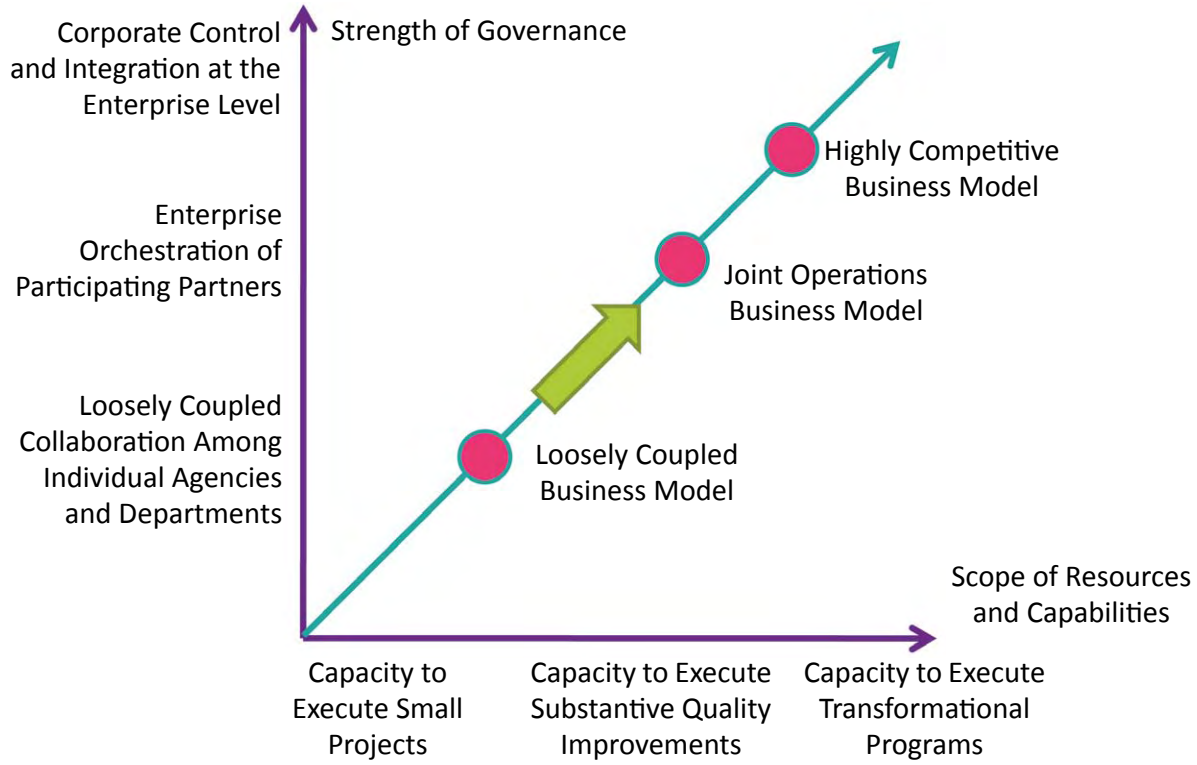
In order to remain competitive, Texas must also look to business model innovation. In Texas, like in most other states, economic development strategies are the outcome of similar activities (marketing, cluster development, tax incentives) loosely coordinated across a broad set of independent actors, including regional economic development authorities, state agencies, and institutions of higher education.

In the current business model, no single agency is responsible and accountable for the relative success or failure of economic development across the regions of a state. Some of the actors that are critical to the success of economic development do not even cite economic development as their primary mission. This model has been successful in Texas because the state has effective leadership, sound management practices, relatively collaborative working relationships, and valuable assets, including leading universities, a favorable business climate, and a legacy of prosperous industries.

However, as new competitors begin to migrate towards the "high-quality, low-cost" segment of the competitive landscape, the drawbacks of the current model for economic development will significantly challenge Texas' competitive position. Emerging global competitors are using a different business model that allows them to play by different rules. The BRIC countries (Brazil, Russia, India, and China) and the Asian Tigers (Korea, Taiwan, Singapore, and Hong Kong) pursue economic development as a fundamental, nation-state objective. The Chinese are not simply hoping to encourage cooperation between industry and higher education; they have significant control over both. When their leaders decide to make huge investments in economic development programs, they can align all state agencies to achieve the program's objectives. If Texas' model is characterized by loosely coupled collaboration, theirs is more akin to a military operation: a clear chain of executive command, a clear mission, and full control over the resources required for success.

Today, it is not feasible for Texas to fully adopt a BRIC country's business model for economic development. However, it can vastly improve operations by adopting a "joint-operations model," where regions and agencies remain autonomous, but the state plays a more central and active role in improving the quality of business conditions. Figure 4 on the next page shows a "competitiveness scale" where the vertical dimension measures the strength of enterprise governance (concentrated authority over the economic development agenda) and the horizontal dimension measures the scope of programs being governed (modest marketing campaigns on the left, full-blown development programs on the right).

FIGURE 4



By implementing the business model innovations proposed in this report, Texas' ability to respond to competitive threats and business conditions will be significantly enhanced. The following section of the report includes our recommendations for transforming the Texas business model in five key transformation categories: talent development, innovation, infrastructure, resources, and governance.

3.1 Talent Development Gaps and Recommendations

Ensuring the state has a high-quality education and workforce system is essential to the state's future prosperity. In a competitive global economy, companies will locate where there is a constant stream of available human resources that can rapidly fill workforce needs. Texas, like the rest of the U.S., is facing significant threats from places like China, India, and Russia in retaining its traditional role as the world leader in innovation, especially in the areas of science, math, and technology because these nations are rapidly developing a competitive and skilled workforce. Further, the state's fast-growing economy is creating an employment demand that will far exceed the supply created by the state's skills pipeline. In coming years, this employee supply deficit will be exacerbated by the retirement of the state's skilled baby boomer population. For instance, the nuclear energy sector will experience an increase in workforce demand of 150 percent in the next 10 years, as compared to a projected increase in supply of only 36 percent. The necessity for an increased workforce is not unique to the nuclear sector; in fact, Texas is expected to experience critical workforce deficits in both higher education graduates as well as graduates from quality training and certification programs in nearly every industry cluster.

Stakeholders across the state warned that if the state's talent development system – which consists of basic education (K-12), community and technical colleges, universities and workforce development – does not make critical changes at every level to ensure a dependable workforce is available, Texas will not remain a high-quality place for doing business.

A successful talent development system begins by preparing students to graduate college- and workforce-ready by having grade-level specific curriculum standards from kindergarten through 12th grade. The essential knowledge and skills required to graduate college- or workforce-ready are the same and should be taught to all students. These college- and workforce-ready graduates are prepared to enter technical and certification training programs, the military, two-year colleges, or four-year universities, which in turn produce graduates with the specific skills needed by key industries. Further, a successful talent development system is cohesive, such that all parts work seamlessly together, dynamic, in that it can rapidly respond to changing workforce demands, efficient, in that tax dollars are spent on effective programs that provide and improve talent, and accountable to the students and the taxpaying public for producing results.

In order to improve Texas talent development outcomes, the Texas system should transform to:

- remove bureaucratic policies that prevent all parts of the system from working seamlessly together to meet workforce demand;
- ensure all students graduate with the skills required to be college- and workforce-ready;
- emphasize accountability and results for all students over institutional preservation;
- improve graduation rates for programs in critical fields; and
- establish performance funding standards that are aligned with the global demand for certain knowledge, skills, and abilities.

Critical changes must also be made to address the state's low graduation rates. Texas must do more to improve its math and science education at all grade levels, including higher education. As innovations accelerate at a pace greater than at any time in history, it is critical that Texas has the scientists and engineers needed to take ideas from development to the marketplace. These changes will enhance students' ability to meet the critical needs of industry in Texas, and result in practices that increase the college and work readiness of students.

3.1.1 K-12 Recommendations

ENSURE STUDENTS GRADUATE COLLEGE- AND WORKFORCE-READY: The essential knowledge and skills required to graduate high school college- and workforce-ready are the same and should be taught to all students at the appropriate grade level. To ensure all students graduate college- and workforce-ready, Texas must adopt clear, grade-level specific curriculum standards that incorporate the recently adopted college readiness standards. Schools must be held accountable each year for ensuring students are on path to achieve college and workforce readiness by graduation and for the number of ninth-grade students who complete high school and enroll in, and complete, postsecondary education. As part of this effort, Texas should especially focus on improving student performance in science, technology, engineering, and mathematics (STEM) education and maintaining or enhancing the requirement that students take a fourth year of math and science in high school.

BETTER PREPARE ALL TEACHERS, INCLUDING MATH AND SCIENCE TEACHERS: We must support our hardworking teachers by ensuring all teacher preparation programs are high quality and are held accountable for student performance. Texas should link incentive funding for institutions of higher education with student performance. Texas should also continue current public education incentive programs that reward teachers with performance bonuses for student achievement.

There are currently four Texas institutions of higher education with UTeach programs, a high quality, National Academies of Science-endorsed program, designed to increase the number of quality, subject matter-trained teachers in the classroom, thereby improving teacher retention rates and student outcomes. Texas should expand this model to other institutions of higher education or take other action to improve teacher preparation outcomes that influence STEM learning.

DEVELOP MODEL CURRICULA: Texas has uniform K-12 curriculum standards. However, great disparity exists in the way the standards are implemented and taught among the more than 1,040 school districts. Texas needs to develop or identify model curricula and teaching practices, particularly in the STEM courses. The model curriculum and teaching practices should incorporate college and workforce readiness standards as well as rigorous applied-learning components. Texas should share the model curricula and teacher practices with school districts and teacher-preparation programs and encourage their use.

EXPAND T-STEM PROGRAM: Texas needs to build upon its recent success in STEM education by creating quality linkages between its Texas STEM (T-STEM) Initiative and local districts. This would include developing more T-STEM academies and centers, as well as enhancing the web-based portal to easily share resources and connect stakeholders across the state. To ensure quality control, the Texas Education Agency (TEA) should create an accreditation process for T-STEM, outlining the essential components of a quality STEM school and allow any interested campus or district to apply for recognition or official designation.

In addition, Texas should enhance the capacity of T-STEM centers so that more teachers can receive professional development services and should collaborate with the private sector to design industry-appropriate professional development modules. Finally, the centers' capacity should be improved to identify, facilitate, and replicate industry-linked applied-learning partnerships at existing STEM campuses as well as non-STEM campuses.

ENHANCE CAREER AND TECHNICAL EDUCATION (CTE) COURSES: Texas should revise the CTE course curriculum requirements to ensure they are relevant to current and emerging occupations and include college and workforce readiness standards. Improving the rigor of these courses will ensure students obtain the skills needed for gainful employment upon graduation while providing high quality course options.

EXPAND INITIATIVES THAT ENABLE STUDENTS TO LEARN AND EXPLORE OPPORTUNITIES IN INDUSTRIES WITH HIGH CAREER GROWTH POTENTIAL: Texas should continue the Texas Youth in Technology Initiative, (the Initiative) which funds a broad array of programs to increase post-secondary enrollment, retention, and graduates in engineering and computer science. Working with the Texas Engineering and Technical Consortium (TETC), the Initiative increases collaboration between Texas employers, institutions of higher education, and engineering and science departments. The state should also continue to expand the Governor's Summer Merit Program camps targeted at inspiring students to focus on STEM careers.

PROVIDE ONLINE CAREER DEVELOPMENT TOOLS: Texas should provide better online career-, college-, and work-planning programs to students. The programs should allow students to plan and monitor their progress from middle school through postsecondary education. This tool should provide career information and strategies, educational modules, e-learning programs, comprehensive reporting, all-inclusive post-secondary and training program readiness and application information, and career exploration.

3.1.2 Higher Education Recommendations

ALIGN INCENTIVE FUNDING WITH ECONOMIC DEVELOPMENT GOALS: The Texas Legislature, with the support of Governor Perry, created a $100 million incentive fund for higher education. To maximize success, future incentive funding should align with industry cluster workforce needs by rewarding institutions graduating high numbers of students in high demand cluster industries, as well as reward commercialization of university research.

CONSIDER INCLUDING ECONOMIC DEVELOPMENT METRICS IN FUNDING FORMULAS: In order to align higher education metrics for success with Texas' economic development objectives, the state must re-evaluate how its basic funding mechanisms reward institutions for providing a ready and qualified workforce, by tying job placement in Texas industries to state funds, as well as traditional credit-hours.

REVISE THE HIGHER EDUCATION REGIONAL COUNCIL (HERC) POLICY FOR COMMUNITY COLLEGES: Texas should improve the flexibility of its technical education and training system to respond to industry training needs across the state, regardless of service area boundaries. This would allow community and technical colleges to provide training across regions when industry competitiveness is an issue.

PROVIDE FREEDOM FOR TEXAS STATE TECHNICAL COLLEGE CAMPUSES (TSTC) TO MEET INDUSTRY SKILLS NEEDS: TSTC should be able to provide training anywhere in Texas to allow a quick response to industry workforce demand. Further, Texas needs courses that meet industry standards.

REVIEW AND MODIFY STEM CURRICULA TO ENSURE THAT THEY REFLECT KNOWLEDGE AND SKILLS NEEDED BY INDUSTRY: Texas needs to increase the number of higher education students graduating with STEM-related knowledge and skills that meet industry needs. STEM courses should undergo a systematic review and revision to become more aligned with industry standards. Model curricula could be developed and implemented in high-need areas by updating content to better train students.

ALIGN STATE RESEARCH AND HIGHER EDUCATION GRANT FUNDING WITH ECONOMIC DEVELOPMENT: The state should prioritize grant funding for institutions of higher education based on industry needs and require product commercialization.

IMPROVE COLLABORATION ON TRANSFER STANDARDS: To increase the number of graduates and accelerate graduation, institutions of higher education must maintain continuous alignment of transfer standards. Articulation agreements must exist between two- and four-year institutions. Additionally, transfer standards must also be in place for high school dual credit courses at all Texas higher education institutions.

3.1.3 Workforce and Other Recommendations

ENHANCE WORKFORCE SUPPLY-DEMAND DATABASE: Texas needs accurate data to assess current and future workforce supply and demand gaps correctly. The state should enhance its industry-wide workforce databases by improving collection and reporting of current and projected supply and demand data. This enhanced database should have the capacity to generate reports on the number of skilled workers needed by occupation and industry compared to graduates and students in two-year, four-year, certificate, and advanced degree programs in critical fields.

DEDICATE ADDITIONAL STATE FUNDS TO ENHANCE THE ADULT EDUCATION SYSTEM: Texas receives federal funds for adult education, but they must be used for adult literacy activities and not for skills training. In order to increase the overall effectiveness of adult education, Texas should initiate a complementary state initiative that has the flexibility to merge existing adult literacy programs with skills training. Additional funding should be used to promote best practices or proven training programs with industry relevance.

DIRECTOR OF EDUCATION AND WORKFORCE COMPETITIVENESS: Texas should improve its talent development system by creating a new position with clear authority to make necessary changes to align the education and workforce system with industry needs and implement workforce strategies. Though not necessarily requiring the creation of a new agency, the Director would be tasked with acting as the chief strategy officer in fulfilling the needs of industry, improving the ability of students to be college and work ready, reducing remedial education rates in higher education, and coordinating programs such as STEM-related initiatives. Authorization for this position should include funding, clear authority, and reporting structure.

REVIEW ALL PROCESSES AND STATUTES TO ENSURE EFFECTIVENESS: To improve the effective functioning of Texas' talent development system, all relevant agencies should undertake a review of their business processes and statutes to ensure operational efficiency and alignment with workforce needs. They should eliminate programs and requirements that do not work through regulatory or legislative action and make business model modifications needed to improve efficiency in their missions. They should also work with the new Director of Education and Workforce Competitiveness in achieving alignment and implementing talent development strategies.

ESTABLISH A TEXAS CENTER FOR WORKFORCE INNOVATION: Texas should establish a Texas Center for Workforce Innovation sponsored by, and associated with, the TWC to promote innovative solutions and strategies for meeting the workforce needs of Texas employers. The center should house staff from the TEA, the Texas Higher Education Coordinating Board (THECB), and the Texas Workforce Investment Council (TWIC). The center should assist economic development, workforce, and education leaders in Texas regions to form working partnerships that will enhance workforce outcomes; assess region-specific challenges; collaboratively define shared objectives; and implement changes and enhancements at each level consistent with the region's economic and workforce strategy. The proposed Director of Education and Workforce Competitiveness should direct the Center's activities.

CONTINUE FUNDING THE SKILLS DEVELOPMENT FUND: The Skills Development Fund provides state funds to respond directly to the workforce needs of Texas employers. When a single business or consortium of businesses identifies training needs, a Skills grant can fund the development and implementation of targeted, customized training through a community college, technical school, or other training provider.

RECRUIT WORKERS FROM THE MILITARY AND DECLINING INDUSTRIES: Texas should implement strategies, such as working with the military and their spouses, to align occupation certification requirements to expand the labor pool for Texas industries. These efforts are needed to engage workers already in the workforce or who will soon be entering the workforce, and should be coordinated by the proposed Director of Education and Workforce Competitiveness. Emerging Technology Fund (ETF) projects should coordinate talent development with universities and the military as part of existing efforts to develop new technologies.

3.2 Innovation Gaps and Recommendations

Much of our country's history as a major industrial power has been driven by our ability to lead the world in innovation. Texas, like the rest of the U.S., is facing significant threats from foreign competitors in maintaining its role as an innovation leader, especially in the areas of science, math, and technology. This problem may be exacerbated by the limited number of top tier universities in the state. Emerging economies, such as China and India, are no longer only competing for low-skilled and low-cost business. With their ability to attract the world's idea generators, foreign investment, cutting-edge universities, and strong government support, these nations are now competing with the U.S. for high-valued innovation and scaling the technological ladder.

In response to these threats, Texas recently developed effective programs that support innovative and entrepreneurial activities. In 2003, Texas established the Texas Enterprise Fund (TEF) with an initial two-year investment of $285 million for "deal-closing." This was followed by Governor Perry's 2005 launch of the ETF. The ETF, which essentially serves as the state's venture capital fund, is responsible for crucial investments in technology commercialization. In addition to these efforts, Governor Perry has encouraged Texas' university systems to incorporate economic development into their missions to better leverage their potential as economic engines for Texas.

Additional steps must be taken to ensure Texas remains among the most innovative in the world. Texas must attract top talent and investments, and support R&D efforts and the rapid commercialization of cutting-edge ideas and inventions so that they become new high-value products and services. While Texas universities receive federal R&D dollars in amounts second only to California, Texas still lags behind competitors in product commercialization, particularly in higher education. Further, the state must improve the ETF by expanding resources and investments to include a more diverse portfolio. By supporting innovation and entrepreneurial activities, Texas will attract greater foreign investments, increase productivity, and generate economic expansion that will underpin the state's future prosperity.

CREATE INNOVATION PRIZE FOR ENERGY STORAGE SOLUTION: Texas should establish a state innovation prize, funded with public-private revenue for the commercialization of a large-scale storage project to store energy during off-peak hours when most wind energy is produced and release the energy into the grid during peak demand periods. This type of fund has been used in other states to incent private investment, encourage and recognize innovators, and produce significant human benefit.

ESTABLISH INNOVATION PRIZE FOR CLEAN COAL TECHNOLOGY: Texas should create a state innovation prize, funded with public-private revenue, for the large-scale development of clean coal technology. Deployment of a mine mouth clean coal generating facility should use Texas lignite as its primary fuel and capture nearly all carbon emission for storage underground or for use in enhanced oil recovery or other market driven beneficial uses.

Institute research and development (R&D) and innovation tax credit and incentives: Texas should consider re-instituting R&D credits to encourage greater R&D spending and promote investment in innovation, including new energy technologies. With several options available, the state should investigate ways to offer incentives to assist companies in expanding the overall Texas R&D.

Enhance Eminent Scholar activity: The state should ensure Eminent Scholar recipients, under the Research Superiority component of the ETF, receive adequate funding and are required to bring world-class researchers and their teams. Texas should also examine approaches to secure private funding for this component of the ETF strategy.

Establish a statewide commercialization foundation with the private sector: Texas must close the gap and become a national and global leader in the commercialization of intellectual property from Texas institutions of higher education. The state should continue efforts to include commercialization in tenure for higher education faculty and use standardized licensing templates in its institutions of higher education. The state should take further action to become a global leader by establishing a statewide foundation to:

- create a one-stop, user-friendly, market-driven standardized commercialization model for Texas;
- provide technology commercialization assistance to institutions of higher education and receive disclosures of intellectual property inventory in real time;
- help foster and manage the transfer of new technologies from the inventor to the marketplace;
- generate quality investment opportunities for the ETF and other allied institutional and technology investors; and
- create affiliation partnerships with statewide angel networks, incubators, and institutional and private equity funds.

Institutions of higher education must make partnering with private entities easier: By pairing industry with university researchers, Texas can capitalize on commercialization opportunities. The ETF should coordinate with institutions of higher education to use standardized contractual agreements with the private sector. Higher education institutions should not realize reduced funding because of revenue derived from these partnerships.

Strengthen university commercialization offices: Technology commercialization is an excellent means of attracting more private capital. Commercialization Offices require project managers to market to, and coordinate with, private investment entities. Texas' universities must prioritize technology commercialization. Increased funding made available to the institutions should be used to accelerate the transfer of ideas to the marketplace.

Create statewide angel network: Texas currently has active regional angel investor groups in many of the larger areas of the state; however, the state should coordinate a statewide network to strengthen existing and develop new angel groups in all areas of the state. This effort would allow for regional angel groups, within the state, to strengthen their ability to invest and to evaluate investment opportunities more broadly. In addition, a focused statewide angel network could assist the ETF in filling gaps in providing seed capital to very early stage start-ups. An ombudsman for small business should be considered as part of this network.

Organize research parks around industry clusters to attract investment and entrepreneurs: Research parks or similar variants are tools of cluster management. In other states, research parks are typically private-public ventures with a state-to-industry investment ratio of 1:3. Research parks are particularly successful in attracting both large and small industries and Texas should work with the private sector in supporting their development in the state.

Encourage and stimulate the formation of incubators in the state: Texas has limited start-up support services. Texas should support start-ups by encouraging and promoting the establishment of technology incubators focused on targeted clusters. The Regional Centers for Innovation and Commercialization (RCIC) are well positioned to provide many of these incubation services.

Focus and align ETF with Texas Cluster Initiative: To protect the state's portfolio of investment, Texas should create a more balanced investment portfolio aligned with the targeted industry clusters. While not setting industry specific targets, the ETF should actively recruit promising start-ups in clusters outside of biotech and life sciences.

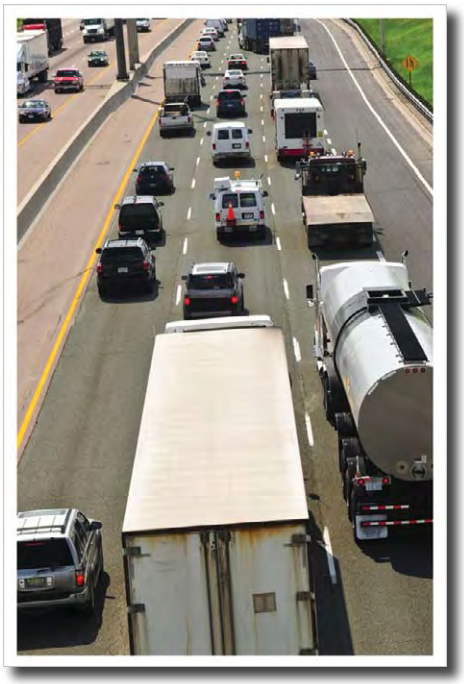
Incorporate private investment resources into ETF to build capacity: As the ETF portfolio continues to grow, the ability of the limited staff to manage the portfolio of companies becomes more challenging. Texas could secure additional resources and expertise to help address the challenges of managing a fund that invests in a large number of companies throughout the state by allowing private firms and individuals to collaborate with the state and share in the profits and success of invested partners.

Reduce the time necessary to select start-ups and award funds: The Texas ETF takes longer than industry benchmark standards to vet and fund early-stage companies. This timeframe can be reduced by incorporating private resources into the process and by improving the rigor of the recommending regional bodies (RCICs). The procedures the RCICs use as a first line of review should be improved, providing the state ETF with a more focused and limited number of start-ups to investigate. Additionally, Texas should consider changing its approval process to allow approval by two of the three trustees.

Continue promotion of new technologies through the Texas Emissions Reduction Program (TERP): Texas should continue funding and encourage public participation in TERP funded innovation activities.

Expand ETF's ability to fund start-up companies not associated with universities: Currently, ETF grant recipients must have a university partner. To expand the ETF's ability to fund a wider variety of start-up businesses, this requirement should be removed.

3.3 Infrastructure Gaps and Recommendations



Infrastructure has a powerful impact on the competitiveness of Texas' economy and its quality of life. Texas' infrastructure—freight ports, airports, bridges, roads, rail and transit networks, and energy transmission systems—is what connects people and products. Adequate infrastructure is a primary factor in managing the costs of raw material supplies and product delivery for all clusters. The efficiency of infrastructure determines whether regional industries can create and respond to market demand and deliver products and services to the marketplace.

Texas' rapid population and business growth have strained highway and rail systems to their limit. The Texas Department of Transportation (TxDOT) estimates that in the next 25 years, Texas' population will increase by 64 percent and road usage will increase 214 percent, but road capacity will only grow 6 percent. These statistics, coupled with Texas' prime location for international trade, contribute to the state's expanding economy, but also present challenges that must be addressed to manage growth. Texas businesses are highly dependent upon the ability to receive raw materials and ship finished products in a timely manner. Just-in-time inventory is often essential to a successful business. As Texas is facing many competitive threats, the state must take steps to improve infrastructure and minimize the costs for businesses to operate efficiently.

TxDOT has experienced cutbacks in federal highway funds while highway construction needs and costs are escalating. Roadways are deteriorating and stakeholders believe this is affecting business performance. Similarly, Texas' rail system is burdened by uncoordinated railcar movements into, and from, manufacturing sites in key centers. Major constraints facing customers include lack of rail system capacity, poor scheduling coordination, and railcar shortages. Texas must find ways to enhance its capacity to build and maintain roads and address its rail challenges.

Texas must also proactively deal with federal Renewable Fuel Standard (RFS) legislation mandating substantial growth on cellulosic biofuels. While Governor Perry has sought an exemption from these mandates for Texas, the state may nonetheless seek to identify and outline the range of infrastructure issues needed to support a developing biofuels industry. Texas must also continue to expand transmission capacity in order for new and existing resources to be used fully.

3.3.1 Energy Infrastructure Recommendations

The Public Utility Commission (PUC) should expeditiously conclude the Competitive Renewable Energy Zone (CREZ) process: In order to address the addition of significant wind capacity proactively, the PUC should expeditiously conclude the CREZ proceeding, select a transmission plan, and issue needed Certificates of Convenience and Necessity (CCNs) for the CREZ transmission lines. The current transmission development schedule may not allow construction to commence before the third or fourth quarter of 2009. The PUC should rapidly complete the remaining tasks so transmission construction can begin in earnest.

Make transmission an attractive investment: The PUC should identify any legal or regulatory issues that prevent the development of merchant transmission investments that could provide additional privately funded transmission.

REQUIRE THE DEPLOYMENT OF ADVANCED METERING: The state should require Transmission and Distribution Utilities (TDUs) to deploy advanced meters, with an appropriate cost recovery mechanism, to ensure that TDUs earn a reasonable return on this investment. The PUC should have the authority to require deployment of advanced meters as rapidly as possible.

DIRECT PUC TO REQUIRE THE ELECTRIC RELIABILITY COUNCIL OF TEXAS (ERCOT) TO STUDY DYNAMIC LINE RATING: The PUC should require the ERCOT and the transmission utilities to study dynamic line ratings in West Texas to show available transmission capacity more accurately and allow for more efficient use of transmission facilities.

OVERCOME BARRIERS TO DISTRIBUTED GENERATION: The PUC should ensure that the ERCOT incorporates the most cost-effective means of ensuring that all retail customers have the option to be settled on 15-minute interval data in order to receive the full benefits of changes in consumption behavior and generation from solar panels and other distributed sources.

3.3.2 Other Infrastructure Recommendations

HIGHWAY REPAIR: Texas should advocate for a more equitable distribution of fuel tax dollars to address escalating highway construction needs and costs.

COORDINATE INFRASTRUCTURE DEVELOPMENT: To reduce costs and the private land condemned for public purposes, Texas should coordinate development of roads and highways, transmission and distribution lines, and pipelines.

SPECIFY ALTERNATIVE FUEL INFRASTRUCTURE NEEDS: Federal RFS legislation mandates substantial growth in cellulosic biofuels. While Governor Perry has sought an exemption from these mandates, Texas should identify and outline the range of specific infrastructure enhancements needed to support alternative fuels, such as raw materials sources and plant locations, and resolve alternative fuels integration, storage requirements, and transportation. These actions will position Texas for market opportunities related to alternative fuel sources.

RE-EXAMINE PRIVATE-PUBLIC FUNDING INITIATIVES: The state should revisit the comprehensive development agreement (CDA) funding model, as the use of private investment for public infrastructure construction is a valuable tool with proven results. Absent these public-private partnerships, Texas will fall behind in transportation infrastructure requirements.

SECURE FUNDING TO FINANCE RAIL RELOCATION: The state legislature, and the people of Texas through a constitutional amendment, created a mechanism for funding rail relocation, but funding has not been provided for rail relocation initiatives. Texas should provide funding to capitalize the Rail Relocation Fund.

CONVERT FREIGHT RAILS TO LIGHT RAILS: Texas should convert underutilized freight rails to light-rail passenger transportation services that decrease congestion and attract businesses that weigh public transportation heavily when determining suitable locations. This initiative should be coordinated with efforts to finance rail relocations of freight lines.

EXPAND INLAND PORTS: The additional development of inland ports could meet Texas' growing need to reduce congestion in some areas, while providing inland businesses with more cost effective methods of transporting goods to and from Texas' water ports. Texas should study the economic impact of using intermodal inland ports to increase shipping efficiencies by transferring certain logistical functions – such as receiving, inspecting, and customs processing of sea-borne cargo – to these inland sites.

ENCOURAGE ALTERNATE REVENUE SOURCES FOR AIRPORTS: As airlines streamline routes and cut back on flights, airports have less revenue. Leading airports are generating greater percentages of operating revenues from non-aeronautical sources including through creation of "sky cities" composed of high-quality airport food, service, and product merchants. By leveraging technology like registered travel programs and passenger self-tagging, airlines have seen increased passenger time in airport shops by an average of one hour per passenger. Texas airports should be encouraged to use this model to generate additional revenue.

EXPLORE EFFORTS TO INCREASE TEXAS' POSITION AS AN INTERNATIONAL HUB FOR AIR TRAVEL AND TRANSPORTATION: The state should pursue opportunities to expand international air travel and transportation to and from airports within Texas, as a means to making the state an airline hub and a globally competitive destination for business.

3.4 Resources Gaps and Recommendations

Texas' ready access to natural resources gives the state a competitive advantage, particularly in the Energy and Petrochemical clusters. This advantage has helped it to become the country's largest energy producer and the petrochemical capital of the world. Due to several factors, including Texas' natural availability of wind resources, high natural gas prices, a viable wholesale market in which to sell the energy, and state initiatives such as a process for expanding transmission to export wind energy to load centers, Texas leads the nation in wind development. Texas' abundant supply of natural gas and lignite also proves to be a significant advantage in terms of meeting Texas' growth in energy demand.

For the first time, the petrochemical industry is facing threats from overseas producers in high-growth markets that have feedstock advantages. The increased demand for natural gas cannot be met with existing Texas production. Texas already imports natural gas by pipeline and that supply is bolstered by liquid natural gas (LNG) supplies. As the need for imports increases, so does upward pressure on natural gas prices and Texas must bid for gas against other global competitors. The challenge for Texas is overcoming the price margin between clean coal and pulverized coal.

Texas refiners are also impacted by the wealth of refining capacity being added in the Middle East, China, and India. Those refiners will fill the expanded capacity with regional crude oil from the Middle East and Africa, and make it more challenging for U.S. refiners to secure optimal supply. The share of unconventional oil and gas production, such as shale gas and tertiary recovery, will undoubtedly increase globally and producers will be looking for proven technology and skill sets to help achieve production targets.

In order for Texas to maintain its competitive advantage, it will need new extraction approaches, new sources of chemical feedstocks, and a diverse mix of resources developed in Texas. As demand continues to rise, Texas must proactively develop both traditional and emerging fuel sources. Nuclear power growth is required and Texas has the capability to develop new nuclear power facilities efficiently, if disposal issues are addressed. Finally, aggressively exploring partnerships with jurisdictions that have undervalued resources will enhance the state's competitiveness position.

Repeal natural gas presumption in the Public Utilities Regulatory Act (PURA): The Legislature should repeal the presumption in the PURA in favor of gas-fired plants in order to ensure that a diverse mix of resources is developed in Texas.

Establish partnership on nuclear fuel research: The state should establish a partnership between institutions of higher education and industry to research opportunities regarding the entire nuclear fuel cycle, including recycling spent fuel. France obtains 75 to 80 percent of its electric power from nuclear generation facilities, but in the U.S., waste disposal remains an ongoing uncertainty for nuclear plant developers, and exploring possibilities to recycle spent nuclear fuel may help resolve this issue.

Create innovation prizes: As discussed in the innovation section above, the state should establish innovation prizes funded with public-private revenue for the commercialization of large-scale energy storage solutions and the development of clean coal technology.

Develop in-state natural gas and crude oil assets: Texas should identify and resolve barriers to accelerating development of in-state natural gas assets, including Barnett and other shale assets. Issues related to the proximity of the Barnett shale to major metropolitan areas and transport of gas from the region to markets must be considered. Additionally, Texas should aggressively pursue efforts to develop its crude oil assets.

Aggressively explore partnerships with Mexico, Canada, and other potential jurisdictions to gain access to potentially undervalued resources: Texas should explore and develop partnerships with other jurisdictions to gain access to potentially undervalued resources. As part of this exploration and development, Texas should address the federal ban on accessing all onshore and offshore resources. Both Mexico and Canada have significant natural gas reserves, although Mexico has significant infrastructure issues affecting its ability to bring gas to market. Western Canada will become a major hub for natural gas when new gas pipelines from Alaska and the Mackenzie River area pass through Alberta.

Explore conversion of coal and coke to syngas for power generation: Texas has the world's greatest production of petroleum coke, much of which is exported. Converting the petroleum coke into syngas for use in domestic power generation may be a competitive alternative to supplement LNG imports into Texas. The state should systematically explore this option, as the conditions may be right for a return on private investment.

Ensure water availability: Texas must continue to push for the construction of designated reservoirs and develop water policies that provide for the necessary availability for industries to continue to flourish. Central to this effort is ensuring the regional water management strategies identified in the State Water Plan are implemented.

3.5 Governance Gaps and Recommendations

In an increasingly competitive global environment, businesses are more sensitive to tax, legal, and regulatory structures than at any time in the past. How a state manages levels of taxation, regulation, and administration of permit processes has a profound impact on business climate. In a global economy, business will locate where laws are fair, predictable, and minimal; government agencies act with speed and fairness; and taxes are spent effectively. Global competitors continually work to improve the responsiveness of their governance structures; recently, nations including Canada and Australia have been internationally recognized for adopting permitting processes that require only a few steps to complete.

Texas' continued role as a leading economic engine has been fueled by a variety of practices consistent with high-quality economies and efficient governance structures, including low tax burdens, a fair legal environment, and responsive state and local service entities. Texas is a leader across most categories of government management, and total industry tax burden in Texas is lower than many of its competitors. Moreover, the state continues to explore how to achieve greater efficiency in administration of its services to its industry base and citizens. In several states, including Texas, many agencies have sought efficiencies by outsourcing operations to private contractors.

To remain competitive, Texas must improve business conditions by identifying and removing inefficient government bureaucracy that needlessly hinders business processes. Texas must streamline permit processes and improve coordination across agencies to ensure consistency and efficiency for applicants. For nonindustry permits, Texas must achieve operational efficiencies where possible by providing transactions via enhanced Web portals. Texas must also conduct focused tax analysis, continue tort reforms, and do more to promote itself internationally as a high-quality state to conduct business. In addition, the Council strongly endorses Governor Perry's intent to assess the competitiveness impact of all legislation before signing it into law. Such an assessment will ensure the Texas business climate and the prosperity of Texans are enhanced by future legislative actions.

Assess legislation to determine impact on competitiveness: The Council endorses Governor Perry's intent to assess the competitiveness impact of all legislation before signing it into law. Such an assessment ensures the Texas business climate and the prosperity of Texans are enhanced by future legislative actions. This action will also bring associated benefits to the operations of state agencies.

Increase operational efficiency: All state agencies should look for efficiencies in their operations and pursue continuous improvements in administrative and operational processes. Texas should ensure the capacity to coordinate and manage business processes remains high, and that efficient coordination and decision-making mechanisms are in place.

Conduct focused tax analysis: Texas must maintain and enhance its competitive tax policies so hard working individuals and companies may prosper, and ensure that tax burdens do not limit competition in the global marketplace. Texas should review its taxes to ensure that they maximize the return on taxpayer investment and return unnecessary taxes to the taxpayer.

Provide resources for international investment promotion: Texas should establish foreign economic development offices or enter into other arrangements in priority overseas markets in order to secure direct foreign investment. San Antonio's economic development agencies maintain three offices in Mexico and one in Japan. Austin has also identified Mexico as a source of foreign investment and is attracting companies by providing them incubator space. Other regions of Texas are also interested in international investment.

INCREASE PERMITTING EFFICIENCY: Inefficiency and uncertainty in permitting processes can result in lost opportunities for new business attraction and growth. Inefficiency is also costly to the public. Many recognize that Texas' permitting processes, including those at the Texas Commission on Environmental Quality (TCEQ), are already efficient. However, Texas should maintain and continuously improve permit efficiency and certainty for all agencies to spur further business growth and ensure state policies support rapid permitting processes. Texas should also enhance the existing business portal by adding end-to-end permitting and providing for renewal of permits for businesses.

CONTINUE TO FOSTER MARKET-BASED COMPETITION: Texas should continue to explore opportunities to deregulate industries further, including undertaking a review of whether current laws and regulations promote competition and expansion of communications offerings.

BRING TEXAS' PERSPECTIVE TO FEDERAL POLICY ON CARBON: Texas needs to participate in the national carbon discussion to educate Washington on the economic value of Texas' energy production to the nation.

INFORM TEXAS CITIZENS ABOUT THE IMPACT OF CARBON REGULATION: Americans will bear significant costs, and Texans will bear a disproportionate share of that cost, should the federal government decide to impose draconian carbon regulation. Retail customers should be further educated on electric competition, efficiency, and the costs and benefits of fuel mix choices. The state should form a private/public partnership among industrial and large commercial energy customers; petroleum and generation companies; chambers of commerce; the PUC; the TCEQ; and the RRC to educate the public. This partnership should inform its work by conducting a study highlighting the costs of carbon regulation versus proven environmental benefit to Texans.

CONDUCT BRANDING CAMPAIGN: Despite its strong position in economic and business climate rankings among the states, industry stakeholders believe the perception of Texas in international and domestic markets is outdated and needs improvement. Additionally, according to the States Brand Index, Texas ranked 10th in brand recognition, 16th in perception of employment opportunity, and last in desirability as a living environment. International business development programs and campaigns should be expanded and place greater emphasis on branding Texas as a great place to live and work by highlighting the strength and diversity of the economy and the state.

CONTINUE TORT REFORM TO MANAGE LIABILITY ISSUES, ESPECIALLY THOSE RELATED TO BLENDING OF BIOFUELS: Legal procedures, class action lawsuit limitations, and monetary caps are clearly delineated in Texas, and support the states' working environment. However, stakeholders are concerned about possible liabilities arising from fuel quality mandates. Solutions to this problem should entail continued overall tort reform. More specifically, action should be taken to coordinate relevant industry associations, legislators, and/or judicial parties, with an aim toward developing measures to manage liability issues related to blending of biofuels.

EXPAND STATE EFFORTS TO COORDINATE AND SUPPORT REGIONAL SERVICES TO EXISTING TEXAS COMPANIES: Currently, responsibility for aftercare in Texas is at the regional level. However, many companies have multiple locations in Texas, which can present challenges not easily addressed by different regions. The degree and scope of regional business retention efforts vary and coordinating them at a state level may result in a more customer-centric approach to aftercare.

Section Four: Conclusion

Texas has historically been a national and global leader in many industries. While the Texas economy remains strong, leading state and national governments are working rapidly to improve business conditions and attract investments in the targeted industry clusters. Texas currently competes in these clusters by offering high-quality business conditions, but this quality comes at a cost premium. Emerging economies are rapidly improving business quality conditions, while maintaining low cost. In five to 10 years, these economies will have attained a high-quality, low-cost "sweet spot" and will be very attractive locations for businesses. Because Texas cannot dramatically lower some costs, to remain competitive it must take immediate action to improve its business quality offerings.

To improve its business quality conditions, Texas is taking active and deliberate measures to ensure it remains competitive, in part, by implementing a Texas Cluster Initiative. As part of this initiative, Texas has enacted some important reforms. Building on the earlier work of the initiative, in November 2007, Governor Perry appointed the GCC and charged it with assessing the competitive position of each cluster, identifying competitiveness gaps, and making recommendations for improvement.

Texas has done a superlative job of providing the economic foundation for many of its clusters. For others, the state is still building its advantages. To grow and sustain a diverse portfolio of economic engines, from biosciences to petrochemicals, Texas needs to increase its efforts to systematically examine how well it delivers a supportive foundation to industries in each cluster, and to determine how to differentiate its offerings to industries at all stages of their lifecycle.

In considering recommendations for improvement, it is important to acknowledge that Texas currently operates under a "loosely coupled collaboration" model for economic development. As new competitors begin to migrate towards the "high-quality, low-cost" segment of the competitive landscape, the drawbacks of the current model for economic development will significantly hinder Texas' competitive position. Emerging global competitors are using a different business model that allows them to pursue economic development through highly organized systems that ensure all resources of the nation-state are working together to meet objectives. While Texas cannot easily emulate this model, it can vastly improve operations by adopting a "joint-operations model," where regions and agencies remain autonomous, but the state plays a more central and active role in improving the quality of business conditions.

Texas should remove bureaucratic policies that prevent all parts of the talent development pipeline from working seamlessly together to meet workforce demand, while emphasizing accountability, student results, and improving STEM education. It should take steps to attract top talent and investment, support R&D efforts and the rapid commercialization of inventions; improve state infrastructure, including its transportation and transmission systems; proactively develop both traditional and emerging energy sources; and eliminate inefficient government bureaucracy that needlessly hinders business processes.

The Council also strongly endorses Governor Perry's intent to assess the competitiveness impact of all legislation before signing it into law. Such an assessment will ensure that the Texas business climate and the prosperity of Texans are enhanced by future legislative actions.

Texas has gaps and solutions that need to be addressed in order to continue as a leader in a global economy. While the GCC report does not represent every possible solution to address Texas' economic development gaps, it focuses the State of Texas on a prioritized portfolio of solutions and investments that, if acted upon, will improve the competitive environment for each of the priority clusters and sustain the strong performance of the Texas economy.

Council's Report to the Governor
Governor's Competitiveness Council
July 2008