

The Senate  
Subcommittee on  
Emerging Technologies  
and  
Economic Development



Report to the 80th Legislature

December 2006



SENATE SUBCOMMITTEE ON  
EMERGING TECHNOLOGIES & ECONOMIC DEVELOPMENT

**KYLE JANEK**  
CHAIR  
KIP AVERITT  
KIM BRIMER  
CRAIG ESTES  
EDDIE LUCIO, JR.

December 1, 2006

The Honorable David Dewhurst  
Lieutenant Governor of Texas  
Members of the Texas Senate  
Texas State Capitol  
Austin, Texas 78701

Dear Governor Dewhurst and Fellow Members:

The Standing Subcommittee on Emerging Technologies and Economic Development of the Committee on Business and Commerce hereby submits its interim report, findings and recommendations for consideration by the Eightieth Legislature.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Kyle Janek".

Senator Kyle Janek, Chair

A handwritten signature in black ink, appearing to read "Eddie Lucio, Jr.".

Senator Eddie Lucio, Jr.

A handwritten signature in black ink, appearing to read "Craig Estes".

Senator Craig Estes

A handwritten signature in black ink, appearing to read "Kip Averitt".

Senator Kip Averitt

A handwritten signature in black ink, appearing to read "Kim Brimer".

Senator Kim Brimer

*Senate Standing Subcommittee on Emerging Technologies & Economic Development  
Interim Report- December 2006*

TABLE OF CONTENTS
-------------------

<u>Subject</u>	<u>Page</u>
INTRODUCTION.....	1
Summary, Interim Charges, Subcommittee Interim Schedule	
INTERIM CHARGE 1.....	4
BACKGROUND.....	4
INTERIM CHARGE 2.....	14
RECOMMENDATIONS.....	14-15
BACKGROUND.....	16
INTERIM CHARGE 3.....	22
RECOMMENDATIONS.....	22-23
BACKGROUND.....	24
ATTACHMENT 1.....	29
Texas Enterprise Fund(TEF)- supporting documents	
ATTACHMENT 2.....	54
Texas Emerging Technology Fund (ETF) - supporting documents	
ATTACHMENT 3.....	76
Abstracts:	
<i>"Commercializing University Research"</i> , by Meg Wilson, UT-Austin	
<i>"Research Opportunities for Small Companies"</i> ,	
by Jill Dickman, San Antonio SBDC Technology Center	
ATTACHMENT 4.....	88
House Bill 1765(79th, 2005)- TETF as enrolled.	
ATTACHMENT 5.....	105
Minutes, Agendas, Witness Lists from Subcommittee Hearings	

## INTRODUCTION

Lieutenant Governor David Dewhurst charged the standing Senate Subcommittee on Emerging Technologies and Economic Development, of the Committee on Business and Commerce, with studying three main issues prior to the 80th Texas Legislature:

*Review how other leading states and countries have structured their economic development programs to match the needs of businesses in an economy in which information, ideas and technology are the driving forces. Identify programs from which Texas could benefit.*

*Study how Texas can better translate its wealth of intellectual property and potential into commercialization. Review fostering better links between basic research and discovery resources of academic institutions and commercialization of existing industries, better connections between complementary discoveries and technologies, and increased funding for such activities.*

*Review Texas' economic development tools including the **Texas Enterprise Fund** and the **Texas Emerging Technologies Fund** and make recommendations for improvements including better tracking of fund uses and benefits.*

Senator Carona chaired the standing Subcommittee during the 79th Legislature, from February, 2005, as well as the first and second called sessions of the 79th Legislature, until February, 2006. Prior to the third called session, Lieutenant Governor Dewhurst named Senator Kyle Janek as Chair of the Subcommittee. Senator Janek scheduled three public hearings in Austin and Houston to review these charges, receive testimony from the public, participants and other stakeholders on each of these subjects:

<b>INTRODUCTION - Subcommittee Interim Schedule</b>
---

The first interim hearing was held in the Betty King Committee Room of the Texas Capitol, Austin on May 9, 2006. Attachment 5 contains the hearing notice, agenda, minutes and witness list.

The second interim hearing was scheduled for September 15, 2006, at the Brown Institute for Molecular Medicine - University of Texas Health Science Center at Houston. It was cancelled in lieu of the death of Houston area Rep. Glenda Dawson.

The third interim hearing was held in the Betty King Committee Room of the Texas Capitol, Austin on October 24, 2006. Attachment 5 contains the hearing notice, agenda, minutes and witness list.

## INTERIM CHARGE 1

***Review how other leading states and countries have structured their economic development programs to match the needs of businesses in an economy in which information, ideas and technology are the driving forces.***

***Identify programs from which Texas could benefit.***

## BACKGROUND

Government funding of economic development programs has been largely a municipal and county enterprise since becoming a driving force in business investment incentivization in the mid 20th century. In the latter half of this period, state governments recognized the economic benefits of tax abatement, subsidy, cash, and in-kind incentives for attracting and keeping key businesses in their state. Job creation, increased infrastructure, and industry economies of scale emerged as important political considerations for virtually all states, as free market competition between them increased. For purposes of this report, the definition of "economy in which information, ideas and technology are the driving forces" is focused on high technology industry segments, divided into manufacturing and service related groups, as codified by the U.S. NAICS<sup>1</sup>:

1. *Computers and Peripherals; Internet and Software Services*
2. *Semiconductors; Telecommunications*
3. *Defense Electronics; Measuring and Control Instruments*
4. *ElectroMedical Equipment; BioTechnology; Photonics*
5. *Engineering Services*
6. *R&D Testing*

Much of our nation's technology based economic development has been concentrated in the northeast, specifically Massachusetts, and in areas such as Silicon Valley, California. Recently, states such as Maryland, Ohio and Oklahoma have established state funded proactive economic development plans coupled with innovative leadership, tech transfer friendly legislation, and private-public partnerships, to attract this type of long term development. Texas can learn from the best practices of these leading

---

<sup>1</sup> North American Industry Classification System (2002): [www.census.gov/epcd/www/naics/html](http://www.census.gov/epcd/www/naics/html)

states- profiled below- to further develop its technology economic development model, and leverage limited public funds for maximum private sector technology industry stimulus.

### INTERNATIONAL BEST PRACTICES

Pan Asian countries have emerged in the past two decades as international economies with aggressive technology based growth strategies. In particular, South Korea and Taiwan, who were long known only as hardware exporters to the U.S. and abroad, have ramped up their technology transfer efforts and internal patent activity, to participate more fully in the growing global technology economy.<sup>2</sup> Singapore has also ramped up state investment to promote an innovative research climate. It has committed \$2 billion(US) over 5 years to build an infrastructure, develop university collaboration with the technology industry, support further research and development (R&D) and training, and commercialize technology.<sup>3</sup> During this same period, Taiwan has established a nonprofit, state funded organization, called the Industrial Technology and Research Institute, dedicated to coordinating efforts to bridge the gap between tech industry needs and existing university research, analyzing industry trends, market assessment, and compiling global economic intelligence to enhance its standing as a regional and global economic force.<sup>4</sup>

Ireland and Israel are also noteworthy, as they also have significantly increased state participation in economic development via the new technology economy. Ireland has focused almost exclusively on creating a climate that information technology and electronics firms from across the world find economically advantageous. The cornerstone of their strategy has been state investment in a strong R&D base, both at the university and business level. It established a state funded National Research Support Funding Board, specifically to fund research, administer grants and oversee joint university-industry projects. In 1997, it launched the Ireland Research Technology and Innovation Initiative, which leverages state funds up to 50% of the landed costs incurred in incubated Irish company's research projects.<sup>5</sup>

---

<sup>2</sup> Bergland & Clarke, "Using Research to Develop and Grow State Economies", NGA, 2000.

<sup>3</sup> Singapore National Science and Technology Board web site; <http://www.nstb.gov.sg>.

<sup>4</sup> Taiwan Industrial Technology and Research Institute; <http://www.itri.org.tw>.

<sup>5</sup> Enterprise Ireland web site; [www.enterprise-ireland.com](http://www.enterprise-ireland.com)

Israel has attracted corporate investors to its strong defense research and technology economy, using state seed funding. Rather than institutes, it relies on corporate and research tax incentives, much like those seen at municipal levels in the U.S., along with financial incentives for Israeli corporate R&D investments, to compliment its world leading ratio of scientists and engineers. The result is an economy that is much further advanced than any of its regional neighbors.

***(Key state economic statistics listed were compiled by and for the American Electronics Association (AeA) for its "Cyberstates 2005" publication)***

<b>2005 TEXAS Technology Economic Development <sup>6</sup></b>			
<i>.....at a Glance</i>			
<b>2005 State Ranking:</b>			
High Tech Employment	(445,000)	#2/50	High
Tech % of exports		30%	
Average Wage (\$68,127)		#14/50	
R&D per capita		#27/50	
Venture Capital Investments		#3/50	
Tech Payroll		\$30.4B	
<b>Leading Industry Segments: Engineering, Computer System Design , Telecommunications</b>			

---

<sup>6</sup> 2004 statistical data from US Bureau of Labor Statistics, "Cyberstates 2005", American Electronics Association, 2006.



**BEST PRACTICES**

**CALIFORNIA**

The bell weather of economic development in the information and technology age, California continues to set the bar high as the national leader in virtually every economic category: R&D expenditure, R&D expenditure per capita, venture capital investments, overall tech employment and payroll, job creation, and technology industry headquarters. In venture capital (VC) investment alone, California accounts for nearly 50%, or \$10 billion, in 2004, in total annual investment activity nationwide. Twenty percent of all U.S. R&D investment is made in California. High tech investments account for over half of the total VC dollars, nationally and in California, as well as 32% of R&D expenditures for both segments. There are numerous sources of data on California's mature technology economy, and its significant and savvy venture capital community, but best practices regarding state involvement in technology transfer and leverage of public funds for economic development are more difficult to extract. There is a 50 year old nexus between CALTRANS, the state highway department, and highway technology transfer research within the University of California system. The UC system, using public funds, has created the Intellectual Property Industry Research Alliance Office ( IPIRA), to foster better collaboration among the very large, comprehensive emerging tech community in the state and the research institutions that are required to deliver economic development from their efforts. Their significant efforts in developing the commercialization of myriad research efforts will be defined in greater detail in the following charge.

**2005 California Technology Economic Development at a Glance**

2005 State Ranking	High Tech Employment(1,000,000) #1/50
	Average Wage (\$84,365) #2/50
	R&D per capita #11/50
	Venture Capital Investments #1/50
	Tech Payroll \$77.2B
Leading Industry Segments: Systems Design, R&D-Testing, Telecom	

**MASSACHUSETTS**

Created in 1978, the Massachusetts Technology Development Corporation ( MTDC ), is a state-sponsored venture capital company, and the U.S. model with the longest track record as a state funded early-stage risk capital program.<sup>7</sup> It was created to keep and grow businesses in an economically slumping state, as well as nurture start-up technology companies in the earliest stages of development. All businesses pledged to establish headquarters in and create high paying jobs for Massachusetts. For each successive year throughout the 1980's, the Commonwealth invested \$1 million annually to match an existing \$1 million grant from the U.S. Department of Commerce Economic Development Administration (EDA). MTDC focuses its efforts on emerging technology companies seeking smaller amounts of investment than typical venture capital funds are interested in: usually \$1-2 million each. For the period 1980-1999, MTDC reports investing \$35 million in approximately 85 Massachusetts technology companies, with successful exit from over 60. Employment estimates were approximately 8,600 people with an average salary of \$50,000; average annual payroll of \$431 million, and estimated annual state tax revenue generated: \$ 20 million. Additional capital leverage beyond the original \$35 million in Commonwealth funds (where the state was no longer involved) totaled nearly \$500 million (over two rounds) by 1998.

**2005 Massachusetts Technology Economic Development at a Glance**

2005 State Ranking	High Tech Employment(235,584) #6/50
	Average Wage (\$81,022) #3/50
	R&D per capita #3/50
	Venture Capital Investments #2/50
	Tech Payroll \$19.1B
Leading Industry Segments: Systems Design, R&D-Testing Labs, Telecom	

<sup>7</sup> Bergland, Dan and Marianne Clark: "Using Research and Development to Grow State Economies", pp.19-20.

## MARYLAND

Maryland enacted the Maryland Venture Capital Trust into law in 1990, creating a state sponsored, privately managed venture trust, where state and city pension funds were invested in venture capital partnerships that were managed independently by a host of diverse private venture firms. Following six years of organization and diversification over multiple state public funds, including the Employee's Retirement Systems for the state and Baltimore City, it had nearly \$16 million invested in eight entities, with \$3.7 million already returned to the public trust, and \$325 million attracted from venture funds outside the state trust. In six years, the 29 total companies of the original round of state investment had contributed \$600 million in combined annual sales and created nearly 2,500 net new Maryland jobs.

### 2005 Maryland Technology Economic Development at a Glance

2005 State Rankings	High Tech Employment	#14/50
	Average Wage (\$70,585)	#10/50
	R&D per capita	#6/50
	Venture Capital Investments	#9/50
	Tech Payroll	\$10.9B
Leading Industry Segments: IT Design, Engineering Services, R&D Testing		

## OHIO

Ohio has developed the "Thomas Edison Program": a network of non-profits who work to develop applied technologies which can be commercialized for the benefit of the Ohio economy. Seven state funded centers, known as Edison Incubators, comprise one of the nation's largest university-industry partnerships. These centers provide facilities, administrative assistance, capital access accelerators, marketing and business plan services at a reduced rate to start up technology companies. Ohio universities are preferred for research partnerships, but the program does not exclude institutions outside the state. Commercialization transfer in real time is the focus of the Ohio effort.<sup>8</sup> A strict minimum 1:1 dollar match of state funds to federal grants, research funding, and industry fees, or donated

<sup>8</sup> Bergland, Dan and Marianne Clark, pp. 2-3.

in-kind goods is required. This elaborate state network, coupled with two additional Edison Affiliate centers, link emerging technology start-ups with established companies, who partner with Ohio's NASA Glenn Research Lab, Air Force Research Labs at Dayton's Wright Site, and other Ohio federal research entities.

**Ohio Technology Economic Development at a Glance:**

2005 State Ranking	High Tech Employment	#13/50
	Average Wage (\$70,585)	#30/50
	R&D per capita	#21/50
	Venture Capital Investments	#25/50
	Tech Payroll	\$8.9B
Leading Industry Segments: Computer Systems, Engineering Sacs, Telecom		

**OKLAHOMA**

The State of Oklahoma passed a pair of constitutional amendments to create exemptions for use of state property for qualified research and technology projects.<sup>9</sup> This provided private technology companies located there to utilize Oklahoma's public university system properties for advanced research and development purposes. The second amendment allowed for state universities and their employees to own patents, technologies and private equity in technology businesses located in the state. This stake must be directly related to research or technology commercialization involving pre-approved use of these public facilities.

**Oklahoma Technology Economic Development at a Glance:**

2005 State Ranking	High Tech Employment	#31/50
	Average Wage (\$46,014)	#44/50
	R&D per capita	#47/50
	Venture Capital Investments	#27/50
	Tech Payroll	\$1.9B
Leading Industry Segments: Computer Systems, Engineering, Telecom		

<sup>9</sup> Texas Senate Research, "Technology Transfer Update", August, 2006

GEORGIA

The Georgia Research Alliance (GRA) formed in 1990, as the legislature linked the University of Georgia, Medical College of Georgia, Emory University, Clark Atlanta University, Georgia Institute of Technology, and Georgia State University, with its burgeoning private high tech sector to nurture and develop research initiatives and commercially promising tech transfers.<sup>10</sup> The state utilizes Technology Development Centers (TDC) to connect start-up companies with state supported research facilities and state sponsored business startup services, resulting in rapidly advanced commercialization time tables for the most promising of its native emerging technologies.

Industry technologies are targeted by the alliance for their most strategic benefit, based on their existing infrastructure relevance to the state, the TDC's promote cross-disciplinary research and technology transfer relevance to Georgia industries. Funding is derived from a mix of public and private sources, with the state investing over \$200 million between 1990-98 in R&D programs at alliance universities, matched with over \$50 million privately raised. The resulting venture capital match brought in statewide easily exceeds \$500 million, and has landed such industry giants as Lucent Technologies, who partnered with GRA researchers on wireless research, and negotiated with the GRA on both an eminent scholar professorship and the establishment of a wireless systems lab at Georgia Tech.<sup>11</sup>

Georgia Technology Economic Development at a Glance:

2005 State Ranking	High Tech Employment(175,000)	#11/50
	Average Wage (\$65,628)	#17/50
	R&D per capita	#33/50
	Venture Capital Investments	# 7/50
	Tech Payroll	\$11.0B
Leading Industry Segments: Computer Systems, Engineering, Telecom		

<sup>10</sup> GRA website: <http://www.gra.org>  
<sup>11</sup> GRA website, 2006

LOUISIANA

Louisiana has embarked on a multi-phase investment into technology transfer as economic engine, developing the Louisiana Technology Enterprise, a unique partnership between state agencies, universities and municipalities to develop 3D immersive visualization technologies and advanced grid computing. The enterprise has created a network of statewide technology development centers and UNO technology and research park. The state board of regents has invested \$5 million in state funding for the Louisiana Optical Network Initiative (LONI), joining the National LambdaRail Network. This will enable public institutions statewide to link to the exclusive national network of super high speed computers, accelerating large scale technology research efforts and global collaborations to further grow Louisiana's emerging technology companies.

In 2001, a "Louisiana Micro-Nano Consortium" of state universities and private tech companies won a \$9 million National Science Foundation (NSF) grant through the Experimental Program to Stimulate Competitive Research( EPSCoR).<sup>12</sup> In four years, the three research teams, collaborating from nine state universities, had expanded that grant, the \$3 million in state matching funds and \$3.8 million private capital into over \$100 million in multi-stage funding, sixteen patents and eight federal SBIR/STTR grants. Additional state supported technology incubator consortiums are researching emerging "small tech" opportunities with tremendous commercial potential, including sprintronic and e-beam nanolithography, manipulating electronic circuit capabilities to maximize memory and speed capacities while minimizing power consumption.<sup>13</sup>

Louisiana Technology Economic Development at a glance:

2005 State Ranking	High Tech Employment(38,000)	#33/50
	Average Wage (\$65,628)	#43/50
	R&D per capita	#48/50
	Venture Capital Investments	# 47/50
	Tech Payroll	\$1.8B
Leading Industry Segments: Computer design, Engineering, Telecom		

<sup>12</sup> La. Board of Regents, EPSCoR Office

<sup>13</sup> 2006 Louisiana Technology Guide, [www.latechnologyguide.com/state](http://www.latechnologyguide.com/state)

## MICHIGAN

In 1999, Michigan announced a landmark strategy to enhance the life science research capabilities of its state universities. It earmarked \$1 billion in state funds from the tobacco class action settlement over a 20-year period specifically for life sciences research, development, and associated technology commercialization efforts.<sup>14</sup> In the ensuing period, it has created a "life science corridor"<sup>15</sup> among the University of Michigan, Michigan State University, Wayne State University and the Van Andel Institute, where this dedicated fund is allocated annually in three areas:

1. Basic competitive project research grants between the corridor participants.
2. A collaborative R&D fund to test and develop emerging biotechnology discoveries.
3. A commercialization development fund investing in incubated bio-tech companies.

### Michigan Technology Economic Development at a Glance:

2005 State Ranking	High Tech Employment (185,000)	#10/50
	Average Wage (\$65,628)	#13/50
	R&D per capita	#10/50
	Venture Capital Investments	# 19/50
	Tech Payroll	\$12.5B
Leading Industry Segments: Computer Systems, Engineering, R&D Testing		

<sup>14</sup> "Michigan commits \$1 billion to Life Science, R&D and BioTech Commercialization", *SSTI Weekly*

<sup>15</sup> Texas Senate Research, 2006

## INTERIM CHARGE 2

***Study how Texas can better translate its wealth of intellectual property and potential into commercialization. Review fostering better links between basic research and discovery resources of academic institutions and commercialization of existing industries, better connections between complementary discoveries and technologies, and increased funding for such activities.***

## RECOMMENDATIONS

- 2.1 Support procedures connecting commercializable technologies with solid, venture management teams earlier in the ETF process.
- 2.2 Strengthen R&D capacity and cooperative efforts of state university systems; review research institutions potentially counter-productive or restrictive policies.
- 2.3 Evaluate efforts by state institutions internally to grow next generation of researchers with undergraduate internship programs in science and engineering.
- 2.4 Encourage university administrators to remove bureaucratic barriers to commercializing research technologies; incentivize "best practice technology transfer policies" with university researchers.
- 2.5 Support university "spillovers of knowledge": cross sectional efforts at allowing research commercialization at the university level.
- 2.6 RE: SubChapter D (ETF) language:
  - A.) Amend language, changing "grant" to "investment". Applicants can be misled by the word "grant" in government funding vernacular.



B.) Expand "research partner" definition in statute to include Texas based research laboratories (Texas based private universities, federal labs, DOD, NASA, etc.) when higher education state institutions lack capacity or relevant nexus.

- 2.7 Identify ways of revenue neutral funding, perhaps through 1% of existing ETF fund, Regional CICs administrative efforts (eg. Application process and assisting ETF funded companies.
- 2.8 Amend the legislation to allow investment (non-profit) debt and/or equity stake in funded company, to allow company maximum flexibility. Debt with warrants or convertible debt is the most common instrument utilized in funding early stage transactions.
- 2.9 Evaluate amending the statute to add a new category of funding: *Subchapter G*, dedicated to "pre-commercialization" or "proof of concept" applications, to include the following:
  1. non-consortium matching grants,
  2. Early stage and pre-seed company applications.

*Subchapter D would concentrate on seed funding business commercialization efforts. Subchapter E would be for consortium matching grants. Subchapter F would remain focused on attracting top research teams to Texas public research institutions, and Subchapter G would target pre-commercialization fund applicants that do not otherwise fit standing consortium criteria. All standards and statutory language for Subchapter G funding would conform to the same rigorous processes as the other categories.*

## BACKGROUND

Prior to the 79th Legislature, little attention had been given to the purposeful goal of Texas' state universities becoming "world class research institutions." Our state institutions have always been second to none in both funding and stature, yet they have also lagged behind their peer institutions nationwide in the accelerating world of economically valued research, and the commercial benefits of its associated technology transfer. In the two years since the Governor's 2004 proposal of the Texas Emerging Technology Fund, with its central tenet of synergizing such world class research with Texas' emerging technology industries, that purpose is exactly what these facilities have adopted.

In 2005, venture capital opportunities in Texas' disruptive industries blossomed to over \$1.1 billion, with nearly 200 projects booked in such diverse technologies as semiconductor development and telecommunication, software development and allied energy technology. Though Texas still realizes less than half of the annual venture capital (VC) investment in California, increased opportunities represent a renewed energy and vitality in this once-battered Texas economic sector, and is likely a sign of continued interest in these industries statewide. The flagship systems of the state have also breathed life into their roles as stimulators of the technology economy of the state, with both the University of Texas system and Texas A&M University system making bold and unprecedented investments in both infrastructure and research funding. UT regents pledged over \$2.5 billion to vastly enhance scientific competitiveness across several key research fields system wide, while TAMU aligned itself as the preeminent bioenergy research institution in the Southwest, creating the Texas A&M Agriculture and Engineering BioEnergy Alliance. The Texas Tech University, The University of North Texas, The University of Houston System, Texas State University System and Texas Southern University are but a sample of the host of prominent Texas institutions that have aligned themselves in consortiums and partnerships to take advantage of the state's invigorated interest in promoting university-state-industry alliances. To this end, they are uniquely positioned to lead Texas into the next great frontier: the technology economy.

Public economic development funds are both limited and targeted, generally placed in areas where success is both optimal and most likely. With detailed industry analysis, a picture of sufficient growth potential emerges, which leads the deployment decision of these public funds. The paradox in the technology economy occurs when the research commercialization environment is neither optimal nor the most likely place to achieve the highest rate of return of these limited fund resources. The investment required is at the very earliest stage, there is no guaranty of any return on that investment (ROI), and the payoff cycle is far longer than most public entities ever want to commit to, as it can take years to properly commercialize any research to return an initial public investment. Ongoing R&D investment, both targeted in our public research institutions and via incentives to attract private sector investment interest, is a logical way for the state to "prime the pump" for continued growth in these emerging technologies we seek to develop. Two important questions emerge: "from where" does the state augment its efforts and "how much increased funding for development" of better connections between complementary discoveries and relevant technologies, both become central tenets of the long term health of the technology economy we as a state are developing.

Colleges and universities nationwide are the second largest R&D investment entity, accounting for over 12% of total R&D spending in 2004 dollars. Most of this amount is basic or elemental research, with little emphasis on application and/or commercial prospecting of the eventual findings. The private sector, in contrast, accounts for over 70% of R&D spending each year, with nearly that entire amount focused on products, processes, and their host of commercial applications. Individual states reported spending over \$3 billion in the same period to advance research and development at both basic and advanced levels. The ongoing challenge for the state of Texas is to first foster the initialization of commercially potential technology and then, to assist in its market transfer. Further, Texas should develop strategically targeted research aimed at advancing state domestic product through existing and planned industries.

While the Emerging Technology Fund has been a success in its concept and initial investment rounds, in hindsight, there is room for critical evaluation

of perceived weakness, both in structure and practice. There have been some delays in Texas' emerging technology companies developing a research partnership nexus with state institutions for several key reasons:

1. universities often are not engaging in allied research in the emerging technologies seeking participation in the ETF, or
2. they are consumed with current research and cannot or have not been capable of identifying the resources or time necessary to collaborate effectively in the relatively short time cycle that these companies with disruptive technologies require to operate.

There have been significant research commitments and advances statewide that are noteworthy, and may show promise as a critical first step in changing the ordered progression of standard research away from a push-out model to more of an extraction effort. In 2006, The Board of Regents of the University of Texas system made a significant financial investment toward a goal of a world class tier one research institute of the state institutions to date. Its announcement of a \$2.5 billion capital commitment to improving science facilities, faculty and research is a quantum leap in the statewide effort to capitalize on the research nexus of the emerging technology economy.

The Texas A&M system has committed to developing an industry-leading consortium for agri-business research through their BioEnergy Alliance. This is another step forward in establishing a benchmark for further R&D infrastructure development among all state university systems. Coupled with the system's commitment to promote research commercialization (technology transfer) efforts through centralized faculty patent development, coordinated by an administration vice chancellor, is a positive step forward, and a bold departure from prevailing institutional attitudes to downplay potential commercial efforts of its faculty's research.

The Legislature can play a pivotal role in economic development and job creation by helping our state research institutions focus their research efforts in the best interests of Texas' technology economy cluster. Determining the best research to pursue based on Texas' targeted industry clusters,<sup>16</sup> as proposed by Governor Perry in 2004, may prove controversial and seem

---

<sup>16</sup> "Cluster Mapping Project", Institute for Strategy and Competitiveness, Harvard Business School, 2001

contrary to academic freedom advanced by each independent university. It would be productive to continue to create dialogue and develop efforts to refine research initiatives at state universities around complimentary industries of the state, building on the existing clusters identified by recent research on the Texas economy,<sup>17</sup> and synergizing ways to commercialize state institution research into additional economic development tools for growing jobs and economies statewide. While there have been significant advancements in technology transfer, both from state infrastructure via the ETF, and from within university research institutions themselves, there are opportunities for both the fund and the state, to improve on the economic development environment that it has created. Some of these proposed improvements and concepts have been discussed at the subcommittee hearings in May and October, 2006, as well as during ongoing discussions with regional centers for innovation and communication statewide.

*"Technology transfer" refers to a facilitated conscious process of adapting a technology developed in one context (industry, culture) for another. It is a change management process that involves definite stages including:*

- 1. building awareness of the new technology among potential users;*
- 2. encouraging them to seriously consider using it to do something;*
- 3. supporting the decision to adopt (or buy) the technology;*
- 4. helping new users adapt the technology and make changes in both the new tools and the old environment.*

*The process of technology transfer is usually iterative, collaborative, and complex. It requires users to acquire new information and skills and change old habits and ways of doing things.<sup>18</sup>*

Re-examining the role and definition of university collaboration, would be useful at this juncture in the life of the fund. While new technology companies can be launched out of university research, they can also be created from pre-existing businesses, individual's ideas, and even the federal government. This is especially true for energy, IT, and NASA-related technologies, which are not usually university research-based. While it is essential to continue to develop the R&D capacity of Texas' universities, it may not always be beneficial or timely for disruptive technology start-up companies to force them to create university collaborations, in order to

---

<sup>17</sup> "Texas Our Texas", Dr. Ray Perryman, 2002.

<sup>18</sup> from William Tucker, Exec. Director, UC-Office of Research and Technology Transfer Report.

participate in the ETF. Similarly, requiring a business school nexus in order for a business to qualify for an ETF investment may not have significant measurable benefits for the company, university, or the state. Perhaps here the state could evaluate including other research alternatives along with its state institute research requirements, in attracting these disruptive technology companies to start and grow their businesses here. This would likely make it easier for significantly more non-university research based technology companies to qualify for state investment.

Additionally, technology requirements of the fund by definition can actually be a hindrance to participation for some of Texas' most promising industry clusters. It is apparent from feedback that it can be far more difficult for non-life science applicants to meet some of the current ETF requirements. For example, it is more difficult for IT companies to show they have a definable *disruptive* technology. The research timeline and speed of that industry cluster makes disruptive advances rarer, but adds significant business merit to great advances in technology, transmission, energy, and storage enhancements along that timeline. Many IT companies also rely on copyright and trade secrets for their IP protection, rather than patents. In light of these barriers to current ETF participation, a review of the technology requirements may now be in order, to ensure technologies from IT, energy and aerospace industry clusters, which each have an existing tremendous presence in Texas, are not being excluded.

Regarding state investment in ETF companies, issuing warrants for equity awards have discouraged some companies from applying for ETF funding, and may also create some challenges when funded companies seek additional equity investments. Alternatives to the warrants may be worthy of review by the state legislature, as they would likely be more attractive to fund applicants (and their investors). Evaluating the provision of statutory authority for the execution of non-recourse loans for fund participants by the ETF committee would provide the flexibility that experience has indicated is currently missing from further growing the fund statewide. This would need to be evaluated concurrently with the Attorney General and the Comptroller's office, as it would be outside the funds current authority and would likely add an ongoing annual fiscal cost beyond the current general revenue appropriation.

Currently, roughly the same level of background and due diligence work is performed on Pre-Seed Commercialization Grants (\$250K maximum) as for

fund grants up to \$4 million. What may be more effective to generate support for these very early stage companies would be to devolve oversight authority from the statewide ETF committee to provide the regional RCICs with a small emerging tech company grant fund that could be awarded to area companies, with little additional State input. These awards would be small (up to \$100,000), and could be provided to area early stage companies to help them progress enough to qualify for additional ETF investment. There might also be some benefit to encourage the RCICs to focus these grants on specific industry clusters, encouraging targeted growth across each of the seven regional areas.

The ETF program has had a net positive impact on each of the geographic regions of the state, far beyond investments in the initial eighteen months. The above changes and leverage of useful federal commercialization research programs (SBIR/STTR) would certainly significantly increase the impact of the ETF in each of the state's regions. The 80th Legislature has an opportunity to apply lessons learned from these companies and the metrics they have established, to strengthen the fund and further develop these Texas grown, divergent emerging technology businesses into its economic growth engines for the 21st Century.

INTERIM CHARGE 3

***Review Texas' economic development tools including the Texas Enterprise Fund and the Texas Emerging Technologies Fund and make recommendations for improvements including better tracking of fund uses and benefits.***

RECOMMENDATIONS

*Texas Enterprise Fund*

3.a.1 Identify ways to market and promote fund and economic benefits to prospective companies and communities beyond the scope that has been accomplished by the Governor's Economic Development team. Utilize member's access to state regional and municipal Economic Development Authorities to generate further knowledge of benefits derived from business recruitment.

3.a.2 Strengthen the connection between TEF recruits and Texas' target industry sector clusters, creating a focus for industry economic development.

*Emerging Technology Fund*

3.b.1 Evaluate substitution of the term "investment" wherever the term "grant" occurs, where appropriate in ETF fund statute and operating procedure of fund oversight committee.

3.b.2 Identify merits of expanding allowable types of investments in companies chosen to participate /executing agreements to participate in ETF.



3.b.3 Expand IP sourcing universe beyond state funded universities when there is no established research nexus for the technology. Other potential IP sources would be Texas based federal labs (NASA, DOD), and Texas based private research universities.

3.b.4 Address delegation of authority from statewide committee to regional groups: streamline committee and regional (RCIC) decision making process; develop "strategic industry investment plan" targeting direction of ETF investment toward pre-determined Texas industry cluster(s).

3.b.5 Explore strengthening ties with CAPCO tax credit program as complimentary economic development tool for participating entities, VCs

3.b.6 Evaluate allocation of additional /dedication of existing ETF funds for federal matching of SBIR phase I and II grants

3.b.7 Explore fund direction beyond fourth and fifth funding rounds; committee and RCIC rotations; succession strategy.

## BACKGROUND

### *Texas Enterprise Fund*

In 2003, The Texas Legislature enacted legislation appropriating \$295 million in state funds be dedicated to the newly authorized Texas Enterprise Fund (TEF), also created during the 78th Legislature. Its purpose was to create new jobs and infrastructure investment through a "deal closing fund", enabling the state to respond quickly and aggressively to potential businesses interested in locating in the state. During the 79th Legislature, the fund was reauthorized with an additional appropriation of \$180 million.

Funds from the TEF are used to attract new business to the state, bringing with them new and substantial jobs. It can also be used as a tool to aid in expanding businesses currently located in the state, if there is a job recruitment aspect to the agreement. The fund is administered by the Governor's office of Economic Development as one of its varied tools to attract business and investment to the state, along with the Lieutenant Governor and Speaker of the House. It is purposely flexible in its structure, as these major business recruitment projects are each dynamic and unique. To be eligible to participate in the TEF, projects must show a quantifiable return on the fund's ( public ) investment. Requirements include a multi-year commitment to the major portion of the business activity instate, job creation and average wages, public and private sector support, business and financial history, capital investment, and an analysis of the business sector being developed or expanded (ATTACHMENT 1).

The Texas Enterprise Fund, while purposely flexible in its statutory structure, has strict oversight factors built into the process at multiple points, which are regularly and vigorously exercised by the highly capable oversight team managing the projects in the fund. When a project is proposed for participation in the Enterprise Fund, it is then subject to a detailed, due diligence investigatory process by the oversight committee. Assessment of the project versus other proposed fund projects is initiated, followed by an investigation of the business climate of the entity and the sector it will operate in for the state. Independent analysis of projected economic impact is then conducted, followed by analysis of both financial statements, and applicant credit data. Finally, potential "packaged" economic incentives at

the municipal level are factored into the state's evaluation, and, assuming the project is given a "green light", detailed contracts are drawn up stipulating exact job creation targets, claw back provisions for their breach, as well as TEF penalty requirements for other contract or disclosure deficiencies.

The Governor's economic development team has managed, in 3 short years, to capture impressive economic projects that span the vast geographic potential of the entire state. In the competitive environment that pits state against state for corporate relocation and expansion projects, the TEF team has secured contracts with nearly forty major domestic corporations. With a state investment of approximately \$310 million in Enterprise funding through September, 2006, these same companies have collectively made the following contractual commitments within the state:

- to invest nearly \$10 billion in private capital improvements
- commit under contract to create nearly 50,000 new jobs
- contribute to nearly \$11 billion in Gross State Product impact
- achieve an annualized 384% state return ( GSP/ TEF investment)
- commit to retaining the major portion of their plant, manufacturing effort, product, etc. within Texas for up to the 10 year term.

Some of the most notable of the TEF's initial quantifiable successes have been in the following industry clusters, located across virtually every geographic segment of the state:

*Aviation, Financial Services, BioTech, High Technology consortium, chemical manufacturing, automotive, aerospace and defense production, telecommunications, agriculture research, energy and refining, wireless communications, dairy and poultry processing, and tourism.*

### ***Texas Emerging Technology Fund***

House Bill 1765 was signed into law by Governor Perry in June, 2005, following its passage in the 79th Texas Legislature. It authorized and appropriated \$200 million in General Revenue funds over two years to the Texas Emerging Technology Fund (ETF), designed to help Texas create jobs and plant the seeds to grow a high technology economy for the future (ATTACHMENT 2). Its goal is to encourage emerging technology companies to organize or relocate to Texas by expediting the development and commercialization of their research. The net result of the state's participation in this fund is the attraction of a new, highly compensated work force in emerging technology fields that will help to form and grow a healthy economy for the state for the new millennium.

The ETF has developed a series of multi-level partnerships between major stakeholders: the statewide oversight committee, representing the Governor, Lieutenant Governor, Speaker of the House of Representatives; state research institutions of higher education; and representatives of private industry, all working together to focus more efforts on the development of Texas' emerging technology businesses in an industry sector where their innovations and research can be readily transferred to commercial development. The process of this transfer is aided by seven geographically regional centers, administered by volunteers experienced in venture capital and business incubator funding fields, and one statewide life science group, where each region is responsible for grooming these new businesses and forwarding the most promising ones to the state committee to be considered for long term fund investment. The fund is unique in that it is designed to support technical innovation and commercial application of allied research by private sector companies today, in order to positively impact the Texas economy well into the future. Fund participants enter into contractual agreements with the state to develop their respective technical innovations across many industrial segments to the commercial market. The fund examines the prospective participants carefully, in a multi-stage due diligence process, before it determines which applicant it will invest in on behalf of the state. It then provides seed funding for the initial stages of this technically innovative research in exchange for contract commitments, similar to the Enterprise Fund. While it is not as easy to quantify the exact

benefits of the ETF in the same manner as the Enterprise, or "deal closing", fund discussed earlier,

Texas makes quantifiable gains in several ways:

- *the fund participant company commits (over 5 or 10 years) to maintain the new business in Texas, where as it grows and brings additional employment opportunities and capital funding/infrastructure investment to the state*
- *Texas continues to grow its reputation as a leading state to grow and nurture these emerging industry clusters*
- *Texas' investment leads to spillover economic benefits of attracting and retaining leading corporations, top researchers, students and an innovative business climate where success builds on itself, breeding future successes in high technology economy growth statewide*
- *Texas maintains a stake in the growth of these industry clusters, with various equity stakes in funded business participants, leading to potential new revenue streams to re-invest in R&D infrastructures statewide.*

In its first year of activity, the ETF has already made \$40 million worth of investments in a number of Texas' emerging technology companies for commercialization as well as for the state's universities and consortiums to accelerate the transfer of research to commercial applications.

(ATTACHMENT 2) The ETF contains two additional components beyond funding companies in these fields. It has a \$50 million subchapter E, entitled "research grant matching". This allocation is specifically designed to leverage state funds to existing federal or private sector research funding for applied technology research and development projects that can be later be commercialized by a Texas company, and provide long term economic benefit to the state. Some impressive examples of fund subchapter E awards in 2006 are Sematech- Austin (\$5 million), UT-San Antonio (\$4.1 million), and Carbon Nanotechnology, Inc. - NIST-ATP, Houston (\$975,000).

(ATTACHMENT 3)

Language of the fund also includes subchapter F, entitled "acquisition of research superiority", whose purpose is to assist in funding the recruitment of world renowned and industry leading research faculty at Texas' colleges, universities and research institutions. This section has already been utilized successfully, with the fund investing \$2.5 million in the University of Texas-Health Science Center- Houston's recruitment of Dr. Mauro Ferrari and his research team to spearhead its' newly organized Brown Foundation Institute for Molecular Medicine in Houston. Along with this success, the fund has invested nearly \$2 million in Texas Tech University's research superiority

efforts, and has made a \$10 million commitment to the University of Texas System' Nanotechnology Research Initiative, collaborating with UT-Dallas, UT-Austin and private industry, in positioning Texas as a leader nationally in nanoelectronics education, research, commercialization, and job creation among such emerging industries as energy harvesting and storage, cellular pumps, and other medical neurodevices. In time, other globally recognized research faculty will be recruited by Texas' universities with this section of the fund, further raising the profile of the state in its' continuing effort nationally to harness the potential of emerging technologies as the economic engine of 21st century growth. Summaries of the initial rounds of funded company participants, provided by the Governor's office and the ETF committee, are included in the attachments for detailed evaluation.

Priority in funding companies with the Texas Emerging Technology Fund is reserved by the statewide steering committee for projects that show the most potential to enhance Texas' global competitiveness. Additionally, they must show a demonstrable nexus between economic benefit and significant or "disruptive" medical, scientific, or industrial breakthroughs, leading to improved economics for Texas, and, most importantly, improved lives of *all* people. Fund participants sign contracts with the state oversight committee, committing to work in a collaborative environment with the state, growing their business here, and providing a long term positive return for the States' investment.

The 80th Legislature now has an opportunity to build on this critical infrastructure, using best practices reviewed and evaluated in this interim report of these economic development funds. It is the intent of the Subcommittee on Emerging Technologies and Economic Development to lead the debate of both the successes and perceived shortcomings of these programs, still in their relative formative periods, via review of the data compiled, the empirical metrics compiled by the programs, and the attached documents, in order to provide the most economical stewardship of the State funds committed in the name of building a solid base for the state's future economic growth engine.

Attachment 1

Texas Enterprise Fund

*Background, Participants, Metrics*  
*Through October 2006*

# Office of the Governor

## Texas Enterprise Fund Projects - Disbursed, Announced & Committed As of September 30, 2006

### Central Texas Region

- Cabela's - Buda, \$0.6MM\*\*\*
- Home Depot - Austin, \$8.5MM\*\*\*
- LEARN & TIGRE - Network Infrastructure\*\*
- Samsung - Austin, \$10.8MM
- Sematech - Austin, \$40MM
- Viasys - \$0.5MM committed, DNA\*

### East Texas Region

- Campbell's Soup - \$1MM committed, DNA\*
- LEARN & TIGRE - Network Infrastructure\*\*
- Lee Container - Nacogdoches, \$0.3MM
- Newly Weds Foods - Mount Pleasant, \$0.45MM

### Gulf Coast Region

- Baylor (Research) - Houston, \$2MM
- CITGO - Houston, \$5MM\*\*\*
- Energy Center - Sugarland, \$3.6MM
- General Dynamics - \$1.3MM committed, DNA\*
- Hewitt - \$4MM committed, DNA\*
- Huntsman - The Woodlands, \$2.75MM
- LEARN & TIGRE - Network Infrastructure\*\*
- Lockheed Martin - Houston, \$7.5MM
- Merit Medical - \$0.75MM committed, DNA\*
- NASA - \$5.1MM committed, DNA\*
- O&D USA - League City, \$0.75MM
- TIGM - Houston/College Station, \$50MM\*\*\*
- Union Tank Car - \$2MM committed, DNA\*
- UTHSC/MDA - Houston, \$25MM

### North Texas Region

- Cabela's - Ft. Worth, \$0.6MM\*\*\*
- Countrywide - Richardson, \$20MM
- Johns Manville - \$0.5MM committed, DNA\*
- Koyo Steering - Ennis, \$0.333MM
- LEARN & TIGRE - Network Infrastructure\*\*
- Raytheon - McKinney, \$1MM
- Ruiz Foods - Denison, \$1.5MM
- Sanderson Farms - McLennan Co., \$0.5MM
- T-Mobile - Frisco, \$2.15MM
- Texas Instruments/UTD - Richardson, \$50MM
- Torchmark - McKinney, \$2MM
- Tyson Foods - Sherman, \$7MM
- Vought - Dallas, \$35MM

### Upper Rio Grande Region

- ADP - El Paso, \$3MM
- LEARN & TIGRE - Network Infrastructure\*\*

### South Texas Region

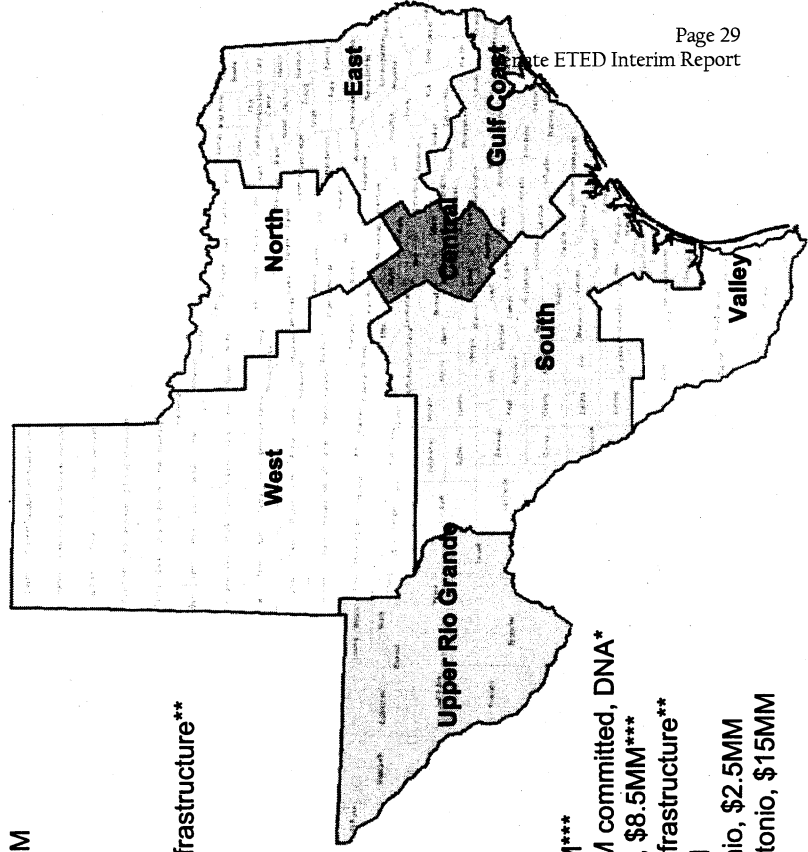
- CITGO - Corpus Christi, \$5MM\*\*\*
- Dunlop Aerospace - \$0.43MM committed, DNA\*
- Home Depot - New Braunfels, \$8.5MM\*\*\*
- LEARN & TIGRE - Network Infrastructure\*\*
- Maxim - San Antonio, \$1.5MM
- Sino Swearingen - San Antonio, \$2.5MM
- Washington Mutual - San Antonio, \$15MM

### Valley Region

- Boeing - \$45MM committed, DNA\*
- LEARN & TIGRE - Network Infrastructure\*\*

### West Texas Region

- Dyncorp - \$0.94MM committed, DNA\*
- Hilmar Cheese - Dalhart, \$7.5MM
- LEARN & TIGRE - Network Infrastructure\*\*
- Superior Essex - Brownwood, \$0.25MM
- Trace Engines - Midland, \$0.456MM



Notes: \* DNA - Did Not Accept  
 \*\* \$9.781MM Allocated Statewide  
 \*\*\* TEF Shared by Both Locations



OFFICE OF THE GOVERNOR

TEXAS ENTERPRISE FUND (TEF)  
AS OF SEPTEMBER 30, 2006

Company	Location	Industry	Jobs*	Capital Investment†	TEF Grant**	Annual Gross State Product Impact**	Total Jobs***	Annual State Return (GSP/TEF)	Total Project Return (Direct Jobs & Inv.)	Date Announced	Disbursements		Clawback****
											Amount	Date	
<b>FY2004 - FY2005 TEF PROJECTS UNDER CONTRACT &gt;&gt;</b>			<b>34,288</b>	<b>\$ 6,590,281,413</b>	<b>\$ 279,884,000</b>	<b>\$ 9,891,499,448</b>	<b>127,337</b>	<b>38.4 X</b>	<b>281%</b>		<b>\$ 248,864,000</b>	<b>\$ 228,552</b>	
Countrywide Financial	Richardson	Financial Services	7,500	\$ 200,000,000	\$ 20,000,000	\$ 2,284,500,000	25,586	113.2 X	358%	12/04	\$ 10,000,000	01/05	
TX Inst. for Genomic Med.	Houston & College Station	Biotech	5,000	\$ 45,700,000	\$ 50,000,000	\$ 2,744,000,000	31,152	54.9 X	100%	07/05	\$ 50,000,000	03/06	
Washington Mutual	San Antonio	Financial Services	4,200	\$ 50,000,000	\$ 15,000,000	\$ 171,233,165	9,062	11.4 X	237%	05/05	\$ 10,000,000	10/05	
Sematech	Austin	High-tech Consortium	4,000	\$ 190,000,000	\$ 40,000,000	\$ 245,500,000	4,623	6.1 X	194%	03/04	\$ 27,000,000	04/04	
											\$ 9,000,000	06/04	
											\$ 3,000,000	08/04	
											\$ 1,000,000	10/04	
Vought	Dallas	Aviation	3,000	\$ 598,000,000	\$ 35,000,000	\$ 2,242,200,000	29,377	64.1 X	368%	02/04	\$ 35,000,000	04/04	
UTHSC, MDA, GEMS	Houston	Biomedical	2,252	\$ 55,000,000	\$ 25,000,000	\$ 181,798,146	4,840	7.3 X	103%	05/04	\$ 15,000,000	09/05	
Tyson Foods	Sherman	Food Processing	1,600	\$ 97,150,000	\$ 7,000,000	\$ 800,000,000	4,648	114.3 X	159%	01/05	\$ 3,500,000	05/05	
Texas Energy Center	Sugarland	Energy Cluster	1,500	\$ 20,000,000	\$ 3,600,000	\$ 49,100,000	2,500	13.6 X	571%	03/04	\$ 1,600,000	03/04	
Texas Instruments****	Richardson	Semi-conductor	1,000	\$ 3,000,000,000	\$ 50,000,000	\$ 323,006,000	4,035	6.5 X	264%	06/03	\$ 500,000	12/05	
											\$ 1,500,000	7/06	
											\$ 21,500,000	05/04	
											\$ 3,500,000	03/05	
											\$ 12,500,000	06/06	
											\$ 5,000,000	05/05	
											\$ 3,500,000	08/05	
Home Depot	Austin & New Braunfels	IT & Distribution	843	\$ 809,170,000	\$ 8,500,000	\$ 49,061,267	1,074	5.8 X	270%	07/04	\$ 5,000,000	12/04	
CITGO Petroleum	Houston & Corpus Christi	HQ & Refinery	620	\$ 828,000,000	\$ 5,000,000	\$ 42,500,000	3,611	8.5 X	216%	04/04	\$ 400,000	11/04	
Cabela's	Buda & Fort Worth	Tourist Destination	600	\$ 120,000,000	\$ 600,000	\$ 146,140,000	1,002	243.6 X	2778%	05/04	\$ 1,500,000	01/05	
Maxxim Integrated Products	San Antonio	Semi-conductor	500	\$ 90,000,000	\$ 1,500,000	\$ 129,588,113	1,456	86.4 X	1258%	12/03	\$ 1,500,000	06/05	
Ruiz Foods	Denison	Food Processing	423	\$ 48,890,413	\$ 1,500,000	\$ 124,661,625	1,652	83.1 X	270%	05/05	\$ 1,500,000	06/05	
Huntsman	Woodlands	Chemicals	326	\$ 226,725,000	\$ 2,750,000	\$ 56,758,944	1,221	20.6 X	2212%	10/04	\$ 2,750,000	06/05	
Koyo Steering	Ermita	Automotive Parts	200	\$ 30,000,000	\$ 333,000	\$ 152,871,470	562	456.5 X	1742%	08/04	\$ 333,000	03/05	
Raytheon	McKinney	Aerospace & Defense	200	\$ 21,700,000	\$ 1,000,000	\$ 125,300,000	338	125.3 X	405%	11/05	\$ 500,000	10/05	
Ineos USA LLC	League City	Petrochemicals	150	\$ 5,720,000	\$ 750,000	\$ 18,428,608	228	24.6 X	531%	01/05	\$ 500,000	03/06	
Lee Container	Nacogdoches	Manufacturing	105	\$ 5,636,000	\$ 300,000	\$ 22,302,111	242	74.3 X	178%	10/04	\$ 300,000	05/05	
Superior Essex Comm.	Brownwood	Telecommunications	50	\$ 7,600,000	\$ 250,000	\$ 12,750,000	108	51.0 X	694%	08/04	\$ 250,000	07/05	
Baylor College of Medicine	Houston	Agriculture		\$ 51,000,000	\$ 2,000,000						\$ 1,000,000	03/04	
LEARN & TIGRE	Statewide	Higher Education			\$ 9,781,000						\$ 1,000,000	06/04	
											\$ 6,000,000	04/05	
											\$ 500,000	05/05	
											\$ 3,281,000	10/05	

Notes: (\*) Based on Company Commitments and Representations  
 (\*\*) Amount granted per the contract. Final disbursement depends upon recipient performance and any enforcement of clawbacks based on performance.  
 (\*\*\*) Economic Impact Reports by Independent Economists Analysis  
 (\*\*\*\*) Includes repayment penalties due to enforcement of clawbacks and opportunity losses of additional disbursements based on performance  
 (\*\*\*\*\*) T1 grant utilized by University of Texas at Dallas

OFFICE OF THE GOVERNOR

TEXAS ENTERPRISE FUND (TEF)  
AS OF SEPTEMBER 30, 2006

Company	Location	Industry	Jobs*	Capital Investment*	TEF Grant**	Annual Gross State Product Impact***	Total Jobs****	Annual State Return (GSP/TEF)	Total Project Return (Direct Jobs & Inv.)	Disbursements		Clawback****
										Amount	Date	
<b>FY2006 - FY2007 TEF PROJECTS UNDER CONTRACT &gt;&gt;</b>												
Hilmar Cheese	Dalhousie	Dairy	1,982	\$ 190,000,000	\$ 7,500,000	\$ 41,975,000	3,208	5.6 X	222%	\$ 4,000,000	12/05	
Sanderson Farms	McLennan County	Poultry Processing	1,312	\$ 73,000,000	\$ 500,000	\$ 187,336,592	4,467	374.7 X	3577%	\$ 500,000	04/06	
Sino Swearingen Aircraft	San Antonio	Aircraft Manufacturer	1,131	\$ 36,000,000	\$ 2,500,000	\$ 245,002,988	3,391	96.0 X	526%		06/06	
ADP	El Paso	Solutions Center	1,028	\$ 23,900,000	\$ 3,000,000	\$ 70,007,049	1,619	23.3 X	277%		02/06	
Samsung	Austin	Semi-conductor	900	\$ 2,500,000,000	\$ 10,600,000	\$ 297,279,000	3,356	27.5 X	712%	\$ 8,000,000	05/06	
T-Mobile	Frisco	Wireless Communications	855	\$ 20,700,000	\$ 2,150,000	\$ 59,650,000	2,062	27.8 X	317%	\$ 1,500,000	03/06	
Torchmark	McKinney	Insurance	500	\$ 26,600,000	\$ 2,000,000	\$ 31,000,000	1,150	15.5 X	392%	\$ 1,500,000	04/06	
Newly Weids Foods	Mount Pleasant	Food Products	115	\$ 27,000,000	\$ 450,000	\$ 110,755,000	292	246.1 X	681%	\$ 250,000	03/06	
Trace Engines	Midland	Aerospace	114	\$ 9,658,000	\$ 456,000	\$ 95,775,000	338	210.0 X	294%	\$ 250,000	09/06	
<b>TEF PROJECTS ANNOUNCED, CONTRACT PENDING &gt;&gt;</b>												
Lockheed Martin	Houston	Aerospace	1,095	\$ 66,000,000	\$ 7,500,000						09/06	
<b>TOTAL TEF PROJECTS ALLOCATED &gt;&gt;</b>												
			<b>43,291</b>	<b>\$ 9,475,130,413</b>	<b>\$ 319,720,000</b>					<b>\$ 284,064,000</b>		<b>\$ 220,592</b>
<b>AVAILABLE BALANCE FOR FISCAL YEAR 2007 &gt;&gt;</b>												
					<b>\$ 160,750,532</b>							

Notes: (\*) Based on Company Commitments and Representations  
 (\*\*) Amount granted per the contract. Final disbursement depends upon recipient performance and any enforcement of drawbacks based on performance.  
 (\*\*\*) Economic Impact Reports by Independent Economists Analysis  
 (\*\*\*\*) Includes repayment penalties due to enforcement of drawbacks and opportunity losses of additional disbursements based on performance  
 (\*\*\*\*\*) If grant utilized by University of Texas at Dallas

*JKP Draft as of 10/28/04*

**TERM SHEET:**

**PROPOSED ECONOMIC DEVELOPMENT AGREEMENT  
BETWEEN THE STATE OF TEXAS  
AND \*\*\*\*\* (“\*\*\*\*\*”)**

*This Term Sheet sets forth proposed terms for a possible Economic Development Agreement to be entered into between the State of Texas and \*\*\*\*\*. Any transaction between the parties is subject to the execution of a definitive contract. This Term Sheet has no binding effect, and reflects no commitment by or obligation of the parties.*

<b>State of Texas Commitment</b>	The State will pay \$***** from the Texas Enterprise Fund (“TEF”) to ***** as soon as practicable following the execution of an Agreement.
<b>***** Integrated Products Investment Commitments</b>	***** commits to investing a total of at least \$** Million in Texas in establishing a new ***** facility in ***** designed to *****.
<b>***** Integrated Products Job Target Commitments</b>	<p>***** commits to meeting the “Job Target” of creating Five Hundred (***) new Employment Positions according to the following schedule of a total of:</p> <ul style="list-style-type: none"> <li>i. ** by December 31, 2005</li> <li>ii. **** by December 31, 2006</li> <li>iii. *** by December 31, 2007; and</li> </ul> <p>maintaining these total job numbers through December 31, 2011</p> <p>“Employment Positions” shall be defined as jobs meeting the following criteria:</p> <ul style="list-style-type: none"> <li>(i) New Full-Time employment positions in Texas with ***** at the ***** facility; and</li> <li>(ii) With an average annual gross compensation (excluding benefits) of at least \$***** per year (adjusted upward by 2% per year to take account of inflation).</li> </ul>
<b>***** Integrated Products Reporting Commitments</b>	<p>Beginning in January 2006, ***** must report annually on its job creation progress. The first annual report must verify that ***** has met the Job Target of *** total Employment Positions in Texas during the preceding year. The second annual report must verify that ***** has met the Job Target of *** total Employment Positions in Texas during the preceding year. The third annual report and each annual report thereafter must verify that ***** has met the Job Target of **** total Employment Positions in Texas during the preceding year.</p> <p>There will be 7 annual reports, covering the years 2005-2011.</p>
<b>Failure to Meet Job Target Commitments</b>	<p><b>Failure to Meet 2005 “Floor” Job Target.</b> If *****’s first annual report demonstrates that it has failed to create at least *** Employment Positions as of December 31, 2005, the State may terminate the agreement and require ***** to repay the entirety of the \$***** grant plus interest in the amount of ****% per year.</p> <p><b>Failure to Meet Job Target.</b> If a ***** annual report demonstrates that it has not met the Job Target of new Employment Positions at its new facility for the preceding year, the State may require ***** to refund \$*** for every Employment Position at the new facility by which it is short that year. (Note: This “clawback” amount represents an appropriate proportional payback of the State’s investment from the TEF for each job ***** has failed to create, plus interest. For example, if ***** creates no new jobs in Texas, it will be forced to repay a total of \$***** (net present value) to the State over the term of the Agreement.)</p>

*This memorandum is intended to be only for the addressee. It is intended to be privileged and confidential. The privileges claimed include, but are not limited to, claims of Economic Development Negotiations Privilege, Attorney-Client Privilege, Attorney Work-Product Privilege, and the Internal Memorandum exception to the Texas Public Information Act.*

**OFFICE OF THE GOVERNOR  
TEXAS ENTERPRISE FUND  
PROJECT ANALYSIS**

**TEXAS ENTERPRISE FUND  
"11 STEP PROCESS"**

**STEP**

- #0 TEF Application and/or Project Disclosure Correspondence
- #1 One Page Project Description
- #2 Quick Assessment of Major TEF Project Considerations
- #3 Applicant Management Assessment and Current News Search
- #4 Business Climate Investigation and Industry Status
- #5 Economic Impact Assessment based on Independent Reports
- #6 New Business Opportunity Assessment
- #7 Financial Statement Analysis (Bloomberg Reports)
- #8 Applicant Credit Assessment (D&B Reports)
- #9 Local and State Level Economic Incentives Summary
- #10 Project Cost Benefit Analysis & Return On Investment
- #11 TEF Penalty & Project Clawback Requirements

**TEXAS ENTERPRISE FUND REVIEW PROCESS  
& CONSIDERATION OF TEF PROJECTS**

## **PROJECT SAMPLE                      CONFIDENTIAL**

---

**Status:** Private Company  
**Industry:** Manufacturing  
**Sales:** \$10 billion per year  
**Employment:** 10,000 people in 20 countries  
**Locations:** Headquarters in Pittsburg, PA; locations in 20 countries  
**CEO:** Justin Smith, Founder and Chairman  
Stephen M. Reagan, President and CEO

### **General Company Information:**

- Operating companies manufacture basic products for a variety of global industries including chemicals, plastics, automotive, aviation, footwear, paints and coatings, construction, technology, agriculture, health care, textiles, detergent, personal care, furniture, appliances and packaging.
- Company founded 50 years ago.

### **Key Points for Relocation/ Expansion**

**Texas Site:** Any Town  
**Competition:** NC, OK  
**Investment:** \$1.03 billion total  
**Jobs Created:** 416 new jobs minus 76 eliminations & 14 contracts=

**800 NET NEW JOBS**

**State Assistance Requested:** TEF--\$50 million  
Training

### **Pertinent Project Information**

- Company has indicated they are already beyond their deadline to make a decision on their business activities and are requesting a quick TEF response.
- R&D functions around the country will be consolidated into the facility with the potential for headquarters to follow.

### **Benefits to the State:**

- Reinforcement of Texas as a headquarter location
- 800 high-paying jobs

### **Timeline:**

- Begin construction as soon as possible
- Construction Complete one year from start of construction
- Purchase M&E fourth quarter 2004
- Begin Hiring as soon as possible
- Begin Operations one month after construction completion
- Fully Operational two months after construction completion

Page 35  
Late ETED Interim Report

**OFFICE OF THE GOVERNOR  
ECONOMIC DEVELOPMENT AND TOURISM  
TEXAS ENTERPRISE FUND REQUEST  
"QUICK" PROJECT ASSESSMENT 'Name'**

Docs

1] Job Creation/Wages (not including benefits)

- Direct Jobs                    \_\_\_                   Source:                   Date:
- Indirect Jobs                 \_\_\_                   Source:                   Date:
- Retained Jobs                \_\_\_                   Source:                   Date:

2] Community Involvement (identify location and local incentive programs)

- City                            \_\_\_                   Source:                   Date:
- County                        \_\_\_                   Source:                   Date:
- School District              \_\_\_                   Source:                   Date:
- Other Entity                 \_\_\_                   Source:                   Date:

3] Capital Investment (Total)

- Buildings                    \_\_\_                   Source:                   Date:
- BPP & Eq.                    \_\_\_                   Source:                   Date:
- Other Items                  \_\_\_                   Source:                   Date:

4] Project Finance (identify amounts and type of financing)

- Private                       \_\_\_                   Source:                   Date:
- Public                        \_\_\_                   Source:                   Date:
- Federal                       \_\_\_                   Source:                   Date:

5] Competing States (include major incentive programs)

- Alternative Locations
  - \_\_\_                   Source:                   Date:
  - \_\_\_                   Source:                   Date:

6] Industry Designation (for the project)

7] Owning Entity

- Parent Company              Source:                   Date:
- Headquarter Location       Source:                   Date:
- Business Structure           Source:                   Date:

8] Project Summary:

- One Page

Pros:	Cons:

**OFFICE OF THE GOVERNOR  
ECONOMIC DEVELOPMENT AND TOURISM  
TEXAS ENTERPRISE FUND REQUEST  
MANAGEMENT & NEWS SUMMARIES**

**PROJECT NAME: SAMPLE**

**Management Summary**

**Team Longevity**

- Sample and came into restructured existence in November 2003. Top management members have only served in their capacities since then. On the other hand, three of the top company executives have served together in different incarnations of the firm – Sample Plastics and The Rocky Group - since the early 1990s.
  - o Justin Smith has served as Executive VP and President of Sample Inc since November 2003. Prior that, Smith had top management positions at Sample Plastics since 1993.
  - o Stephen M. Reagan has served as Sample CEO since November 2003. Prior that, Reagan had top management positions at Delta Wireless, Vulcan Communications, and ABC Communications.
  - o David S. Jones has served as Sample CFO and Treasurer since November 2003. Prior that, Jones had top fiscal management positions at Sample Plastics and The Rocky Group since 1993.

**Management Team Gaps/Vacancies**

- No top management gaps or vacancies are found or identified.

**Industry Experience & Skills**

- Top management members have consumer products industry experience going back to at least the early 1990s.

**Functional Experience**

- Top management members have executive level functional experience going back to at least the early 1990s.

**News Summary**

**Legal Issues**

- Sample Inc and its parent firm Sample Equity Holdings Corp have been involved in a number of recent, serious legal issues.
  - o The most serious legal issue was Sample Plastic's filing Chapter 11 for bankruptcy with the U.S. Bankruptcy Court in March 2003, restructuring, and coming out of bankruptcy in November 2003.
  - o All kinds of subsidiary legal issues surround the firm's bankruptcy, notably involving streamlining operations, restructuring \$1.1 billion in debt, and dealing with creditors and investors.

**OFFICE OF THE GOVERNOR  
ECONOMIC DEVELOPMENT AND TOURISM  
TEXAS ENTERPRISE FUND REQUEST  
MANAGEMENT & NEWS SUMMARIES**

- Under the reorganization plan, the newly formed Sample Equity Holdings Corp. became parent and holding company for two subsidiaries: Sample Inc and Essence Group Inc.
- In March 2004, Bolden Inc. agreed to sell Sample its North American circuit manufacturing business for \$85 M. The Federal Trade Commission approved the deal and granted early termination of the antitrust waiting period in April 2004.

**Taxes**

- Texas taxes are in good standing; this is the only tax data found.

**Labor/Work Force**

- No labor issues are found or identified.

**Marketplace**

- Sample operates in the global consumer products manufacturing marketplace, which is highly volatile and has experienced recent U.S. and global downturns. The firm's fiscal difficulties are largely attributed to the Plastics market's downturn.

**Notable**

- On June 1, 2004, Sample announced today it completed its acquisition of selected assets of Bolden Inc.'s North American circuit manufacturing business for \$85 million. The acquisition excludes, among other things, Bolden's wireless communications and cable operations in the United Kingdom, the real estate located at Bolden's Phoenix, Arizona and Fort Mill, South Carolina facilities, and accounts receivable.
- Sample Inc. was incorporated in 2003, and on November 10, 2003 acquired the assets and businesses formerly conducted by Sample Plastics through a Plan of Reorganization under Chapter 11 of the Bankruptcy Code. The company changed its name from "Sample Plastics" and lost a major investor, The Rocky Group. As part of its restructuring plan Sample Equity Holdings Group became the parent and holding company for the company's principal operating subsidiaries, Sample Inc (consumer products manufacturing) and Essence Group Inc (electronics).
- In March 2002, Sample Plastics filed for Chapter 11 bankruptcy protection. The bankruptcy allowed the company to restructure more than \$1.1 billion in debt and streamline operations, putting it on sounder financial footing. For example, the company shuttered plants and emerged with \$195 million in debt.
- Sample Plastics was organized by The Rocky Group in 1996 to operate its consumer products businesses. Sample Plastics became the parent company of Sample Designs and DOA Systems when Rocky spun off almost 50% of the company that year *debt-free* and parted with the rest by 2003.



**OFFICE OF THE GOVERNOR  
ECONOMIC DEVELOPMENT AND TOURISM  
TEXAS ENTERPRISE FUND REQUEST  
Business Climate Comparison**

**Project Name:** Sample

**Competitive Sites:**  
Any Town Texas, Charlotte, NC Tulsa, OK

**Local Incentives**

Incentive	Charlotte, NC	Texas	Tulsa, OK
<b>Labor</b>			
Workforce Training	X (up to \$1,500/employee)	X	X (50% training costs)
Job Recruitment	?	X	?
<b>Enterprise Zone Program</b>	X	X	X
<b>EZ/EC/RC Community</b>	Urban Round I Enterprise Communities	none	Urban RC, Urban Round I EZ
<b>Tax Incentives</b>			
Sales Tax Incentives and Exemptions	X	X	6.25% exemption on building materials and M&E for eligible companies – Utility tax exemption for qualified businesses
Property Tax Exemptions	Eligible for an assessment ratio of 5% on all per. & real prop. For 5 yrs. Up to \$3,000/job over 3 yrs – max. 200 jobs per yr.	X	?
Income Tax Credits	specific to AZ	na	?
Technology Training Tax Credit	specific to AZ	na	Na
Redevelopment Area Tax Abatement	specific to AZ	na	na
Research and Development Tax Credits	X	X	X
Franchise Tax Credit	no franchise tax	X	?
<b>Financing</b>			
Industrial Development Bonds	X	X	X
Capitol financing (CAP)	X	X	?

Sources:  
<http://www.gpec.org/InfoCenter/topics/incentives/index.html>  
 Source: [http://www.foreign-trade-zone.com/g\\_existingzones.htm](http://www.foreign-trade-zone.com/g_existingzones.htm)  
<http://www.twc.state.tx.us/svcs/funds/sdfintro.html>  
<http://www.enterpriz.org/assistance.htm>  
[http://www.Tulsachamber.com/out\\_MapXpan2.cfm?mapcat=Recruiting/Training](http://www.Tulsachamber.com/out_MapXpan2.cfm?mapcat=Recruiting/Training)  
 Source: <http://Tulsa.gov/ECONDEV/busasmu.html>  
<http://www.commerce.state.az.us/BusAttraction/default.asp>  
<http://home.speedsite.com/ccohen/incentives/taxex.htm>  
<http://www.areadevelopment.com/FrameStateIncen.html>

**Business Climate**

**Educational Attainment**

	Tulsa , AZ	Charlotte, IL	Austin, TX
<b>Basic Variables 2000 Educational Attainment</b>			
School: High School Graduate	181,943	417,186	68,182
Total Base - Educational Attainment	776,615	1,762,840	394,488

**Basic Variables 2000 Educational Attainment: Percents**

	Tulsa , AZ	Charlotte, IL	Austin, TX
% College: Associates Degree	6.74%	4.77%	5.05%
% College: Bachelor's Degree	15.42%	15.95%	26.02%
% College: Graduate Degree	7.81%	10.26%	14.90%
% College: Some College, No Degree	25.05%	19.20%	21.31%
% School: 9th to 11th grade no diploma	10.39%	13.39%	7.05%
% School: Grade K - 9	11.16%	12.76%	8.39%
% School: High School Graduate	23.43%	23.67%	17.28%

Source: DemographicsNow

**Business Climate Indicators**

Indicator	Austin, TX	Tulsa, AZ	Charlotte, IL
Labor Force May 2004	405,628	851,962	<b>1,307,824</b>
# of Persons Unemployed May 2004	19,220	39,212	<b>98,641</b>
Unemployment Rate May 2004	4.7	4.6	7.5
Lease/Sales Price for Office Space, Class A, CBD Rental Rates (\$/sf)	\$25.87	\$32.00	<b>\$23.78</b>
2003 Annual Average Weekly Wage (by County)	\$818(P)	<b>\$715(P)</b>	\$874(P)
Unionization Rate, % Total Membership	<b>5.20%</b>	5.60%	19.70%
Unionization Rate, % Private Mnf. Membership	8.20%	<b>1.60%</b>	22.00%

Source: U.S. Department of Labor. Bureau of Labor Statistics, Local Area Statistics. <http://www.bls.gov/lau/home.htm#data>. Go to Get Detailed LAUS Statistics/Create Customized Tables (one screen). Last accessed July 26, 2004

Source: 2003 Comparative Statistics of Industrial and Office Real Estate Markets

Source: <http://www.bls.gov/data/home.htm>. Go to State and County Employment and Wages from the Quarterly Census of Employment and Wages (2001 forward)

Sources: Source: Percentage Union Membership -2002, 50 State Database Binder, pg. 2.11

Number of Jobs in NAICS 334- Computer and Electronic Product Manufacturing

Year	Oklahoma	AZ # Jobs Lost	AZ % Jobs Lost	North Carolina	IL # Jobs Lost	IL % Jobs Lost	Texas	TX # Jobs Lost	TX % Lost
2001	56666			63977			157826		
2002	48889	7777	13.72%	54164	9813	15.34%	130046	27780	17.60%
2003	45022(P)	3867	7.91%	48985(P)	5179	9.56%	115296(P)	14750	11.34%

Source: Bureau of Labor Statistics <http://www.bls.gov/data/home.htm>. Go To Detailed Statistics/Employment Hours and Earnings from the Current Employment Statistics Survey (State and Metro)

Wages By Industry, 2003 P

NAICS Code 33411 - Computer & Peripheral Equipment Manufacturing

Metro Area	Any Town	Charlotte*	Tulsa
Employees	8,539	ND	736
Number of Establishments	23	ND	19
Average Weekly Wage	\$2,252	ND	\$1,301

2002 Annual Averages for NAICS 33411

State	Employment	Average Weekly Wage	No. of Est.
Oklahoma	3,031	\$1,513	31
North Carolina	3,624	\$1,218	83
Texas	24,094	\$1,822	140

Source: Bureau of Labor Statistics - <http://data.bls.gov/cgi-bin/dsrv>

\* Non-disclosure for fewer than 4 reporting units

Median Hourly Wage - May 2003

Occupation	Wage/Employment		
	Tulsa	Charlotte	Any Town
Electrical & Electronic Equipment Assembler	\$12.86 (1,900)	\$10.94 (6,340)	\$13.14 (5,750)
First Line Supervisors/Managers	\$20.38 (5,950)	\$21.78 (22,120)	\$21.48 (2,380)
Computer Programmers	\$27.95 (5,470)	\$31.07 (14,800)	\$31.03 (5,040)

Source: Bureau of Labor Statistics, <http://www.bls.gov/oes/2003/may/oesrcma.htm#A>

Notable Rankings (State/Metro)

ACCRA Cost of Living Index - First Quarter 2004

Metro Area	100% Composite Index
Any Town	100.3
Charlotte	99.7
Tulsa	88.5

## Cluster Vitality

**Worldwide sales in the chip industry reached \$200 billion in 2000, plummeting to less than \$160 billion in 2001 and 2002.** Sales for all types of electronic gear such as PCs, cell phones, networking equipment, and chips for communications equipment fell during 2001 and 2002. **The global semiconductor industry was projected to generate \$180 billion in 2003.** The World Semiconductor Trade Statistics forecasts a global growth rate of 18.5 percent in 2003 and 15.1 percent in 2004. According to the Semiconductor Industry Association (SIA), the U.S. semiconductor industry had \$80 billion in sales or 48 percent of the world's \$166 billion market share in 2003. That same year this industry manufactured approximately 90 million transistors for every person on earth, and by 2010, this figure is expected to climb to 1 billion. The U.S. semiconductor industry employs a workforce of approximately 226,000 and R&D investment totaled \$14 billion or 17 percent of sales in 2003. Industry leaders include Intel, Samsung Electronics, Renesas Technology, Texas Instruments, and Toshiba Corporation.

PricewaterhouseCoopers reported that venture capitalists invested \$149 million in Texas, \$1 million in North Carolina, and \$7 million in Oklahoma for semiconductor-related endeavors in 2003. According to the North Carolina Department of Commerce & Economic Opportunity, this state's electronics cluster includes optics, electronic components, and electronic equipment. North Carolina has a very high employment concentration in electronic coil, transformer, and other inductor manufacturing and bare printed circuit board manufacturing. The Bureau of Labor Statistics (BLS) reports that North Carolina had 13,543 employees and 326 establishments in the semiconductor and electronic component industry in 2002. **The North Carolina Department of Commerce identifies four technology industry clusters for the state: Information Technology, Electronics, Telecommunications, and Biotechnology. The Information Technology cluster, which is the fastest growing cluster, comprises primarily services firms.**

**The American Electronics Association states that Oklahoma's most important technology sector, semiconductor manufacturing, lost nearly 7,000 jobs between 2001 and 2002, but remains the third largest nationally.** Oklahoma had 32,619 employees and 160 establishments in the semiconductor and electronic component industry in 2002 as reported by BLS. The state of Oklahoma is focusing on 11 industry clusters, one of which is high technology (aerospace instruments; aircraft and aircraft parts; computers; defense communications and detection systems; electronic equipment; materials and components to other manufacturers; microelectronics; missile systems; semiconductors; and telecommunications). In the *Oklahoma's Economic Future* report, the Oklahoma Department of Commerce lists printed circuit assembly manufacturing as part of its telecommunications industry as an economic opportunity for the state.

### **State Technology & Science Index, 2004**

The State Technology and Science Index, compiled by the Milken Institute, takes into account five primary components by inventorying each state's technology and science assets which can be used to promote economic development. Research and development inputs refer to whether capabilities can be commercialized for future technology growth whereas the risk capital and infrastructure category measures the success rate of turning research into commercial products and services. Human capital investment relates to knowledge and innovation capacities of the workforce while a state's technology and science workforce is indicative of whether there is sufficient depth of high-tech workers. Since the key to regional and state viability is now closely tied to the ability to establish local technology clusters, having a high percentage of high-technology businesses suggests a large number of establishments focused on value-added, dynamic products and services. According to the 2004 Index, the "new economy" refers to a transfer from a tangible-asset to an intangible-asset-based

economy. As a result, areas that can attract, grow, and retain firms and industries that provide and produce information technology will be at a competitive advantage.

To prepare the State Technology and Science Index, the report authors used 75 indicators comprising five main areas. Indicators were benchmarked using measures such as Gross State Product, population, or number of establishments. To reach a score of 100, a state would have to rank 1<sup>st</sup> in each of the indicator components. Second and third place rankings were assigned a score of 98 and 96, respectively, with this scoring process continuing until the 50<sup>th</sup> ranking with a score of 2. Indicator scores within each primary component were averaged and then, each of the five areas was averaged for each state. A comparison of Oklahoma, North Carolina, and Texas follows.

Ranking Criteria	Oklahoma	North Carolina	Texas
State Technology & Science Index, Overall Ranking	●	–	○
Research & Development Inputs	●	–	○
Risk Capital & Infrastructure	●	○	–
Human Capital Investment	–	●	○
Technology & Science Workforce	–	○	●
Technology Concentration	○	–	●

Source: State Technology and Science Index, 2004 ● Best – Middle ○ Worst

**For the composite measure of Technology & Science Workforce, Texas ranked eighth in the nation, beating out both Oklahoma and North Carolina.** States in the top ten are recognized for their high-tech economic vitality. This measure contains 18 indicators which are used to measure a state's research and innovative capacity. The technology and science workforce is a good indication of the sophistication and technology expertise of a state's human capital. Using computer and semiconductor clusters as a base, Texas ranked 5<sup>th</sup> in intensity of engineers. **Texas also scored relatively well in Technology Concentration, ranking 12<sup>th</sup> in the nation whereas Oklahoma and North Carolina ranked 17<sup>th</sup> and 16<sup>th</sup>, respectively.** The ten indicators in this measure assess the extent that a state's economy is propelled by the technology sector. The Technology Concentration composite measures high technology employment, payroll activity, and business formations. Since knowledge is developed and shared more effectively in close proximity, economic activity based on new research is propensed to clustering within a certain geographic area. As a result, states with robust technology clusters will undergo more intense economic growth.

**OFFICE OF THE GOVERNOR  
 ECONOMIC DEVELOPMENT AND TOURISM  
 TEXAS ENTERPRISE FUND REQUEST  
 Project Sample Impact**

A Report of the Economic Impact on the State of Texas  
 Project Sample  
 Any Town, Texas

Construction Phase

	Texas
Total Expenditures	\$34,600,000
Gross Reg. Product	\$26,385,300
Personal Income	\$13,433,190
Retail Sales	\$10,132,953
Employment (pers/year)	710
Tax Receipts	\$1,206,189

Annual Operations (2010)

	Texas
Total Expenditures (Direct)	\$76,650,000
Gross Reg. Product	\$152,671,470
Personal Income	\$24,328,008
Retail Sales	\$12,637,964
Permanent Jobs	562
Tax receipts	\$1,420,937

A Report of the Economic Impact on the State of Texas  
 Project Sample in Any Town, Texas

Additional calculations based on Impact Analysis

Annual Operations (2010)

	Texas
Payroll	
Direct	\$8,103,663
Indirect & Induced	\$16,224,345
Total	\$24,328,008
Implied multiplier	3.00
Jobs	
Direct	200
Indirect & Induced	362
Total	562
Implied multiplier	2.81

INFORMATION EVALUATION						
Subject	Weight	Criteria	Introduction	When	When	When
Management Team:	15%		Initial Contact	Phone Call	Business Review	Site Visit
Domain experience	20%	Specific to the target market and salient tech/operations	0	0	0	0.0
Functional coverage	20%	What slots are filled... serious gaps?	0	0	0	0.0
Scalable	20%	Management to take company across the line?	0	0	0	0.0
Leadership (CEO; CTO...)	20%	Are the central players Leaders? Command presence; compelling	0	0	0	0.0
Team players	20%	Do they work well together... "well oiled machine"?	0	0	0	0.0
<b>Market Opportunity:</b>	<b>15%</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
Size	20%	Current market size? (\$1B+?)	0	0	0	0.0
Growth opportunity	20%	Maturity of the current market; and future growth projections	0	0	0	0.0
Accessibility	20%	How is the customer/market sold?	0	0	0	0.0
Desired state target cluster?	20%	Important current or "known good" future market?	0	0	0	0.0
Window of opportunity	20%	Time of market development?	0	0	0	0.0
<b>Business Model:</b>	<b>15%</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
Aspirin or antidote?	14%	Is it really a business, or just relieving some of the pain?	0	0	0	0.0
Scalable	14%	Does the target business model scale? Human capital issues?	0	0	0	0.0
Implementation risk	14%	Business problems solved? Left to do... applicable risk	0	0	0	0.0
Competitive position	14%	Well positioned time to market or product technology?	0	0	0	0.0
Revenue/profitability	14%	Business model that generates growing revenues, margins and profits?	0	0	0	0.0
Channel/sales cycle	14%	How do sell the product? Customer acquisition cost? Sales process scalable?	0	0	0	0.0
Customer ramp	14%	Where is business now? What does the ramp look like?	0	0	0	0.0
<b>Product, Service &amp; Technology:</b>	<b>10%</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
Disruptive?	25%	Is it true disruption? Or leverage of advanced steps?	0	0	0	0.0
Proprietary?	25%	IP and ownership, defensibility and lack of potential disputes or litigation.	0	0	0	0.0
Time advantage	25%	What is timing before competition in market? Maintenance?	0	0	0	0.0
Other application potential	25%	Beyond the existing market, how can technology be applied?	0	0	0	0.0
<b>Strategic Objectives Fit:</b>	<b>10%</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
Matches strategic/objectives product strategy	20%	Does company offerings match Texas industry clusters?	0	0	0	0.0
Matches strategic/objectives segment strategy	20%	Does the Company's offering create new Jobs & Investment?	0	0	0	0.0
Disruptive market opportunity	20%	Is this the next new market to serve?	0	0	0	0.0
Competitive opportunity	20%	Does this market provide a new advantage for state?	0	0	0	0.0
Competitive response	20%	Is competition aggressive in this space, putting company at a disadvantage?	0	0	0	0.0
<b>Financing:</b>	<b>35%</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
Stage	17%	Mid, Late or Early	0	0	0	0.0
Current investor quality	17%	Investors and strength of investment position?	0	0	0	0.0
Cluster Stake/Emphasis	17%	Opportunity for Texas as minor or a major player in the market?	0	0	0	0.0
Valuation	17%	Is the financial valuation inline with market comparisons?	0	0	0	0.0
Runway	17%	Where is company today and where does this leave them?	0	0	0	0.0
Exit	17%	Foreseeable clear path?	0	0	0	0.0
<b>Total:</b>		<b>Category Scoring: Negative -1, Neutral 0, or Positive +1</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**Overview**

**Liquidity Analysis**

**Efficiency Analysis**

**Profitability Analysis**

**Solvency Analysis**



Financial	Credit	Ownership									
<p><b><u>Liquidity and Solvency Analysis</u></b> Debt/Equity 3 month Delta</p> <p>Current Ratio 3 month Delta</p> <p>Interest Coverage</p> <p><b><u>Efficiency Analysis</u></b> Avg Collection Period 12 month Delta</p> <p>Asset Turnover 12 month Delta</p> <p><b><u>Profitability Analysis</u></b> Operating Margin</p> <p>Net Margin</p> <p>ROA 12 month Delta</p> <p>ROI 12 month Delta</p>	<p><b><u>Dun &amp; Bradstreet</u></b> Rating:</p> <p>Composite Credit Appraisal: Assessment of the co. financial ratios and its cash flow</p> <p>Financial Stress Class: Moderate risk of severe financial stress.</p> <p>Financial Stress Score: Highest risk: 1001; Lowest risk: 1850</p> <p>Credit Score Class: Moderate to high risk of severe payment delinquency.</p> <p><b><u>Standard &amp; Poor's</u></b> Credit Rating: Issue Rating: Program Rating: <b><u>Moody's</u></b> Long Term Rating: Short Term Rating: Outlook:</p>	<p><b><u>Principal(s)</u></b> %</p> <p><b>TOTAL</b> 0</p> <p>Texas Status Is Business a Texas Corporation? No</p> <p>Authorized to do Business in Texas? No</p> <p>On Hold with Texas Comptroller? No</p>									
	<p><b>Industry</b></p> <table border="1"> <tr> <td>Energy</td> <td>Materials</td> <td>Capital Goods</td> </tr> <tr> <td>Cyclical</td> <td>Staples</td> <td>Healthcare</td> </tr> <tr> <td>Financial</td> <td>Technology</td> <td>Telecom ✓</td> </tr> </table>	Energy	Materials	Capital Goods	Cyclical	Staples	Healthcare	Financial	Technology	Telecom ✓	
Energy	Materials	Capital Goods									
Cyclical	Staples	Healthcare									
Financial	Technology	Telecom ✓									

**PROJECT SAMPLE**  
 Disclaimers/Assumption Footnotes

**FOR INFORMATION ONLY**

**DISCLAIMER**

The material contained in this spreadsheet is provided for informational purposes only and cannot be construed as a commitment. Assumptions preliminary as of XX/XX/XX and are based on Project Sample creating approximately 800 direct jobs and providing a capital commitment of \$1.03 billion. Total jobs and capital investment have been considerations in determining various incentives. However, it is understood that the actual number of jobs and the capital investment may vary from the assumptions made as the project moves forward and final determination of program eligibility.

**ASSUMPTION FOOTNOTES**

HB 1200 Limit on Taxes(a): The Any Town Independent School District (CCISD) may consider entering into an agreement with Project Sample as provided for under HB 1200 enacted by the 77th Legislature. The District's current ad valorem tax rate is \$1.572/\$100 valuation. Under the provisions of HB 1200, the School District is allowed to enter into agreements with qualified applicants which exempt property valued in the maintenance and operations (M&O) portion \$1.5/\$100 of the district's ad valorem taxes. The exemption becomes effective after a two-year qualifying period and remains in effect for eight years thereafter. In addition, taxes paid during the two-year qualifying period on that portion of the property value that would have been exempt may be recovered in equal amounts over a seven-year period.

It is assumed that Project Sample' proposed installation will meet any statutory industry classification requirements. HB 1200 defines Manufacturing as an establishment primarily engaged in activities described in categories 2011-3999 of the 1987 Standard Industrial Classification Manual. HB 1200 defines Research and Development as an establishment primarily engaged in activities described in category 8731 of the 1987 Standard Industrial Classification Manual. Any value represented in this document assumes 100% negotiated reduction and is calculated on maximum investment excluding any use tax benefits that may apply.

City of Any Town Tax Abatement: The proposed site does not fall within the city limits Any Town. The comparable value of tax savings is calculated based on Any Town's ad valorem tax rate.  
 County of XYZ Tax Abatement: The proposed site does fall within the county limits of XYZ. The county may offer ad valorem tax abatements for ten years for 100% of assessed value.

**4 Tax Code 151** Manufacturing Equipment Sales Tax Exemption: Manufacturing equipment in Texas is exempt from sales and use tax. Value based on a combined state and local tax rate of 8.25%.

**5 Tax Code 11** Pollution Control Property Tax Exemption: The proposed site is entitled to an exemption from taxation of all or part of real and personal property that is used wholly or partly as a facility, device, or method for the control of air, water, or land pollution. It is assumed that \$8 million of qualifying emission control equipment will receive property tax exemption at the combined tax rate of \$2.7170/\$100 valuation.

**6 Tax Code 151** Enterprise Zone Project Sales and Use Tax Refund: Proposed investment and job creation qualifies Project Sample for a "triple" enterprise project upon nomination by the community and approval by the state. A project designation is eligible for a refund of State Sales and Use taxes paid for qualifying expenditures (building materials, machinery, equipment and electricity and other tangible personal property items) purchased and consumed in the normal course of business. The maximum refund is \$7,500 per job up to a maximum allocation of 500 jobs. Project would need to evaluate human resource requirements to see if they would be able to meet ED/EZR requirements.

**7 TWC** Through its considerable resources, the Texas Workforce Commission working through the Texas Workforce Development Board can provide an in depth screening and recruitment program for Project Sample.

**8 Tax Code 151 - Natural Gas & Electricity Sales Tax Exemption:** Texas companies are exempt from sales and use taxes on electricity and natural gas used in the manufacturing process. Estimated tax savings are calculated on consumption at \$2 per square foot.

**9 Gov Code 481** Texas Enterprise Fund: Discretionary grant monies to be used in such areas as recruitment and training, equipment purchases, etc. will be available from the Texas Enterprise Fund administered by the Governor's Office. The specific amount of Texas Enterprise Funds will be communicated electronically upon formal approval by the Governor, Lt. Governor and House Speaker and the specific application will be mutually agreed upon in such manner as to minimize tax consequences.

**ADDITIONAL NOTES:**

**1<sup>a</sup>** Property Tax Rule 9.105: The Texas Comptroller offers a refund of state taxes paid by companies owning certain abated property. A company who meets the following three conditions may apply for a refund 1) Paid property taxes to a school district on property that is located in a reinvestment zone established under Chapter 312. 2) Is exempt in whole or in part from property tax imposed by a city or county under a tax abatement agreement established under Chapter 312. 3) Is not in a tax abatement agreement with a school district.



Assumptions	Rate	Amount	2011	2012	2013	2014	2015	2016	2017
Buildings and Facilities		\$ 200,000,000							
Real Property Depreciation	5%		(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)
Net Real Property Value			130,000,000	120,000,000	110,000,000	100,000,000	90,000,000	80,000,000	70,000,000
Renovations		\$ 80,000,000							
Pollution Control Equipment	10%		(8,000,000)	(8,000,000)	(8,000,000)	(8,000,000)			
Personal Property Depreciation			24,000,000	16,000,000	8,000,000				
Net Personal Property Value			(75,000,000)	(75,000,000)	(75,000,000)	(75,000,000)			
New Hardware	10%	\$ 750,000,000							
Personal Property Depreciation			(75,000,000)	(75,000,000)	(75,000,000)	(75,000,000)			
Net Personal Property Value			225,000,000	150,000,000	75,000,000				
<b>Net Property Value at Year End (sans Pollution Control)</b>			<b>355,000,000</b>	<b>270,000,000</b>	<b>185,000,000</b>	<b>100,000,000</b>	<b>90,000,000</b>	<b>80,000,000</b>	<b>70,000,000</b>
Total Capital Investment		\$ 1,030,000,000							
Employees		800							
Average Salaries		35,500							
Annual Wages		28,400,000							
Any Town ISD Tax Rate Per \$100		1.5720							
ISD M&O Tax Rate Per \$100		1.5000							
City of Any Town Tax Rate Per \$100		0.5900							
XYZ County Tax Rate Per \$100		0.5550							
Combined Tax Rate Per \$100		2.7170							
Value of Ad Valorem Inventory @ Year End									
<b>Abatements &amp; Incentives</b>									
<b>Local Abatements &amp; Incentives</b>									
Any Town ISD - HB 1200 Limit on School District Taxes	1	70,875,000	8,657,143	7,382,143	6,107,143	4,832,143			
City of Any Town Tax Abatement	2	28,467,500	\$ 2,094,500	\$ 1,593,000	\$ 1,091,500	\$ 590,000			
(100% Real Property & 100% Personal Property) - Ch. 380									
XYZ County Tax Abatements	3	26,778,750	1,970,250	1,498,500	1,026,750	555,000			
(100% Real Property & 100% Personal Property)									
<b>Total City, County and School District Participation</b>		<b>\$ 126,121,250</b>	<b>\$ 12,721,893</b>	<b>\$ 10,473,643</b>	<b>\$ 8,225,393</b>	<b>\$ 5,977,143</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>State of Texas Participation</b>									
Manufacturing Equipment Sales Tax Exemption	4	68,475,000							
Pollution Control Equipment Property Tax Exemption	5	9,781,200	652,080	434,720	217,360				
Enterprise Zone/Project Sales & Use Tax Refunds (triple)	6	3,750,000							
TWC Recruitment/Screening/Referral Services	7	5,680,000							
Natural Gas & Electricity Sales Tax Exemption	8	14,850,000	742,500	742,500	742,500	742,500	742,500	742,500	742,500
Texas Enterprise Fund *	9	TBD							
<b>State of Texas Participation Total</b>		<b>\$ 102,636,200</b>	<b>\$ 1,394,580</b>	<b>\$ 1,177,220</b>	<b>\$ 999,860</b>	<b>\$ 742,500</b>	<b>\$ 742,500</b>	<b>\$ 742,500</b>	<b>\$ 742,500</b>
<b>Total State and Local Participation</b>		<b>\$ 228,657,450</b>	<b>\$ 14,116,473</b>	<b>\$ 11,650,863</b>	<b>\$ 9,185,253</b>	<b>\$ 6,719,643</b>	<b>\$ 742,500</b>	<b>\$ 742,500</b>	<b>\$ 742,500</b>
<b>Net Present Value @ 5% (Industry WACC Discount Rate)</b>		<b>\$181,345,031</b>							
NOTE: (*) DIRECT GENERAL REVENUE COSTS									
INPUTS									

NOTES AND ASSUMPTIONS ARE AN INTEGRAL PART OF THIS WORKSHEET

Assumptions	Rate	Amount	2018		2019		2020		2021		2022		2023	
			15	16	16	17	17	18	18	19	19	20	20	
Buildings and Facilities		\$ 200,000,000	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)	(10,000,000)
Real Property Depreciation	5%		-60,000,000	50,000,000	40,000,000	30,000,000	20,000,000	10,000,000	0	0	0	0	0	0
Net Real Property Value														
Renovations		\$ 80,000,000												
Pollution Control Equipment	10%													
Personal Property Depreciation		\$ 750,000,000												
Net Personal Property Value														
New Hardware	10%													
Personal Property Depreciation														
Net Personal Property Value														
<b>Net Property Value at Year End (sans Pollution Control)</b>			60,000,000	50,000,000	40,000,000	30,000,000	20,000,000	10,000,000	0	0	0	0	0	0
<b>Total Capital Investment</b>		\$ 1,030,000,000												
Employees		800												
Average Salaries		35,500												
Annual Wages		28,400,000												
Any Town ISD Tax Rate Per \$100		1.5720												
ISD M&O Tax Rate Per \$100		1.5000												
City of Any Town Tax Rate Per \$100		0.5900												
XYZ County Tax Rate Per \$100		0.5550												
Combined Tax Rate Per \$100		2.7170												
<b>Value of Ad Valorem Inventory @ Year End</b>														
<b>Abatements &amp; Incentives</b>														
	Item		15	16	16	17	17	18	18	19	19	20	20	
	Totals													
	Period													
<b>Local Abatements &amp; Incentives</b>														
Any Town ISD - HB 1200 Limit on School District Taxes	1	70,875,000												
City of Any Town Tax Abatement	2	28,467,500												
(100% Real Property & 100% Personal Property) - Ch. 380														
XYZ County Tax Abatements	3	26,778,750												
(100% Real Property & 100% Personal Property)														
<b>Total City, County and School District Participation</b>		\$ 126,121,250	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>State of Texas Participation</b>														
Manufacturing Equipment Sales Tax Exemption	4	68,475,000												
Pollution Control Equipment Property Tax Exemption	5	9,781,200												
Enterprise Zone/Project Sales & Use Tax Refunds (triple)	6	3,750,000												
TWC Recruitment/Screening/Referral Services	7	5,680,000												
Natural Gas & Electricity Sales Tax Exemption	8	14,850,000	742,500	742,500	742,500	742,500	742,500	742,500	742,500	742,500	742,500	742,500	742,500	742,500
Texas Enterprise Fund *	9	TBD												
<b>State of Texas Participation Total</b>		\$ 102,536,200	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500
<b>Total State and Local Participation</b>		\$ 228,657,450	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500	\$ 742,500
<b>Net Present Value @ 9% (Industry WACC Discount Rate)</b>		\$ 181,345,031												
NOTE: (*) DIRECT GENERAL REVENUE COSTS														
		INPUTS												

Estimated Annual Payroll for 800 Employees <sup>1</sup>	\$ 49,828,351
IMPLAN Multiplier <sup>2</sup>	3.51
Direct, Indirect & Induced Impact to State Payroll	\$ 174,897,513
Estimated Sales Tax Revenue per \$1.00 of Payroll <sup>3</sup>	\$ 0.0150
Overall Estimated Annual State Sales Tax Revenue	\$ 2,623,463

City Tax Rate	0.5900
County Tax Rate	0.5550
School Tax Rate	1.5720

**ASSUMPTIONS:**  
 1. Base wages & salaries (not including benefits) for 800 planned employees.  
 2. IMPLAN Earnings multiplier estimated by the EDT Economic Bank staff.  
 3. Calculated as \$1.00 multiplied by estimated consumption of 80%, then multiplied by estimated percentage of goods subject to sales tax of 30%, then multiplied by the State sales tax rate of 6.25%.  
 4. Assumes a discount rate based on Texas Economic Bank forecast inflation rate.  
 5. Assumes an annual cost of living increase to wages and salaries of 3% starting in year 3.

# Hours	200,000	4,020,000	5,460,000
Wage (\$/hr)	\$ 16.00	\$ 11.00	\$ 11.00
Total Wages	\$ 3,200,000	\$ 44,220,000	\$ 60,060,000

Capital Investment	Building	\$ 200,000,000
Op Equipment	\$ 750,000,000	

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Employment:										
Operations	800	800	800	800	800	800	800	800	800	800
Cummulative Jobs	800	800	800	800	800	800	800	800	800	800
Avg Wage <sup>4</sup>	\$ 57,000	\$ 57,000	\$ 57,000	\$ 58,710	\$ 60,471	\$ 62,285	\$ 64,154	\$ 66,079	\$ 68,061	\$ 70,103
Tot Wages <sup>5</sup>	\$ 45,600,000	\$ 45,600,000	\$ 45,600,000	\$ 46,988,000	\$ 48,377,040	\$ 49,828,351	\$ 51,323,202	\$ 52,862,898	\$ 54,448,785	\$ 56,082,248

<b>COST ESTIMATE:</b>	
Texas Enterprise Fund	\$ 8,000,000
Other General Revenue Fund	\$ -
<b>Total Direct State Cost</b>	<b>\$ 8,000,000</b>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>Twenty Year Total - Nominal Value</b>	8,000,000									
Direct Jobs State Sales Tax	\$ 16,699,474	\$ 684,000	\$ 684,000	\$ 704,520	\$ 725,656	\$ 747,425	\$ 769,848	\$ 792,943	\$ 816,732	\$ 841,234
Construction Sales Tax	\$ 1,865,700	\$ 964,800	\$ 900,900	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
State Franchise Tax	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Sub-total</b>	<b>\$ 18,565,174</b>	<b>\$ 1,648,800</b>	<b>\$ 1,584,900</b>	<b>\$ 704,520</b>	<b>\$ 725,656</b>	<b>\$ 747,425</b>	<b>\$ 769,848</b>	<b>\$ 792,943</b>	<b>\$ 816,732</b>	<b>\$ 841,234</b>
<b>Cum State NPV</b>	<b>\$ 11,350,434</b>	<b>\$ 1,495,510</b>	<b>\$ 2,864,606</b>	<b>\$ 3,444,217</b>	<b>\$ 4,012,787</b>	<b>\$ 4,570,527</b>	<b>\$ 5,117,644</b>	<b>\$ 5,654,339</b>	<b>\$ 6,180,812</b>	<b>\$ 6,697,256</b>
<b>Local Revenue: Ad Valorem</b>										
City Tax	\$ 23,567,892	\$ 5,103,500	\$ 4,602,000	\$ 4,100,500	\$ 3,599,000	\$ 3,097,500	\$ 2,596,000	\$ 2,094,500	\$ 1,593,000	\$ 1,091,500
- Less City Incentive	\$ (22,413,688)	\$ (5,103,500)	\$ (4,602,000)	\$ (4,100,500)	\$ (3,599,000)	\$ (3,097,500)	\$ (2,596,000)	\$ (2,094,500)	\$ (1,593,000)	\$ (1,091,500)
County Tax	\$ 22,312,075	\$ 4,800,750	\$ 4,329,000	\$ 3,857,250	\$ 3,385,500	\$ 2,913,750	\$ 2,442,000	\$ 1,970,250	\$ 1,498,500	\$ 1,026,750
- Less County Incentive	\$ (21,064,062)	\$ (4,800,750)	\$ (4,329,000)	\$ (3,857,250)	\$ (3,385,500)	\$ (2,913,750)	\$ (2,442,000)	\$ (1,970,250)	\$ (1,498,500)	\$ (1,026,750)
School Tax	\$ 63,197,444	\$ 13,597,800	\$ 12,261,600	\$ 10,925,400	\$ 9,589,200	\$ 8,253,000	\$ 6,916,800	\$ 5,580,600	\$ 4,244,400	\$ 2,908,200
- Less HB1200 School Tax Cap	\$ (34,270,870)	\$ -	\$ -	\$ (10,275,000)	\$ (9,000,000)	\$ (7,725,000)	\$ (6,450,000)	\$ (5,175,000)	\$ (3,900,000)	\$ (2,625,000)
- 50% School Adjustment*	\$ (14,463,287)	\$ -	\$ (6,130,800)	\$ (325,200)	\$ (294,600)	\$ (264,000)	\$ (233,400)	\$ (202,800)	\$ (172,200)	\$ (141,600)
<b>Sub-total</b>	<b>\$ 16,845,504</b>	<b>\$ 6,798,900</b>	<b>\$ 6,130,800</b>	<b>\$ 325,200</b>	<b>\$ 294,600</b>	<b>\$ 264,000</b>	<b>\$ 233,400</b>	<b>\$ 202,800</b>	<b>\$ 172,200</b>	<b>\$ 141,600</b>
<b>Total Direct State Benefit</b>	<b>\$ 28,195,937</b>	<b>\$ 8,447,700</b>	<b>\$ 7,715,700</b>	<b>\$ 1,029,720</b>	<b>\$ 1,020,256</b>	<b>\$ 1,011,425</b>	<b>\$ 1,003,248</b>	<b>\$ 995,743</b>	<b>\$ 988,932</b>	<b>\$ 982,834</b>
<b>Cum. Net Present Value</b>	<b>\$ 28,195,937</b>	<b>\$ 7,662,313</b>	<b>\$ 14,327,425</b>	<b>\$ 15,174,578</b>	<b>\$ 15,973,975</b>	<b>\$ 16,728,716</b>	<b>\$ 17,441,706</b>	<b>\$ 18,115,664</b>	<b>\$ 18,753,138</b>	<b>\$ 19,356,513</b>

(\*) NOTE: INTERNAL ADJUSTMENT

Discount Rate(4)	5%
------------------	----

**EXECUTIVE SUMMARY:**

1. Consideration of State Investment of \$8MM from Texas Enterprise Fund.
2. \$28MM Economic Benefit from State Sales, Local Property & Franchise Tax over 20 Yrs.

Estimated Annual Payroll for 800 Employees <sup>1</sup>	\$ 49,828,351
IMPLAN Multiplier <sup>2</sup>	3.51
Direct, Indirect & Induced Impact to State Payroll	\$ 174,897,513
Estimated Sales Tax Revenue per \$1.00 of Payroll <sup>3</sup>	\$ 0.0150
Overall Estimated Annual State Sales Tax Revenue	\$ 2,623,463

City Tax Rate	0.5900
County Tax Rate	0.5550
School Tax Rate	1.5720

Employment:

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Operations	800	800	800	800	800	800	800	800	800	800
Cummulative Jobs	800	800	800	800	800	800	800	800	800	800

Avg Wage <sup>5</sup>	\$ 72,206	\$ 74,372	\$ 76,603	\$ 78,901	\$ 81,268	\$ 83,706	\$ 86,218	\$ 88,804	\$ 91,468	\$ 94,212
Tot Wages	\$ 57,764,716	\$ 59,497,657	\$ 61,282,587	\$ 63,121,065	\$ 65,014,696	\$ 66,965,137	\$ 68,974,091	\$ 71,043,314	\$ 73,174,614	\$ 75,369,652

<b>COST ESTIMATE:</b>	
Texas Enterprise Fund	\$ 8,000,000
Other General Revenue Fund	\$ -
<b>Total Direct State Cost</b>	<b>\$ 8,000,000</b>

**STATE BENEFIT:**

State Revenue	Net Present Value <sup>6</sup>	Twenty Year Total - Nominal Value	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Direct Jobs State Sales Tax	\$ 9,697,101	\$ 16,699,474	\$ 866,471	\$ 892,465	\$ 919,239	\$ 946,816	\$ 975,220	\$ 1,004,477	\$ 1,034,611	\$ 1,065,650	\$ 1,097,619	\$ 1,130,548
Construction Sales Tax	\$ 1,653,333	\$ 1,865,700	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
State Franchise Tax	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Sub-total</b>	<b>\$ 11,350,434</b>	<b>\$ 18,565,174</b>	<b>\$ 866,471</b>	<b>\$ 892,465</b>	<b>\$ 919,239</b>	<b>\$ 946,816</b>	<b>\$ 975,220</b>	<b>\$ 1,004,477</b>	<b>\$ 1,034,611</b>	<b>\$ 1,065,650</b>	<b>\$ 1,097,619</b>	<b>\$ 1,130,548</b>
Cum State NPV	\$ 11,350,434	\$ 7,203,864	\$ 7,700,822	\$ 8,188,314	\$ 8,666,520	\$ 9,135,618	\$ 9,595,780	\$ 10,047,178	\$ 10,489,977	\$ 10,924,342	\$ 11,350,434	\$ -
Local Revenue: Ad Valorem												
City Tax	\$ 23,567,892	\$ 30,766,500	\$ 590,000	\$ 472,000	\$ 413,000	\$ 413,000	\$ 295,000	\$ 236,000	\$ 177,000	\$ 118,000	\$ 59,000	\$ -
- Less City Incentive	\$ (22,413,693)	\$ (26,467,500)	\$ (590,000)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
County Tax	\$ 22,312,075	\$ 29,276,250	\$ 555,000	\$ 444,000	\$ 388,500	\$ 388,500	\$ 333,000	\$ 277,500	\$ 222,000	\$ 166,500	\$ 111,000	\$ 55,500
- Less County Incentive	\$ (21,084,062)	\$ (26,778,750)	\$ (555,000)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
School Tax	\$ 63,197,444	\$ 82,923,000	\$ 1,572,000	\$ 1,414,800	\$ 1,257,600	\$ 1,100,400	\$ 943,200	\$ 786,000	\$ 628,800	\$ 471,600	\$ 314,400	\$ 157,200
- Less HB1200 School Tax Cap	\$ (34,270,870)	\$ (46,500,000)	\$ (1,350,000)	\$ (628,800)	\$ (550,200)	\$ (550,200)	\$ (471,600)	\$ (393,000)	\$ (314,400)	\$ (235,800)	\$ (157,200)	\$ (78,600)
- 50% School Adjustment <sup>7</sup>	\$ (14,463,287)	\$ (18,211,500)	\$ (111,000)	\$ (707,400)	\$ (1,544,800)	\$ (1,351,700)	\$ (1,099,600)	\$ (906,500)	\$ (713,400)	\$ (520,300)	\$ (327,200)	\$ (134,100)
<b>Sub-total</b>	<b>\$ 16,945,504</b>	<b>\$ 23,010,000</b>	<b>\$ 111,000</b>	<b>\$ 1,737,900</b>	<b>\$ 1,544,800</b>	<b>\$ 1,351,700</b>	<b>\$ 1,099,600</b>	<b>\$ 906,500</b>	<b>\$ 713,400</b>	<b>\$ 520,300</b>	<b>\$ 327,200</b>	<b>\$ 134,100</b>
<b>Total Direct State Benefit</b>	<b>\$ 28,195,937</b>	<b>\$ 41,575,174</b>	<b>\$ 977,471</b>	<b>\$ 2,630,365</b>	<b>\$ 2,464,039</b>	<b>\$ 2,298,516</b>	<b>\$ 2,074,820</b>	<b>\$ 1,910,977</b>	<b>\$ 1,748,011</b>	<b>\$ 1,585,950</b>	<b>\$ 1,424,819</b>	<b>\$ 1,264,648</b>
<b>Cum. Net Present Value</b>	<b>\$ 28,195,937</b>	<b>\$ 19,928,020</b>	<b>\$ 21,392,705</b>	<b>\$ 22,699,438</b>	<b>\$ 23,860,344</b>	<b>\$ 24,858,369</b>	<b>\$ 25,733,809</b>	<b>\$ 26,496,461</b>	<b>\$ 27,155,456</b>	<b>\$ 27,719,305</b>	<b>\$ 28,195,937</b>	<b>\$ -</b>

(\*) NOTE: INTERNAL ADJUSTMENT

Discount Rate(4)	5%
------------------	----

**TEXAS ENTERPRISE FUND**

**CLAWBACK PENALTY PLAN**

**PROJECT SAMPLE**

YEAR:

	1	2	3	4	5
<b>5 Yr Total - Net Present Value<sup>1</sup></b>					
Texas Enterprise Fund	\$ 3,500,000	\$ 1,500,000	\$ -	\$ -	\$ -
Comparable Period Interest *	\$ 31,938	\$ 183,666	\$ 190,370	\$ 197,318	\$ 204,520
<b>Sub-total</b>	<b>\$ 3,531,938</b>	<b>\$ 1,683,666</b>	<b>\$ 190,370</b>	<b>\$ 197,318</b>	<b>\$ 204,520</b>
<b>Cum. NPV</b>	<b>\$ 3,363,750</b>	<b>\$ 4,890,884</b>	<b>\$ 5,055,333</b>	<b>\$ 5,217,667</b>	<b>\$ 5,377,914</b>
<b>Cummulative Amount</b>	<b>\$ 3,531,938</b>	<b>\$ 5,215,603</b>	<b>\$ 5,405,973</b>	<b>\$ 5,603,291</b>	<b>\$ 5,807,811</b>
<b>(*) Interest Rate (term oppty)</b>	<b>3.7%</b>	<b>3.7%</b>	<b>3.7%</b>	<b>3.7%</b>	<b>3.7%</b>

5 Yr UST CM Month 2004

**RECIPIENT PERFORMANCE:**

Total Jobs  
Other Jobs

	0	450	750	1250	1500
--	---	-----	-----	------	------

**Clawback Penalty**

	Jobs	Capital Inv.
Total Jobs	\$ 1,650	\$ -
Other Jobs	\$ 5,377,914	\$ 6,516,766
Capital Investment	\$ 0	\$ -
<b>Sub-total</b>	<b>\$ 5,377,914</b>	<b>\$ 6,516,766</b>
<b>Cum. NPV</b>	<b>\$ 5,377,914</b>	<b>\$ -</b>

**Cum. Net Present Value** \$ - 0.0%

**Discount Rate<sup>1</sup>** 5.00%



## Attachment 2

# Texas Emerging Technology Fund

*Background, Metrics, Participants*

## TETF Awards in FY 2006

<b>Texas Tech University</b>		The award will help Texas Tech become the international leader in agriculture genomics research and development; help make the west Texas region the fiber capital of the world.; further Texas Tech's partnership with Bayer CropScience; and help launch the International Center of Excellence in Agriculture Genomics and Biotechnology.
<i>Lubbock</i>	\$1,949,000	
<b>CardioSpectra, Inc.</b>		The company will commercialize its Optical Coherence Tomography (OCT) Diagnostic Catheter. This technology will allow doctors to better predict the likelihood of a patient having a heart attack
<i>San Antonio</i>	\$1,350,000	
<b>Xilas Medical, Inc.</b>		Funds will be used to commercialize three medical devices that will aid in the early detection of neuropathies, foot stress and inflammation that often lead to diabetic ulcers and amputation.
<i>San Antonio</i>	\$1,000,000	
<b>Molecular Imprints</b>		The company is commercializing a "disruptive" technology called Step and Flash Imprint Lithography (S-FIL) for fabricating nano-scale devices and components.
<i>Austin</i>	\$3,000,000	
<b>CorInnova, Inc.</b>		CorInnova will commercialize its Heart Therapy Device, a life-saving technology that reduces by 60 percent or more the instances of congestive heart failure in patients who have suffered a severe heart attack.
<i>College Station</i>	\$500,000	
<b>ATDF/Sematech, Inc.</b>		Texas' investment will assist Sematech in developing Immersion Lithography, the most promising patterning technique for manufacturing. The funds also support MASK development, which will enable computer chip makers to produce the goods and services needed for future technologies. Sematech is working with the University of Texas and Texas State University along with various industry partners to develop these technologies.
<i>Austin</i>	\$ 5,000,000	
<b>UT Health Science Ctr</b>		The award brought Dr. Mauro Ferrari, a preeminent scholar for biomedical nanotechnology, to the University of Texas Health Science Center in Houston. Ferrari will strategically enhance the superiority of nanomedicine health research and commercialization by leading breakthrough research dedicated to finding the cures, technologies, treatments and clinical practices to combat cancer, heart disease, and diabetes.
<i>Houston</i>	\$ 2,500,000	
<b>Endothelix, Inc.</b>		The company is developing new diagnostic technology which will allow physicians to more accurately, quickly and inexpensively assess patients' cardiovascular health.
<i>Houston</i>	\$1,000,000	
<b>itRobotics, Inc.</b>		The awarded funds will support development and production of pipe inspection robots, enabling the inspection of a significant portion of tubular infrastructure for gas, nuclear plants, power plants, and non-energy pipelines.
<i>Stafford</i>	\$750,000	
<b>Bauhaus, Inc.</b>		The company will continue to develop and distribute its animation software that replaces combined paper and digital methods with a complete digital system for animation and special effects.
<i>San Antonio</i>	\$500,000	

<b>Hanson Robotics</b>		Hanson is developing the next generation platform for robotics design and manufacture enabled by rapid automated customization (RAC). Very similar to humans in form, movement, and behavior, these devices can be immediately useful in simulation, cognitive science, education, entertainment, and in fine art sculptures.
<i>Richardson</i>	\$1,500,000	
<b>Monebo</b>		This award will commercialize Monebo's innovative heart products that help patients receive more efficient heart care. Monebo's technologies monitor heart signals, analyze them, and allow patients to wirelessly transmit them to their physician. These measurements will detect heart complications more quickly and lead to better patient outcomes.
<i>Austin</i>	\$500,000	
<b>Nanocomposites, Inc.</b>		The funds received by Nanocomposites will lease and equip an independent lab and double the size of its scientific team. The company then can continue to develop O-rings, seals for static or moving mechanical joints that must withstand corrosive chemicals and high temperatures and pressures. The result is more effective gas and oil drilling in the Lone Star State.
<i>Humble</i>	\$1,500,000	
<b>Nanospectra</b>		The ETF investment in Nanospectra supports the continued development and commercialization of nanoshell therapy. This new cancer treatment can selectively destroy solid tumors without harm to normal tissues, and causes no detectable systemic toxicity.
<i>Houston</i>	\$1,250,000	
<b>Carbon Nanotech, Inc.</b>		Carbon Nanotechnologies, Inc. will be able to meet the ever-growing demand for more power and longer run times in portable microelectronics with the development of single wall carbon nanotubes, or SWNT. Texas' investment will allow the company to further explore SWNT in order to achieve breakthrough in fuel cell performance, durability, and manufacturability.
<i>Houston</i>	\$975,000	
<b>Nanoelectronics Research Initiative</b>		Nanoelectronics Research Initiative will position Texas as one of the nation's leaders in nanoelectronics education, research, commercialization, manufacturing, and job creation through the recruitment of eight of the most talented researchers in the world to the campuses of The University of Texas System. This field of research will enable breakthrough solutions in areas such as energy harvesting, energy storage and neurodevices that allow people to regain mobility and cellular pumps that treat glaucoma and diabetes, just to name a few.
<i>Dallas, Arlington, Austin</i>	\$10,000,000	
<b>University of Health Science Center</b>		The UTHSC has been successful in recruiting top researchers with backgrounds in pharmacology, physiology, and imaging that comprise an incredible team to lead Texas in Animal Imaging research in order to identify potential models relevant to human health.
<i>San Antonio</i>	\$4,100,000	

**EMERGING TECHNOLOGY FUND  
PORTFOLIO AWARDEES SUMMARY**

Page 57  
Senate ETED Interim Report

**Nano-Scale Manufacturing Project  
Molecular Imprints  
Austin, Texas**

The Texas Emerging Technology Funds' investment in Molecular Imprints' Nano-Scale Manufacturing Project will establish a world class Step and Flash Imprint Lithography (S-FIL) nano-foundry and user facility at the University of Texas at Dallas. S-FIL is a new technique capable of patterning nano-scale devices. This technology is used in many industries, including disk drives, displays, and LEDs.

Molecular Imprints Inc., an Austin-based start up company spun out of the University of Texas is now developing and commercializing the S-FIL technology. Molecular Imprints is the largest single organization in the world working solely on imprint lithography and holds, or has filed for, hundreds of patents.

Texas' investment will help advance the commercialization of S-FIL, which will help keep existing semiconductor companies in Texas and enable them to grow. The program has the potential to make Texas the center of lithography in the U.S., a \$5 billion per year industry.

**Optical Coherence Tomography (OCT) Diagnostic Catheter  
CardioSpectra  
San Antonio, Texas**

Texas' investment in CardioSpectra's Optical Coherence Tomography (OCT) Diagnostic Catheter will fund a novel cardiac catheter that employs fiber-optic based technology to produce high-resolution images of vulnerable plaque to reduce the risk of heart attacks and strokes. This technology gives doctors a better view of what's going on inside arteries, and could dramatically reduce the number of sudden deaths from heart attacks, the leading cause of death in the United States. The catheter will, for the first time, help cardiologists accurately identify patients at high risk of heart attack due to the presence of plaque in their arteries.

CardioSpectra resulted from collaboration between cardiologist and physicists at the University of Texas Health Science Center at San Antonio and UT Austin, together with Texas-based medical device industry entrepreneurs. The cardiologists and engineers that comprise the company already have multiple patents, and are currently studying OCT as it relates to two of Texas' most prevalent diseases, cardiovascular diseases and diabetes.

The investment provided by the Emerging Technology Fund will be used to build facilities and hire highly qualified engineers. CardioSpectra expects the first prototype of it's OCT Diagnostic Catheter later this year.

**Cardiac Compression Device  
CorInnova  
San Antonio, Texas**

Texas' investment into the Cardiac Compression Device by CorInnova has the potential to save tens of thousands of Texans lives. CorInnova has developed a minimally invasive device that,

## **EMERGING TECHNOLOGY FUND PORTFOLIO AWARDEES SUMMARY**

Page 58  
Senate ETED Interim Report

when implanted within the first hours following a severe heart attack, dramatically increases a patient's chance of survival. The Cardiac Compression Device has the potential to reduce instances of congestive heart failure by 60%, resulting in as many as 40,000 fewer deaths per year in the U.S. The technology will enable a high degree of recovery, allowing patients to lead more normal, productive lives.

CorInnova Incorporated, founded in July 2004, is an early stage medical device company that is developing and commercializing heart assist technologies that lead to heart recovery rather than heart replacement. The company collaborates closely with Texas A&M University to conduct efficacy trials on the compression device.

The Emerging Technology Fund's investment will allow CorInnova to accelerate growth, and ensure its ability to continue commercializing this life saving innovation. The development of the device as a result of the funding will not only save lives, but it will bring federal research dollars to Texas, create jobs, and grow the Texas economy.

### **Commercialization and Profitability**

#### **Xilas Medical San Antonio, Texas**

Texas' investment Xilas Medical, Inc. will allow them to market innovative medical devices for people suffering from diabetes and susceptible to foot related problems. This family of products includes insoles that reduce friction and pressure, dermal thermometers, and inflammation detectors. There are 18.2 million diabetics in the U.S., half of which are at high risk for developing foot ulcers or requiring amputation. Xilas Medical products have been proven to prevent 85% of these amputations and associated costs.

Xilas Medical Inc. was founded by six individuals who met through the University of Texas Health Science Center in San Antonio, Texas. The founding team and their research attracted the interest of some of the top experts in the world in the area of the diabetic foot. Those individuals became technical advisors to Xilas Medical, leading to further enhancement of the products. Now the company is focusing on the introduction into the market and full commercialization.

Xilas Medical Inc. is working to help thousands of diabetics through lowering the cost of and improving diabetes management. The investment from the Emerging Technology fund will allow Xilas Medical, Inc. to implement its marketing and sales plan and allow them to drastically increase their production force. Xilas Medical Inc. products will prevent over two thousand amputations over the next five years, and save the Texas healthcare system over \$80 million in costs.

### **Growth and Marketshare Plan**

#### **Bauhaus San Antonio, Texas**

Texas' investment in Bauhaus Inc. of San Antonio will support Mirage, a combined paint, animation, and special effects system that allow individual animators and small teams to produce large studio-level work. Mirage changes the traditional paper/digital method used in most

**EMERGING TECHNOLOGY FUND  
PORTFOLIO AWARDEES SUMMARY**

Page 59  
Senate ETED Interim Report

animation studios to a completely-digital, highly-collaborative workflow. Mirage saves up to 50% of production time while simplifying and accelerating the creative process.

Bauhaus provides 2D animators with the ultimate tools for producing next-generation 2D animation and visual effects. The company sells its solutions to studios, animators, and educational institutions. The company's relationship with the educational community includes collaboration with the University of Texas at San Antonio and Incarnate Word for intern programs.

The investment from the Emerging Technology Fund will fund the operational overhead and marketing for Mirage and other animation tools. The expansion of the company will directly support and increase the sales of Texas technology companies as well as impact San Antonio's economy.

**SPI 744, Robotic Inspection Device  
itRobotics  
Stafford, Texas**

The investment in itRobotics will support the SPI 744, a robotic inspection device that can wind through pipelines to detect its condition and quality. Aging pipelines are susceptible to corrosion, a problematic situation for natural gas pipelines. The SPI 744 can inspect narrow pipelines and tubing, which leads to maintenance of safety and integrity of the energy infrastructure. For the first time, a significant portion of tubular infrastructure, including infrastructure for gas, nuclear plants, power plants, and non-energy pipelines will be inspected while still in-line.

Founded in 2002 in Houston, Texas, itRobotics is a pioneering technology startup committed to developing and providing state-of-the-art robotic technologies for the in-line inspection of small-diameter energy piping systems.

The Emerging Technology Funds' investment will bring the technology to the pipeline and plant equipment to market. Over time, investment resulting in the development of the SPI 744 will drastically reduce accidents associated with liability in plants, and protect the environment from hazardous spills and toxic leaks.

**Immersion Lithography  
Sematech  
Austin, TX**

Texas's investment will provide Sematech the finances to develop Immersion Lithography, the most promising patterning technique for manufacturing. The funds also support Mask development which will enable computer chip makers to produce the goods and services needed for future technologies.

Sematech is working with the University of Texas and Texas State University along with various industry partners to develop these technologies. In 2004, Texas computer and electrical equipment exports were \$31.65 billion, making Immersion Lithography and Mask development are keys to Texas' economic growth.

**EMERGING TECHNOLOGY FUND  
PORTFOLIO AWARDEES SUMMARY**

Page 60  
Senate ETED Interim Report

The Emerging Technology Fund's investment will be used to support the collaborative industry programs discussed above, and to accelerate cutting-edge technology critical to making parts for the next generation.

**Carbon Nanotubes  
Carbon Nanotechnologies, Inc.  
Houston, TX**

Carbon Nanotechnology will be able to meet the ever-growing demand for more power and longer run times in portable microelectronics with the development of single wall carbon nanotubes, or SWNT. Texas' investment will allow the company to further explore SWNT in order to achieve breakthrough in fuel cell performance, durability, and manufacturability.

With their multiple pilot plants and commercial demonstration unit operating in Houston, Carbon Nanotechnologies can provide many different grades of nanotubes to accommodate customer-specific needs. Their projects involve global companies and contain a leading-edge nanotechnology development at Rice University with Dr. Richard E. Smalley.

The grant from the Emerging Technology fund will create in the long term a very visible, high technology business in Texas that creates high paying jobs and attracts capital investment.

The Emerging Technology Fund's investment to Endothelix Inc., will develop VENDYS, a non-invasive product that measures endothelial function. Endothelial dysfunction is the gateway to heart disease, a disease that affects 71 million Americans. This new technology will allow physicians to more accurately, quickly, and inexpensively assess patients' cardiovascular health.

**Endothelial function medical device  
Endothelix, Inc  
Houston, TX**

Endothelix, a Houston-based medical device company, initially developed VENDYS at the UT Health Science Center and the Texas Heart Institute. Its current mission is to provide physicians with the right tools to monitor their patients' endothelial function in order to apply the correct treatment.

Texas' investment will allow the company to achieve its goal of FDA approval, which attracts venture capital funding. The funds will also support ongoing clinical trials, establish manufacturing, and further enhance products.

**Cardiobelt, ECG Analyzer  
Monebo  
Austin, Texas**

Texas' investment will commercialize Monebo's innovative heart products such as the Cardiobelt and ECG Analyzer. These technologies help patients receive quality results by monitoring heart signals, analyzing them, and allowing patients to wirelessly transmit them to their physician. These measurements will detect heart complications more quickly and lead to better patient outcomes.

**EMERGING TECHNOLOGY FUND  
PORTFOLIO AWARDEES SUMMARY**

Page 61  
Senate ETED Interim Report

Monebo is a cardiac monitoring solutions company and works to assess and predict the electrical activity of the heart. Its focus is providing solutions to allow patients and physicians to manage and reduce problems associated with heart disease.

More efficient care, a healthier population, and employment opportunities for Texans are just a few of the impacts the ETF funds will have with this venture with Monebo. ETF award funds will accelerate growth and expedite the commercialization process of this life saving technology.

**NanoTube O Rings  
NanoComposites  
Houston, Texas**

The Emerging Technology Fund's investment in NanoComposites Inc. will allow them to conduct further research to produce new O rings that stand up to the extreme environments that exist in the oil and gas drilling industry. NCI utilizes a novel process that reduces the tendency of carbon nanotubes to stick together, thus improving their mechanical properties. Adding the nanotubes to a rubber compound increases their ability to withstand corrosive chemicals, high temperatures, and high pressure. O ring production with this method will thus generate revenue from huge markets such as oil and gas drilling.

NanoComposites Inc. is a nanotechnology commercialization company that owns a myriad of patents and focuses on improving rubber materials used in industrial products that must withstand the work extremes mentioned above. Technology leading to O ring development is derived from 15 years of research at Rice University. The ETF will enable the company build and equip a laboratory and double the size of its research team. These goals will lead to long term job development and collaboration with industry partners including CNI, another EFT grant recipient.

**The Texas Nanoelectronics Research Superiority Initiative  
University of Texas at Austin  
University of Texas at Dallas  
University of Texas at Arlington**

Gov. Rick Perry announced that Texas was awarded a prestigious nanoelectronics research center funded by the National Science Foundation and the Semiconductor Research Corporation. It is only the third such research center in the nation; the others are in New York and California.

With the announcement of this National Center, Southwest Academy of Nanotechnology (SWAN) based at the University of Texas in Austin, along with Texas' investment in the Nanoelectronics Research Superiority Initiative will position Texas as the one of nation's leaders in nanoelectronics education, research, commercialization, manufacturing, and job creation through the recruitment of eight of the most talented researchers in the world to the campuses of The University of Texas System. In addition to establishing Texas as a leader in the field of this research, these top-tier researchers will be the catalyst towards attracting high quality young faculty and graduate students, increasing federal and industrial research support, additional venture backed capital, and the formation of new companies in semiconductor, defense, energy and biotechnology industries.



**EMERGING TECHNOLOGY FUND  
PORTFOLIO AWARDEES SUMMARY**

Page 62  
Senate ETED Interim Report

Nanoelectronics research will enable breakthrough solutions in areas such as packaging, displays, flexible electronics, remote sensing and identification, counter-terrorism, energy harvesting, energy storage, neurodevices that allow people to regain mobility and cellular pumps that treat glaucoma and diabetes to name a few.

With the global marketplace steadily marching towards a technology-based future, it is more important than ever before that we all attract and grow top-notch researchers and technology employers that will form the backbone of tomorrow's Texas economy.

**OFFICE OF THE GOVERNOR  
EMERGING TECHNOLOGY FUND**

**PROJECT ANALYSIS  
“8 STEP” PROCESS**

**STEP**

- #0** ETF Application (SUBCHAPTER “D”)
- #0.1** Project Legislative Intent Assessment (Bill Requirements)
- #1** One Page Project Description (Project Subject Matter)

---

- #2** Project Assessment by Advisory Committee (Scoring Matrix)

---

- #3** Industry Status – Technology
- #3.1** Economic Impact – NAICS & Value Chain (Application)
- #4** Project Management Assessment and Current News Search
- #5** Collaborative Higher Education Relationships & IP Rights
- #6** Ownership Interests & Capitalization Table
- #7** Financial (Sources & Uses of Funds)
- #8** Project Subject Matter & Key Milestone Listing

---

- #8.1** Clawback Considerations

**TEXAS EMERGING TECHNOLOGY FUND  
TRUSTEE CONSIDERATION OF RCIC  
COMMERCIALIZATION PROJECTS**

**OFFICE OF THE GOVERNOR**  
**ETF PROJECT : No. AB 1-2-3****CONFIDENTIAL**

**RCIC:** Applicable Texas CIC  
**Industry:** Life Sciences / Medical Device  
**Texas Locations:** City, TX  
**Company:** Sample, Inc.  
**ETF Grant Amt Reg:** \$0,000,000

**General Project Description: (As provided in the application)**

- Product: detailed overview
- Project Sample business collaboration with Texas-based institutes of Higher Education  
Technology: detailed overview
- Patent rights and ownership interests, existing licenses with public and private entities (# patents issued and patents pending)

**Key Partnering Entities: (As provided in the application)**

- Institutes of Higher Education - Location - partnering relationships and applicable agreements
- Private Entities - Location - partnering relationships and applicable agreements

**Key Management / Commercialization Team: (As provided in the application)**

- Name - CEO, brief background
- Name - President, brief background
- Name - Director & Co. Founder, brief background
- Name - Lead Investigator, brief background

**Key Project Advisors: (As provided in the application)**

- Name, President & CEO, Company name - business activity
- Name, Title, University - area of practice
- Name, Title, University - area of practice

**Market opportunity: (As provided in the application)**

- Market overview
- Product need and application
- Customer benefits

**Other sources of funding: (As provided in the application)**

- Date - \$0,000,000 cash Investor
- Date - \$0,000,000 grant Source of funding

**Economic Impact to state: (As provided in the application)**

- Time period, jobs creation estimate - amount of salaries



**OFFICE OF THE GOVERNOR  
ECONOMIC DEVELOPMENT AND TOURISM  
EMERGING TECHNOLOGY PROGRAM REQUEST  
INDUSTRY STATUS - TECHNOLOGY**

**PROJECT NAME:** CG 1-2-3 Sample  
NAICS/33...../NAICS Industry

**Trends in Texas for NAICS 123456**

	<u>2003</u>	<u>2004</u>	<u>2005</u>
Employees	1,234	2,345	3,456
Total Establishments	15	30	45
Total Wages (\$1,000s)	\$21,935	\$42,525	\$52,071
Average Annual Pay	\$12,345	\$24,345	\$34,562

Source: Texas Workforce Commission, Quarterly Employment & Wages, 4<sup>th</sup> quarter.  
<http://www.tracer2.com/cgi/dataAnalysis/AreaSelection.asp?tableName=Industry>

**Sources of Funding**

**Texas Region  
Investments by Region / Q1 2006**

Industry	Amount	% of Total	Deals
Electronics/Instrumentation	\$50M	16.34%	5
Software	\$39M	12.73%	5
Semiconductors	\$31M	10.00%	3
Financial Services	\$27M	8.65%	2
Industrial/Energy	\$26M	8.60%	5
Media and Entertainment	\$26M	8.44%	2
Biotechnology	\$19M	6.24%	3
Business Products and Services	\$18M	5.94%	3
Telecommunications	\$17M	5.47%	6
Healthcare Services	\$14M	4.55%	1
Networking and Equipment	\$14M	4.42%	2
IT Services	\$12M	3.81%	3
Computers and Peripherals	\$7M	2.20%	2
Medical Devices and Equipment	\$5M	1.62%	2
Retailing/Distribution	\$3M	0.97%	1
<b>Totals</b>	<b>\$307,893,800</b>	<b>-</b>	<b>45</b>

Source: © 2006 PricewaterhouseCooper/Venture Economics/NVCA MoneyTree Survey  
<http://www.pwcmoneytree.com/moneytree>

**Descriptive Sector Overview**

**Background**

Brief description/company, product & mission

Value Add to the industry/ disruptive technology potential

**OFFICE OF THE GOVERNOR  
ECONOMIC DEVELOPMENT AND TOURISM  
EMERGING TECHNOLOGY PROGRAM REQUEST  
INDUSTRY STATUS - TECHNOLOGY**

Other applications in the industry, if any.

**Competition:**

Comparison of product to existing product, rankings, success.

Potential for success/ level of capital, burn rate.

Endorsements, if any

**Sources:**

**Workforce Issues**

**Trends in the U.S. for NAICS ??**

	<u>2003</u>	<u>2004</u>	<u>2005</u>
Employees	24,562	31,298	42,519
Total Establishments	50	60	80
Total Wages (\$1,000s)	\$56,842	\$87,526	\$91,542
Average Annual Pay	\$11,845	\$12,952	\$13,785

Source: Bureau of Labor Statistics, *Quarterly Census of Employment and Wages*  
<http://data.bls.gov/PDQ/outside.jsp?survey=en>

**Commentary & analysis**

**Outlook**

**U.S. Value Added, Value of Shipments, & Total Cost of Materials NAICS 123456 (\$1,000s)**

	<u>2002</u>	<u>2003</u>	<u>2004</u>
Value Added	\$15,094,975	\$16,551,414	\$17,445,723
Total Cost of Materials	\$21,852,415	\$22,899,726	\$23,512,663
Value of Shipments	\$6,577,311	\$6,565,450	\$6,678,621

Source: *Annual Survey of Manufactures (ASM): 2004 Statistics for Industry Groups and Industries*  
<http://www.census.gov/med/asm-as1.html>

MANAGEMENT AND B.O.D. ASSESSMENT

MANAGEMENT:

<u>Name / Role</u>	<u>Other Affiliations</u>	<u>Agreements</u>	<u>Issues</u>
Name / CEO	- Title, Company	Employment Terms	- Description of situation
Name / Title	- Title, Company	Employment Terms	- Description of situation
<i>[as of: Date]</i>	- Title, Company		- None
	- Title, Company		

BOARD OF DIRECTORS:

<u>Name / Role</u>	<u>Other Affiliations</u>	<u>Agreements</u>	<u>Issues</u>
Name / CEO	- Title, Company	Employment Terms	- Description of situation
Name / Title	- Title, Company	Employment Terms	- Description of situation
<i>[as of: Date]</i>	- Title, Company		- None
	- Title, Company		

BOARD OF ADVISORS:

<u>Name / Role</u>	<u>Other Affiliations</u>	<u>Agreements</u>	<u>Issues</u>
Name / Title	- Title, Company	Employment Terms	- Description of situation
Name / Title	- Title, Company	Employment Terms	- None
<i>[as of: Date]</i>			

**OFFICE OF THE GOVERNOR  
ECONOMIC DEVELOPMENT AND TOURISM  
EMERGING TECHNOLOGY FUND REQUEST  
MANAGEMENT & BUSINESS SUMMARIES**

**PROJECT NAME: CG 1-2-3 Sample**

**Management – Advisor Summary**

- **CEO, Name.** Background information
  - o *Affiliations #1*
  - o *Affiliations #2*
  - o *Etc.*
  
- **Title, Name.** Background information
  - o *Affiliations #1*
  - o *Affiliations #2*
  - o *Etc.*

**Business Summary – (on key business elements)**

**Patent Information**

- USPTO website searches
- Other relevant patent information

**Legal Issues**

- Item description as identified
- Item description as identified

**Taxes**

- Sample standing with the Texas Comptroller's corporate tax website.

**Marketplace**

- Item description as identified
- Item description as identified

**Notable**

- Item description as identified
- Other



<u>Patents:</u> Type & #	<u>#1</u>	<u>#2</u>	<u>#3</u>	<u>#4</u>
Title	US Patent # 1,234,567	US Patent # 1,234,568		
Inventor(s)	Name (Location)	Name (Location)		
Owner(s)	Name (Location)	Name (Location)		
Date	12/12/02 (Filed 12/12/02)	12/12/02 (Filed 12/12/02)		
Other Interests	US Gov't, NIH Grants (#)	US Gov't, NIH Grants (#)		

<u>License:</u>	<u>#1</u>	<u>#2</u>	<u>#3</u>	<u>#4</u>
Licensor	Entity	Entity		
Date	2/22/2003	2/22/2004		
Type	Type Agreement	Type Agreement		
Royalty	Terms Defined	Terms Defined		
Sublicense	Describe	Describe		
Equity	Amount & describe type	Amount & describe type		
Rights	As applicable	As applicable		
Patent Costs	Amount & describe type	Amount & describe type		
Milestones	Type & description	Type & description		

OFFICE OF THE GOVERNOR  
EMERGING TECHNOLOGY FUND

CAPITALIZATION TABLE

	As of: <b>1-Dec-05</b>	
	<b>FD Shares</b>	<b>%</b>
Total # of common stock:	3,000,000	24%
Total # of preferred stock:	9,703,701	76%
Total # of options/warrants:	-	0%
	<b>12,703,701</b>	<b>100%</b>

	Amount Raised (\$)	Shares	Seed	Round A	Round B	Round C
			% of Ownership	% of Ownership	% of Ownership	% of Ownership
<b>COMMON SHARES ISSUED</b>						
Entity / Individual	\$ -	1,000,000	33%	15%	9%	8%
Entity / Individual	\$ -	1,000,000	33%	15%	9%	8%
Entity / Individual	\$ -	1,000,000	33%	15%	9%	8%
<b>PREFERRED SHARES ISSUED</b>						
None	\$ -	-	0%	0%	0%	0%
<b>OPTIONS/WARRANTS ISSUED</b>						
Misc. Rights	\$ -	-	0%	0%	0%	0%
Other Common Shares	\$ -	-	0%	0%	0%	0%
<b>TOTALS</b>	<b>\$ -</b>	<b>3,000,000</b>	<b>100%</b>			
Date: 2-Jan-02		<b>TOTAL SHARES</b>	<b>3,000,000</b>			
		<b>COST PER SHARE</b>	<b>\$ -</b>			
		<b>TOTAL VALUATION (FULL DILUTION)</b>	<b>\$ -</b>			
		<b>PRE_MONEY VALUATION (FULL DILUTION)</b>	<b>\$ -</b>			
		<b>LIFT</b>	<b>NA</b>			

	Amount Raised (\$)	Shares	Seed	Round A	Round B	Round C
				% of Ownership	% of Ownership	% of Ownership
<b>COMMON SHARES ISSUED</b>						
Bonus/Stock Options Exercised	\$ -	-		0%	0%	0%
<b>PREFERRED SHARES ISSUED</b>						
Entity / Individual	\$ 250,000	1,234,567		18%	12%	10%
Entity / Individual	\$ 250,000	1,234,567		18%	12%	10%
Entity / Individual	\$ 250,000	1,234,567		18%	12%	10%
<b>OPTIONS/WARRANTS ISSUED</b>						
Bonus Options Issued	\$ -	-		0%	0%	0%
Stock Options Issued	\$ -	-		0%	0%	0%
Mgt. Options Auth. - Not Issued	\$ -	-		0%	0%	0%
Misc. Common Warrants	\$ -	-		0%	0%	0%
<b>TOTALS</b>	<b>\$ 750,000</b>	<b>3,703,701</b>		<b>100%</b>		
Date: 2-Jan-03		<b>TOTAL SHARES</b>	<b>6,703,701</b>			
		<b>COST PER SHARE</b>	<b>\$ 0.20</b>			
		<b>TOTAL VALUATION (FULL DILUTION)</b>	<b>\$ 1,357,500</b>			
		<b>PRE_MONEY VALUATION (FULL DILUTION)</b>	<b>607,500</b>			
		<b>LIFT</b>	<b>NA</b>			

OFFICE OF THE GOVERNOR  
EMERGING TECHNOLOGY FUND

CAPITALIZATION TABLE

	As of: <b>1-Dec-05</b>	
	<u>FD Shares</u>	<u>%</u>
Total # of common stock:	3,000,000	24%
Total # of preferred stock:	9,703,701	76%
Total # of options/warrants:	-	0%
	<u>12,703,701</u>	<u>100%</u>

	<u>Raised (\$)</u>	<u>Shares</u>	* Prior Inv.	** Prior Optns
<b>COMMON SHARES ISSUED</b>				
Stock Options Exercised	\$ -	-		0%
<b>PREFERRRED SHARES ISSUED</b>				
Entity / Individual	\$ 750,000	1,000,000		9%
Entity / Individual	\$ 750,000	1,000,000		9%
Entity / Individual	\$ 750,000	1,000,000		9%
Entity / Individual	\$ 750,000	1,000,000		9%
<b>OPTIONS/WARRANTS ISSUED</b>				
Bonus Options Issued	\$ -	-		0%
Stock Options Issued	\$ -	-		0%
Mgt. Options Auth. - Not Issued	\$ -	-		0%
Misc. Common Warrants	\$ -	-		0%
<b>TOTALS</b>	<b>\$ 3,000,000</b>	<b>4,000,000</b>		<b>100%</b>
<b>Date: 2-Jan-04</b>	<b>TOTAL SHARES</b>	<b>10,703,701</b>		
	<b>COST PER SHARE</b>	<b>\$ 0.75</b>		
	<b>TOTAL VALUATION (FULL DILUTION)</b>	<b>\$ 8,027,776</b>		
	<b>PRE_MONEY VALUATION (FULL DILUTION)</b>	<b>\$ 5,027,776</b>		
	<b>LIFT</b>	<b>3.7</b>		

	<u>Raised (\$)</u>	<u>Shares</u>	* Prior Inv.	** Prior Optns
<b>COMMON SHARES ISSUED</b>				
None	\$ -	-		0%
<b>PREFERRRED SHARES ISSUED</b>				
Entity / Individual	\$ 1,250,000	500,000		4%
Entity / Individual	\$ 1,250,000	500,000		4%
Entity / Individual	\$ 1,250,000	500,000		4%
Entity / Individual	\$ 1,250,000	500,000		4%
<b>OPTIONS/WARRANTS ISSUED</b>				
Other Options / Warrants	\$ -	-		0%
<b>TOTALS</b>	<b>\$ 5,000,000</b>	<b>2,000,000</b>		<b>100%</b>
<b>Date: 2-Jan-05</b>	<b>TOTAL SHARES</b>	<b>12,703,701</b>		
	<b>COST PER SHARE</b>	<b>\$ 2.50</b>		
	<b>TOTAL VALUATION (FULL DILUTION)</b>	<b>\$ 31,759,253</b>		
	<b>PRE_MONEY VALUATION (FULL DILUTION)</b>	<b>\$ 26,759,253</b>		
	<b>LIFT</b>	<b>3.3</b>		

Office of the Governor  
Emerging Technology Fund

CAPITAL SOURCES AND USES

Project AB 1-2-3  
Sample, Inc.

Sources of Funds (Existing Resources)	Amount	Source
Cash on Hand	\$ 2,000,000	
Line of Credit	\$ -	
Operating Income	\$ -	
Misc. - Other	\$ -	
<b>Total Sources of Funds</b>	<b>\$ 2,000,000</b>	<b>23%</b>

Operating Use Funds	Burn Rate	Head Count	Source
Last Year	\$ 250,000		
This Year	\$ 250,000		
Next Year (projected)	\$ 250,000		
Annual Planned Burn Rate	\$ 3,000,000		

Months to Exhaust Existing Resources	8.0
TETF Grant Request	\$ 1,500,000
Months added to Commercialization	6.0

Existing Financing Amounts	Amount	Term/Type	Interest	Payments	Payoff Date
Current Debt	None				

Secured Equity					
Series, Preferred	\$ 8,750,000				
Other Financing					
Grants	None				

Existing Business Financing	\$ 8,750,000		100%		
Financing Used to Date	\$ 6,750,000		77%		

Future Financings	Amount	Term/Type	Interest	Payments	Payoff Date
Planned Debt	None				

Planned Equity					
Equity Investors	\$ 7,500,000	preferred stock			Date
Equity Investors	\$ -				Date
Equity Investors	\$ -				
Other Financing					
Grants	\$ 750,000	SBIR Phase I			Date
Grant	\$ 1,000,000	SBIR Phase II			Date
Grant	\$ -				

<b>Future Business Financing</b>	<b>\$ 9,250,000</b>
----------------------------------	---------------------

For Internal Use Only  
Competition Sensitive

TIME PERIOD

	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>
<b>EVENTS</b>					
<b>Applicant:</b>					
- Design	1Q05- Design & Devel. Plan in plan *				
- Development	4Q05-2Q07 Develop QA	3Q07 Testing*	1Q08 Clinical Approval**		
- Manufacturing			2H08 Mfg Startup		
- Sales & Marketing				'09 First Customer Shipments	'10 Volume Customer Shipments
<b>Collaboration:</b>					
- License Agreement	Agreement w/Higher Education Institute				
- Development Agreement	Milestones to be determined				
- Other Relationship	University Research**				
<b>Due Diligence Findings:</b>					
- Market Opportunity	TBD				
- Product & Technology	TBD				
- Management Team	TBD				
- Business Model	TBD				
- Financing	12/06 SBIR/STTR \$750k (Requests)*	Phase II SBIR - \$1 Million	'08 Mezz \$7-8 Million		

USE OF FUNDS: \$1.5 Million Request

1. Majority Funding Use for Engineering & Design
2. TBD
3. TBD

\*key milestones      \*\*license agreement milestone with University

**OFFICE OF THE GOVERNOR  
PROJECT AB 1-2-3 MEASUREMENT MILESTONES  
CONFIDENTIAL -**

---

**Internal use only**

**Key Commercialization Milestones: (As provided in the application)**

- Design Phase-
  - Develop design requirements - Date
  - Develop regulatory strategy - Date
  - Develop design and development plan- Date
- Preliminary Development Phase-
  - Develop QA system and process/product - Date
  - Design review & prelim design freeze - Date
- Clinical Study Phase -
  - Develop clinical study plan - Date
  - Build Clinical Product - Date
  - Conduct Clinical Study - Date
  - Receive Regulatory Approval - Date
  - Design Review - Date
- Manufacture Start up Phase
  - Process validation studies - Date
  - Design Review - Date
- Commercial Product Release Phase
  - Mfg. facilities development - Date
  - Manufacturing start - Date
  - Sales Training - Date
  - Launch US and EUR - Date

**Use of Funds Milestones: (As provided in the application)**

- Engineering and design activity - ETF funds to cover 12 months.
- Other activities, as defined

## Attachment 3

### Background Abstracts

*"Commercializing University Research",*  
by Meg Wilson, Executive Editor, Texas Lyceum Journal

*"Research Opportunities for Small Companies,"*  
by Jill Dickman, UTSA-SBDC, Technology Center.

## Commercializing University Research: Gift and Opportunity

By Meg Wilson

*Abstract: Commercializing university research is a tough process. Universities are hard to work with, operating under a totally different culture from the market economy they are being asked to be more a part of. There are approaches that can be taken which take this cultural difference into account, which have the potential to help accelerate the success of university commercialization processes.*

It should be easy and straightforward to commercialize results from university research. It is not.

It is not, because of the vastly different cultures involved; because of the historical processes, which have stood universities in good stead for centuries but which are not well adapted to a flat world operating at digital speed; and because of the increasing external pressures on the university to *be* more to more people.

US Universities have been operating under the Bayh-Dole law for 25 years and are progressing steadily in the rate of research commercialization and in the sophistication of that process. The Bayh-Dole law's policy and objective is "to promote collaboration between commercial concerns and ... universities; to ensure that inventions made by [universities] ... are used in a manner to promote free competition and enterprise without unduly encumbering future research and discovery; to promote the commercialization and public availability of inventions made in the United States by United States industry and labor". Bayh-Dole allows universities to own the intellectual property (IP) rights from federally funded research and to license that IP for commercial benefit. It requires universities to report to the Federal research funding agency "the utilization or efforts at obtaining utilization..." It requires a sharing of royalties between the university and the inventor (usually a faculty member, and sometimes a student or research staffer) and also requires that net royalties be used "for the support of scientific research or education".<sup>i</sup>

For the past 25 years, colleges and universities across the country have responded to Bayh-Dole and the increasing amounts of research funding by creating a variety of research commercialization structures. The most common is a university licensing office or an office of technology commercialization (OTC). These offices range from one to dozens of people depending on the institution's research budget, commitment to research commercialization, and surrounding university and community support structures. The average-sized office has 4-5 people, composed mostly of lawyers and marketing experts. Many smaller institutions with very limited research efforts have no OTC: when they develop a licensable innovation, they punt.

You may ask at this point what the problem is. There are several responses to that question which range from a concern that these commercialization efforts are perverting the university mission, to endemic problems of bureaucviscosity<sup>ii</sup> affecting OTCs, to the law of unintended consequences which drives OTC preferences for large company licenses over startup and small-company-based licensing deals.



## Culture

People who work at universities are attracted to the institution because of its mission, the intellectual stimulation, freedom (universities have been described as anarchies or collections of entrepreneurs or consultants, since each faculty member is mostly in charge of his or her own work), and a desire to give back to society. The mantra of the academic world is that universities are all about education, research and service. All activity must fit into one of those categories.

Universities operate under a gift economy. "...Academicians are supposed to write (and research) for honor, and the academic system of exchange is supposed to be based on the reciprocal and personalized exchange of gifts rather than the impersonal selling of private property."<sup>iii</sup>

Another paradigm for understanding this cultural divide is provided by Jane Jacobs in *Systems of Survival* where she lays out, through a dialog, the moral foundations of public life. She posits that there are those who operate under a guardian syndrome and those who operate under a commercial syndrome, and they are fundamentally different moral value structures. A subset of maxims of those operating under the guardian syndrome includes: shun trading; exert prowess; adhere to tradition; respect hierarchy; dispense largess; treasure honor.<sup>iv</sup> These closely parallel the gift economy concepts.

In *Managing the Partnership Between Higher Education and Industry*, the authors lay out the stakes. "Although a climate of optimism prevails, growing collaboration between higher education and industry has raised important questions about its long-term effect and, some would say, its propriety. The primary functions of a university and a corporation are indeed different. Although the development of new ideas and their practical application can frequently be complementary, (then) Yale University President A. Bartlett Giamatti cautions that this 'simply throws into relief the basic differences between universities and industries: the academic imperative to seek knowledge objectively and to share it openly and freely; and the industrial imperative to garner a profit; which creates the incentive to treat knowledge as private property'." They go on to say "Rapid changes in science and technology, however, are teaching higher education and industry that osmosis is no longer an efficient way to seek wisdom, much less wealth. In an information society, education is a strategic resource for business and industry, and knowledge the essential product. Thus interdependent, colleges and universities are entering into partnerships with corporations that will enable both to shape and secure their futures."<sup>v</sup>

The economy of the gift culture or guardian syndrome is juxtaposed against the market economy or commercial syndrome and it is where they meet head-on that tensions ensue. They meet most directly in the task of commercializing university research. It is thus imperative that those in each culture understand the other's culture. Rather than viewing OTCs as the enemy, faculty should view those offices as allies. At the same time, the OTCs need to understand that many faculty members are not comfortable thinking about

their research being used to make private profits. When effective translation is occurring, it is possible for research commercialization to progress more readily, with optimal results.

Dr. Mary Sue Coleman, President of the University of Michigan, and a biochemist, said, "It is not about the money... Technology transfer must serve our core mission: sharing ideas and innovations in the service of society's well-being." When companies understand this perspective and look for the win-win for the university and the company, deal making is easier and faster. Universities must understand this to propose realistic terms that account for real business risk, and to identify the best path to market regardless of the university's preference for instant gratification through paid up royalties.

### The R&D Enterprise

Increasingly, universities are doing the basic research of the world. Corporate basic R&D is a vestigial function. Most corporate R&D is downstream development or is outsourced to smaller companies, research institutes or universities. The Synergy table

	Basic research	Applied research	Development
Academic R&D	74.1	22.2	3.7
Industrial R&D	5.9	19.6	74.5

There is a co-dependency here...!

highlights the factors driving more companies to look to universities for access to basic and applied research. Universities need companies because, at least in the US, prototyping and certain kinds of testing are very difficult to do at a university. For research results to be integrated into products and processes, it must get into the hands of the private sector.

For this reason alone, we should want the commercialization process to work better than it does.

But there is another compelling reason for the process to work better: open innovation. The way the world innovates in 2006 is through partnerships, collaborations, cross-pollination, cross-licensing, joint ventures and short-term task groups. For universities to stay abreast of the state-of-the-art science and engineering, they must also operate on the same footing: openness, receptivity to new ideas, cooperative partnerships: these are the hallmarks of academia anyway, so it should be relatively easy for universities to accept the concepts of open innovation and understand that the knowledge transfer may be a two-way street.<sup>vi</sup>

### Small business Access to Universities

Traditionally, universities have worked with large companies. Large firms often become university department affiliates, fund research directly or through organizations such as the Semiconductor Research Corporation and track research results on a routine basis. Large companies have people who are adept at working with universities and understand the culture and the players.

Not so with small companies. Mostly, small companies don't have the resources to fund university research nor the time or money to pay someone to track university research and bridge to those universities conducting research pertinent to the small company. If they do have a relationship with a university, they often don't get the same treatment as larger companies. To an OTC, a small company is often viewed as a poor risk, hard to work with, and not worth the trouble, since they don't have lots of up front cash to pay for technology licenses and want special deals that fit their profile.

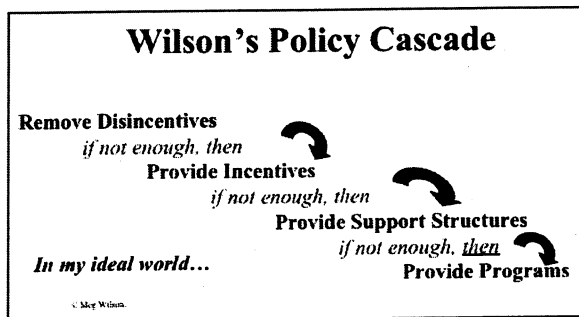
University OTCs with a strong marketing bent are much more attuned to the value of working with small companies. They recognize that the flexibility and commitment of small companies make them ideal for certain kinds of commercialization deals. These OTCs also have a higher tolerance for risk, which allows them to consider a broader range of commercialization paths, including equity-based deals, and which increases their chance of choosing the best development path for a technology.

Most OTCs are self-funded: they pay for their operations through royalties and fees from licensing agreements. They can reap the benefits of the sale of equity, but such sales are not certain and often several years away. For an OTC director who has to make payroll every month, equity deals carry too much uncertainty for the amount of work they take to get done. And yet, we know that entrepreneurial ventures are often the best ways to launch an innovative business, with good growth potential. There must be a better way...

Launching a university technology through a startup is particularly daunting. The Startup needs capital, technical expertise, business planning savvy, good access to markets, etc. The fact that Texas now has the Emerging Technology Fund is a tremendous benefit to startups and small companies who endeavor to reach new markets with new technologies. If the universities become easier to work with, the combination of good entrepreneurial talent, good research and early-stage capital will greatly benefit the State.

### Strategies to Improve University Research Commercialization

Any time policy changes are called for, the premise for the change should be explicit. Is



there a market gap that government should try to fill until the market can correct itself? Is there a problem with an easy solution? In 1980, when I was doing long-range planning in the Governor's Office, I developed this cascade as a way of identifying the most effective, least intrusive way of solving a problem. Lets apply it to the challenge of making our university

commercialization process more effective.

**Remove Disincentives:** Texas A&M Regents took one of the boldest, and yet easiest and most effective steps to increase the flow of commercializable research by changing the tenure policy to allow faculty to get credit toward tenure from research commercialization activities. The lack of tenure credit was a serious disincentive to young faculty who wanted to file patents and follow through on research they were conducting, possibly participate in a STTR research grant, etc. They could not afford to take the time away from writing peer-reviewed academic papers when that was their only path to tenure. Doing otherwise could delay or derail tenure. Removing this disincentive allows faculty to do more to move their research into commercial use. Any faculty member who is uncomfortable with this flexibility can stick with the pure publish or perish tradition. It allows those faculty members who are more comfortable with the commercial syndrome to take a step in that direction.

An extension of the faculty tenure idea is that of the revolving door. There are faculty members who are multiculturalists: they can operate in a gift economy and a market economy. It should be easy for these faculty members to help take their research results out into the commercial world for a year or two and then come back to the university when the venture is well launched, refreshed, with vital new information to use in the classroom and lab. This can happen now, but it is more the exception than the rule. A revolving door policy can have a benefit to recruitment, especially for the brightest, young faculty who want an opportunity to conduct research but also to implement their research. It is a question many new PhDs ask during recruitment discussions. Those universities with good multicultural policies will be the winners.

OTCs have a disincentive to work on equity-based deals. If there was a way for them to be compensated for working on such agreements, the decision process would be better, allowing the OTC to concentrate on the best path to commercialization rather than the most lucrative short-term path. Alternatives could include direct funding of OTCs by universities, direct appropriations or through TETF grants, to supplement or supplant royalty and fee revenue. Whatever strategies are adopted, OTCs need to be buffered from those in the State who “don’t get it”, and push only for fast turn-around and short-term wins. Generating revenues from university research is a long, hard, expensive, risky road.

**Provide Incentives:** An alternative to the current funding structure of OTC’s could take advantage of the same kind of incentives that drive the commercial world. Why not allow OTC staff to get a portion of equity deals, as faculty and universities can do presently? Other incentive-based alternatives could include funding the OTC staff at a base level and letting them earn equity or commissions to supplement their base pay. Those with a higher risk tolerance could concentrate on the equity option, and those wanting a more certain base could concentrate on straight licensing deals.

Also, Venture firms could provide finder’s fees to OTCs that match university research to the needs of their portfolio companies: a win-win since the VC-backed companies might provide a lucrative path for commercializing the research. Communities could do something similar, supporting OTCs to alert them to technologies that fit companies in

the community. This approach would build a communication process that could link to cluster initiatives, technology strategies, and community economic development targets.

Universities could create a Moot Corp-type system dedicated to student groups that develop commercialization plans for university technologies. It would provide an incentive for the business, science and engineering students to get involved with OTCs in a productive, targeted way, and do some of the OTCs work for credit.

**Provide Support Structures:** Given the cultural divide between universities and the commercial world, one tactic to allay this problem is for universities to hire advocates who work at the faculty level, helping researchers understand the basics of the process of commercialization: what is a Non-disclosure agreement (NDA)? When does a patent have to be filed? What are the disclosure rules leading up to that point? How does the university patent committee work? When should the OTC be alerted to research results? If there were someone who could hand-hold, coach, reassure, translate, run interference, it would make a huge difference to busy faculty who don't want to know much about the commercial process and it could make the work of the OTC much more efficient.<sup>vii</sup>

As part of the Cluster Initiative, a team could be created for each cluster, to act as an advisor and referral resource for OTCs, so the OTCs could have a better link to the specific technology needs of the Clusters.

Another support structure would be a matchmaking database: university research projects profiled, OTC licensable technologies listed; support companies listed (legal, accounting, technology valuation, business planning; capital sources, including experts at SBIR/STTR grant writing, etc.); companies interested in working with universities to transfer university knowledge and technology. Such a database could link to the Asset database that is being developed as part of the Cluster Initiative and could link into the Technology Strategy Mapping System that Evans and Sekora describe.

**Programs:** If the disincentives were removed, incentives added and support structures put in place, there shouldn't be any need for a new, full blown program to address university commercialization. However, until better process are in place and shown to work, it is possible that the State could undertake some direct programmatic steps to make the process work better. A modest pool of money could be reserved out of ARP funding (Advanced Research Program) to help "pay for" the licensing of ARP funded research. Companies that fund university research could be charged a "processing fee" that would be used to process any licenses developed from that research: those funds would be applied to the OTCs budget. The Legislature could direct the TETF to fund OTCs on some equitable basis for doing equity-based deals.

OTCs could be authorized to set up supplemental farm teams that would be composed of entrepreneurs who would work for OTCs in return for the opportunity to cherry-pick deals and take technologies out through startups. This approach has conflict of interest challenges, but if addressed up front, could be a very entrepreneurial way to create entrepreneurial teams to create startup ventures from university research.

An even more aggressive approach would be for a University (or System) to create a for-profit company whose job it would be to cherry-pick technologies not already spoken for, develop them further and spin them off or develop them into a line of business. The company would act as an incubator, umbrella parent company, research institute and seed venture fund.

## Conclusion

All of these proposals need to be debated, examined closely and reviewed for unintended consequences. They are meant to stimulate thinking. But, they are all serious candidates that have some potential to address the challenge of making our university commercialization processes more effective and more productive.

The challenges are serious because of culture clashes, turf issues, budget constraints, disagreements about priority and mission, and inertia. But none of these are excuses for not acting to maximize the benefits to the State's economy from the investment we are making in world-class universities and top-notch research.

---

<sup>i</sup> Title 35, Part II, Chapter 18, § 200. Policy and objective.

[www.law.cornell.edu/uscode/html/uscode35/usc\\_sec\\_35\\_00000200----000-.html](http://www.law.cornell.edu/uscode/html/uscode35/usc_sec_35_00000200----000-.html) and [www.access.gpo.gov/nara/cfr/waisidx\\_01/37cfr401\\_01.html](http://www.access.gpo.gov/nara/cfr/waisidx_01/37cfr401_01.html). Also, there is an excellent article, "INTELLECTUAL PROPERTY: Enhanced: University Licensing and the Bayh-Dole Act", Thursby and Thursby, *Science* 22 August 2003: 1052 DOI: 10.1126/science.1087473.

<sup>ii</sup> A term given to me by Thomas Kobayashi, a MSSTC student of mine who uses that term at work to describe bureaucracy: implies measurement visually: the thicker it is the worse it is!

<sup>iii</sup> *Who Owns Academic Work: Battling for Control of Intellectual Property*, Corynne McSherry, Harvard University Press, 2001, page 74. This is a dense but superb book for anyone wanting to understand the university culture and IP in a university sphere.

<sup>iv</sup> *Systems of Survival: A Dialogue on the Moral Foundations of Commerce and Politics*, Jane Jacobs, Vintage Books/Random House, 1992.

<sup>v</sup> *Managing the Partnership Between Higher Education and Industry*, Jana B. Matthews and Rolf Norgaard, National Center for Higher Education Management Systems, 1984, pgs 2 and vii.

<sup>vi</sup> *Open Innovation: the New Imperative for Creating and Profiting from Technology*, Henry Chesbrough, Harvard Business School Press, 2003.

<sup>vii</sup> "Promoting University Spin-Offs through Equity Participation". In *University Spin-Off Companies: Economic Development, Faculty Entrepreneurs, and Technology Transfer*. Meg Wilson and Steve Szygenda. Edited by Alistair M. Brett, David Gibson & Raymond Smilor. Lanham: Rowman & Littlefield Publishers, 1991. Pgs 153-163.

---

*Meg Wilson teaches at UT Austin in IC<sup>2</sup>'s Executive M.S. in Science and Technology Commercialization and serves on NSF's SBIR Advisory Board. Meg was MCC's VP for Business Development; Coordinator of UT's Center for Technology Development and Transfer; Governor White's Science and Technology Coordinator (helped write and pass the University Equity Ownership bill in 1987); and a manager for Governor Clements' Texas 2000 Long Range Planning Project. Meg has a Masters from the LBJ School of Public Affairs and a BA in Politics from Ithaca College. She is Immediate Past President of the Technology Transfer Society, a member of AUTM, a past Texas Lyceum President and currently is Executive Editor of the Texas Lyceum Journal.*

## **Research Opportunities for Small Companies** by Jill Dickman

*Abstract: The SBIR/STTR federal programs provide a substantial opportunity to Texas small technology companies. At a time when early-stage investment capital is hard to obtain, these two programs offer low-risk capital and substantial assistance to small companies.*

The SBIR/STTR<sup>1</sup> Program is a \$3 billion source of funding for small firms conducting research. Eleven federal agencies participate and make awards for a broad range of research. This money benefits both the federal agencies and the small business awardees; it also is important to states as it provides a significant pot of money to develop their research communities and enhance their economies.

The small businesses compete for Phase I awards, which are \$100,000 for concept feasibility, and almost 50% go on to Phase II which is a more substantial award for research, development, prototyping and testing. Phase II is generally \$500-750,000, but can go to \$1 million. The National Institutes of Health (NIH) and Department of Defense (DOD) and all its branches often exceed that limit. The SBIR/STTR reauthorization that being considered in Congress would increase these award amounts by 50% and double the set-aside. That is, if the R&D budget remained at its current level in 2008, the first year of the reauthorization, the budget would be over \$5 billion. Not only would that allow a greater number of awards, it would also provide more dollars for “plus-ups” and “enhancements” which can significantly increase the size of the award in Phase II.

The end goal of all SBIR/STTR projects is commercialization. At the end of Phase II, the small business does not have to pay this money back; it is not a loan. The federal government does not take any equity from the small business as a venture capitalist would. Yet the small business retains the intellectual property (IP) and is encouraged to commercialize the SBIR-funded technology.

Federal agencies, such as NIH and DoD, have even arranged commercialization conferences with the end goal of providing networking opportunities for the SBIR awardees to make connections with DoD prime contractors and private-sector investors and buyers. Agencies and individual DoD services have also instituted programs specifically geared to the needs of small businesses attempting to market their technologies. For example, the Navy offers assistance through its Transition Assistance Program (TAP), which provides each SBIR company with a business counselor to help develop their transition strategy and coach them through the process. The National Science Foundation’s Matchmaker database helps its grantees find commercialization partners.

The Commercialization Pilot Program (CPP) is the newest effort by DoD to transition successful SBIR technologies to their acquisition programs. CPP was mandated in the 2006 Defense Bill and is now being set up and its operations defined. The goals will be to identify the SBIR Phase II programs that are ready for rapid transition, that meet high-



priority military requirements in the acquisition programs, and that have the best methods of tying these together. CPP encourages the incorporation of SBIR in the planning, budgeting, and requirements process; and it highlights the importance that DoD places on the accelerated transition of SBIR technologies into the acquisition process.

SBIR has been a highly successful federal program for the last quarter of a century. STTR was added 15 years ago and has enjoyed equal success. STTR was modeled after SBIR but allows universities and other research institutes (RI) to play a more significant role in the projects. For SBIR, RIs can do up to 33% of the work in Phase I and up to 50% in Phase II, but they are not allowed to act as the principal investigator (PI). For STTR, the RI must do at least 30% of the work or as much as 60% for Phases I and II. Most importantly, the PI can be employed by the RI. This allows, and even encourages, the RI to initiate the STTR effort in order to get its own technology to market.

The SBIR/STTR Program has been successful on several different levels. First, the federal government has seen economic success by supporting small high technology businesses and providing a way for them to develop their technologies and introduce them to the public and private marketplaces. The individual federal agencies have seen success in that they are able to get research results considerably faster that are less expensive and more innovative. If the technology resolves specific problems, and the government wishes to buy the product or service, the agency can purchase it using a simple "sole-source" contract, which is awarded without delay or competition.

In addition, the small businesses are successful in that they receive sizable awards to pay for research that is usually too risky for a VC firm to consider. Ideally, at the end of Phase II, the small company will have developed a usable prototype, and the federal government will help them in many ways to commercialize the technology. If the government agency plans on using it for its own purposes, the law mandates that the technology be purchased from the small business that developed it. Furthermore, the SBIR company will have earned a great deal of credibility in the banking/investment community by the fact that they have been evaluated in the SBIR/STTR process by the lead scientists and engineers in the government and, perhaps, the world. Should the SBIR winner want venture capital, many venture capitalists regard the SBIR program as an effective vetting process and are often more willing to review a company's business idea and sometimes give better terms than otherwise.

The states that are successful in this arena are able to pull in federal dollars that can serve to support the state's economy, aid in the development of an enhanced research community, and pay constituent small businesses to innovate and grow. For these reasons many states have attempted to help their small businesses become successful in the SBIR/STTR Program by providing assistance in proposal writing, commercialization counseling, or matching funds. States that help their small R&D firms win SBIR/STTR awards, bridge between Phase I and Phase II, and/or supplement the size of these awards make an investment in their technology base and see a high rate of return.

Texas has put the Emerging Technology Fund (ETF) into effect, which, among other things, serves this purpose. ETF considers SBIR/STTR to be matching funds. The reverse is also true; the ETF awards act as substantial supplements to the SBIR projects. In the long run this will serve to attract scientists, engineers, and high-tech businesses to Texas; it will cause the infrastructure to be built up around the needs of the technology community; and it will mean that a greater number of SBIR/STTR awards will be made to Texas small businesses, bringing a larger portion of the federal dollars into the State.

Texas has also made the commitment to host the 2007 SBIR/STTR National Conference. The national conferences were previously underwritten and arranged by the National Science Foundation (NSF) and DoD. However, the last federally funded conference will take place in the fall of 2006. Texas will offer the first state-led conference to fill the void. It will be geared to both companies that have not yet won an SBIR or STTR award and businesses that have had a number of awards. Seminars will be held on: state programs, such as ETF; the participation of prime contractors, including training and networking opportunities; information on the SBIR Reauthorization; the CPP and its impact on the DoD SBIR/STTR Program; and STTR and the necessary STTR agreement. For further information on this event, go to <http://www.sbirtexas.com>.

*Jill Dickman managed the Air Force SBIR and STTR Programs from 1988 until she retired in 1999. Previous positions included Program Manager for Foreign Military Sales and Program Manager for the B-1 contractor support. Since 2002 she has been working in the Technology Center hosted by UT- San Antonio as a Senior Business Development Specialist. She advises small businesses and research institutes on R&D and other funding opportunities that are available through the federal government, especially SBIR and STTR. Ms. Dickman also assists small companies by reviewing proposals, helping with the transition from Phase I to Phase II, and starting them in the commercialization process. She has a BA from Michigan State University and an MPA from Western Michigan University. She can be contacted at (210) 458-2458, [jdickman@utsa.edu](mailto:jdickman@utsa.edu).*

---

<sup>i</sup> Small Business Innovation Research Program and a subsequent companion program the Small Business Technology Transfer Program.

Attachment 4

House Bill 1765-  
79th Legislature (2005)

RE: Texas Emerging Technology Fund

H.B. No. 1765

1 AN ACT  
2 relating to the creation of programs and funding for emerging  
3 technology industries.

4 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:

5 SECTION 1. Subtitle F, Title 4, Government Code, is amended  
6 by adding Chapter 490 to read as follows:

7 CHAPTER 490. FUNDING FOR EMERGING TECHNOLOGY

8 SUBCHAPTER A. GENERAL PROVISIONS

9 Sec. 490.001. DEFINITIONS. In this chapter:

10 (1) "Committee" means the Texas Emerging Technology  
11 Committee.

12 (2) "Fund" means the Texas emerging technology fund.

13 (3) "Institution of higher education" has the meaning  
14 assigned by Section 61.003, Education Code.

15 Sec. 490.002. PURPOSES. The fund is established under this  
16 chapter to develop and diversify the economy of this state by:

17 (1) expediting innovation and commercialization of  
18 research;

19 (2) attracting, creating, or expanding private sector  
20 entities that will promote a substantial increase in high-quality  
21 jobs; and

22 (3) increasing higher education applied technology  
23 research capabilities.

24 Sec. 490.003. EMERGING TECHNOLOGY INDUSTRIES. (a) An

H.B. No. 1765

1 emerging technology industry participant is eligible for funding  
2 under this chapter if the activity to be funded:

3 (1) will result in the creation of high-quality new  
4 jobs in this state, immediately or over a longer period; or

5 (2) has the potential to result in a medical or  
6 scientific breakthrough.

7 (b) Emerging technology industries include industries  
8 related to:

9 (1) semiconductors;

10 (2) information;

11 (3) computer and software technology;

12 (4) energy;

13 (5) manufactured energy systems;

14 (6) micro-electromechanical systems;

15 (7) nanotechnology;

16 (8) biotechnology;

17 (9) medicine;

18 (10) life sciences;

19 (11) petroleum refining and chemical processes;

20 (12) aerospace;

21 (13) defense; and

22 (14) other pursuits, as determined by the governor in  
23 consultation with the lieutenant governor and the speaker of the  
24 house of representatives.

25 [Sections 490.004-490.050 reserved for expansion]

26 SUBCHAPTER B. TEXAS EMERGING TECHNOLOGY COMMITTEE

27 Sec. 490.051. COMPOSITION OF COMMITTEE. The Texas Emerging

H.B. No. 1765

1 Technology Committee is composed of 17 members.

2 Sec. 490.052. APPOINTMENT BY GOVERNOR; NOMINATIONS. (a)

3 The governor shall appoint to the committee individuals nominated  
4 as provided by Subsection (b).

5 (b) The following persons may nominate one or more  
6 individuals who are industry leaders in this state or who are  
7 nationally recognized researchers from public or private  
8 institutions of higher education in this state for appointment to  
9 the committee:

10 (1) the Texas Higher Education Coordinating Board;

11 (2) a president of a public or private institution of  
12 higher education in this state;

13 (3) the members of the Texas Workforce Commission;

14 (4) a representative of the governor's office involved  
15 in economic development activities;

16 (5) a representative of the lieutenant governor's  
17 office involved in economic development activities;

18 (6) a representative of the office of the speaker of  
19 the house involved in economic development activities; and

20 (7) other persons considered appropriate by the  
21 governor.

22 (c) The governor may prescribe a date after which a  
23 nomination under Subsection (b) for appointment for the next term  
24 will not be considered.

25 (d) If an insufficient number of qualified individuals are  
26 nominated as provided by Subsection (b) before the date set by the  
27 governor under Subsection (c), the governor may appoint any

H.B. No. 1765

1 qualified individual to the board for that term.

2 Sec. 490.053. PRESIDING MEMBER. The governor shall appoint  
3 a presiding member of the committee.

4 Sec. 490.054. TERMS. Members of the committee serve  
5 two-year terms, subject to the pleasure of the governor.

6 Sec. 490.055. COMMITTEE STAFF AND FUNDING. Necessary staff  
7 and funding for the committee shall be provided by:

- 8 (1) the office of the governor;  
9 (2) the Texas Higher Education Coordinating Board;  
10 (3) the Texas Education Agency;  
11 (4) the Texas Workforce Commission;  
12 (5) another public entity represented by a committee  
13 member; and

14 (6) gifts, grants, and donations for overhead expenses  
15 to the entities listed in Subdivisions (1)-(5).

16 Sec. 490.056. RECOMMENDATIONS FOR FUNDING. (a) The  
17 committee shall make recommendations, through peer review and  
18 evaluation processes established by the committee, to the governor,  
19 lieutenant governor, and speaker of the house of representatives  
20 for the award of money from the fund as provided by this chapter.

21 (b) The committee may establish advisory panels of  
22 knowledgeable individuals from industry, state government, or  
23 academic occupations to assist in peer review activities under this  
24 chapter.

25 Sec. 490.057. CONFIDENTIALITY. Information collected by  
26 the governor's office, the committee, or the committee's advisory  
27 panels concerning the identity, background, finance, marketing

H.B. No. 1765

1 plans, trade secrets, or other commercially or academically  
2 sensitive information of an individual or entity being considered  
3 for an award from the fund is confidential unless the individual or  
4 entity consents to disclosure of the information.

5 [Sections 490.058-490.100 reserved for expansion]

6 SUBCHAPTER C. TEXAS EMERGING TECHNOLOGY FUND

7 Sec. 490.101. TEXAS EMERGING TECHNOLOGY FUND. (a) The  
8 Texas emerging technology fund is a dedicated account in the  
9 general revenue fund.

10 (b) The following amounts shall be deposited in the fund:

11 (1) any amounts appropriated by the legislature for  
12 the fund;

13 (2) benefits realized from a project undertaken with  
14 money from the fund, as provided by a contract entered into under  
15 Section 490.103;

16 (3) gifts, grants, and other donations received for  
17 the fund; and

18 (4) interest earned on the investment of money in the  
19 fund.

20 (c) The fund may be used only for the purposes described by  
21 Section 490.002.

22 (d) The committee may solicit and accept gifts and grants  
23 for the fund from public and private entities.

24 (e) The fund may be temporarily used by the comptroller for  
25 cash management purposes.

26 (f) The administration of the fund is considered to be a  
27 trusteed program within the office of the governor. The governor



H.B. No. 1765

1 may negotiate on behalf of the state regarding awarding, by grant,  
2 money appropriated from the fund. The governor may award money  
3 appropriated from the fund only with the express written prior  
4 approval of the lieutenant governor and speaker of the house of  
5 representatives.

6 (g) Before awarding a grant under this chapter, the governor  
7 shall enter into a written agreement with the entity to be awarded  
8 the grant money. An agreement may specify that:

9 (1) if all or any portion of the amount of the grant is  
10 used to build a capital improvement:

11 (A) the state retains a lien or other interest in  
12 the capital improvement in proportion to the percentage of the  
13 grant amount used to pay for the capital improvement; and

14 (B) the recipient of the grant shall, if the  
15 capital improvement is sold:

16 (i) repay to the state the grant money used  
17 to pay for the capital improvement, with interest at the rate and  
18 according to the other terms provided by the agreement; and

19 (ii) share with the state a proportionate  
20 amount of any profit realized from the sale; and

21 (2) if, as of a date certain provided in the agreement,  
22 the grant recipient has not used grant money awarded under this  
23 chapter for the purposes for which the grant was intended, the  
24 recipient shall repay that amount and any related interest  
25 applicable under the agreement to the state at the agreed rate and  
26 on the agreed terms.

27 Sec. 490.102. ALLOCATION OF FUND. (a) Money appropriated

H.B. No. 1765

1 to the fund by the legislature shall be allocated as follows:

2 (1) 50 percent of the money for incentives for  
3 collaboration between certain entities as provided by Subchapter D;

4 (2) 25 percent of the money for research grant  
5 matching as provided by Subchapter E; and

6 (3) 25 percent of the money for acquisition of  
7 research superiority as provided by Subchapter F.

8 (b) The governor may reallocate money from one component of  
9 the fund to another component subject to the prior approval of the  
10 lieutenant governor and speaker of the house of representatives.

11 Sec. 490.103. ALLOCATION OF PROCEEDS. (a) The contract  
12 between the governor and a recipient awarded a grant under this  
13 chapter shall provide for the distribution of royalties, revenue,  
14 or other financial benefits realized from the commercialization of  
15 intellectual or real property developed from any grant awarded from  
16 the fund. To the extent authorized by law and not in conflict with  
17 another agreement, the contract shall appropriately allocate by  
18 assignment, licensing, or other means the royalties, revenue, or  
19 other financial benefits among identifiable collaborating parties  
20 and in a specified percentage to this state for deposit in the fund.

21 (b) The contract under Subsection (a) shall also specify  
22 other matters considered necessary by the governor, lieutenant  
23 governor, and speaker of the house of representatives.

24 [Sections 490.104-490.150 reserved for expansion]

25 SUBCHAPTER D. INCENTIVES TO CREATE REGIONAL CENTERS OF INNOVATION  
26 AND COMMERCIALIZATION

27 Sec. 490.151. USE OF MONEY FOR INCENTIVES. (a) Amounts

H.B. No. 1765

1 allocated from the fund for use as provided by this subchapter shall  
2 be reserved for incentives for private or nonprofit entities to  
3 collaborate with public or private institutions of higher education  
4 in this state on emerging technology projects with a demonstrable  
5 economic benefit to this state.

6 (b) The committee shall recommend proposals eligible for  
7 funding under this section to the governor, lieutenant governor,  
8 and speaker of the house of representatives.

9 Sec. 490.152. REGIONAL CENTERS OF INNOVATION AND  
10 COMMERCIALIZATION. (a) In recommending proposals for funding, the  
11 committee shall give specific emphasis to the formation of regional  
12 centers of innovation and commercialization.

13 (b) An appropriate combination of any entities described by  
14 Section 490.151(a) may collaborate to form a regional center of  
15 innovation and commercialization to serve a region of this state.

16 (c) A regional center of innovation and commercialization  
17 shall provide for a specified region:

18 (1) research and development activities that may  
19 include initiatives to prove the feasibility of an idea;

20 (2) commercialization of the results of research and  
21 development;

22 (3) incubators for new businesses and expansion of  
23 existing businesses related to research and development; and

24 (4) workforce training for businesses resulting from  
25 research and development.

26 (d) Subject to the availability of suitable partners and  
27 resources, the committee shall propose and initiate the

H.B. No. 1765

1 establishment of a regional center of innovation and  
2 commercialization in:

- 3 (1) Harris County;  
4 (2) Lubbock County;  
5 (3) Bexar County;  
6 (4) the Dallas-Fort Worth Metroplex;  
7 (5) El Paso County;  
8 (6) the Middle and Lower Rio Grande Valley; and  
9 (7) other suitable locations as determined by the  
10 governor in consultation with the lieutenant governor and the  
11 speaker of the house of representatives.

12 Sec. 490.153. PRIORITY FOR FUNDING. In awarding money from  
13 the fund under this subchapter, priority shall be given to  
14 proposals that:

- 15 (1) involve emerging scientific or technology fields  
16 that have a reasonable probability of enhancing this state's  
17 national and global economic competitiveness;  
18 (2) may result in a medical or scientific  
19 breakthrough;  
20 (3) are collaborative between any combination of  
21 private or nonprofit entities and public or private agencies or  
22 institutions in this state;  
23 (4) are matched with other available funds, including  
24 funds from the private or nonprofit entity or institution of higher  
25 education collaborating on the project; or  
26 (5) have a demonstrable economic development benefit  
27 to this state.

H.B. No. 1765

1           Sec. 490.154. GUARANTEE OF ACTION BY PARTICIPATING ENTITY.

2           (a) An entity participating in a regional center of innovation and  
3           commercialization that receives funding or another incentive under  
4           this subchapter shall guarantee by contract with the governor's  
5           office that the entity will perform specific actions expected to  
6           provide benefits to this state.

7           (b) If an entity fails to perform an action guaranteed by  
8           contract under Subsection (a) before a time specified by the  
9           contract, the entity shall return to the fund the money received by  
10           the entity under this subchapter.

11           Sec. 490.155. GUARANTEE OF COMMERCIALIZATION OR  
12           MANUFACTURING IN TEXAS. A person or entity awarded money from the  
13           fund under this subchapter must guarantee by contract that a  
14           substantial percentage of any new or expanded commercialization or  
15           manufacturing of any real or intellectual product resulting from  
16           the award will be established in this state.

17           Sec. 490.156. AUTHORIZED EXPENSES. (a) A person awarded  
18           money from the fund under this subchapter may use the money to  
19           expedite commercialization that will lead to an increase in  
20           high-quality jobs in this state and shall use the money in  
21           accordance with a contract between the person and the committee.

22           (b) Authorized expenses under this section include salaries  
23           and benefits, travel, consumable supplies, other operating  
24           expenses, contracted research and development, capital equipment,  
25           construction or renovation of state or private facilities, and  
26           workforce training.

27           [Sections 490.157-490.200 reserved for expansion]

H.B. No. 1765

1                   SUBCHAPTER E. RESEARCH GRANT MATCHING

2                   Sec. 490.201. USE OF MONEY FOR RESEARCH GRANT MATCHING. (a)  
3 Amounts allocated from the fund for use as provided by this  
4 subchapter shall be reserved to match funding from research  
5 sponsors other than this state, including federal research  
6 sponsors.

7                   (b) The committee shall recommend proposals eligible for  
8 funding under this section to the governor, lieutenant governor,  
9 and speaker of the house of representatives.

10                  Sec. 490.202. PRIORITY FOR FUNDING. In awarding money from  
11 the fund under this subchapter, priority shall be given to  
12 proposals that accelerate commercialization into production by  
13 targeting programs that:

14                   (1) address federal or other major research sponsors'  
15 priorities in emerging scientific or technology fields;

16                   (2) are interdisciplinary;

17                   (3) are collaborative with a combination of public or  
18 private institutions of higher education in this state;

19                   (4) are likely to result in a medical or scientific  
20 breakthrough; or

21                   (5) have a demonstrable economic development benefit  
22 to this state.

23                  Sec. 490.203. GUARANTEE OF ACTION BY PARTICIPATING ENTITY.

24 (a) An entity receiving funding or another incentive under this  
25 subchapter shall guarantee by contract with the governor's office  
26 that the entity will perform specific actions that are expected to  
27 provide benefits to this state.

H.B. No. 1765

1       (b) If an entity fails to perform an action guaranteed by  
2 contract under Subsection (a) before a time specified by the  
3 contract, the entity shall return the funding received by the  
4 entity under this subchapter.

5           [Sections 490.204-490.250 reserved for expansion]

6           SUBCHAPTER F. ACQUISITION OF RESEARCH SUPERIORITY

7           Sec. 490.251. USE OF MONEY FOR ACQUISITION OF RESEARCH  
8 SUPERIORITY. Amounts allocated from the fund for use as provided by  
9 this subchapter shall be used to acquire new or enhance existing  
10 research superiority at public institutions of higher education in  
11 this state.

12          Sec. 490.252. RESEARCH SUPERIORITY. For purposes of this  
13 subchapter, the employment by an institution of higher education of  
14 one or more world-class or nationally recognized researchers and  
15 associated assistants in an industry eligible to receive funding  
16 under Section 490.003 is considered "research superiority."

17          Sec. 490.253. PROPOSALS FOR FUNDING. (a) The committee  
18 shall solicit and identify proposals by public institutions of  
19 higher education for:

20           (1) creating new research superiority;

21           (2) attracting existing research superiority from  
22 institutions not located in this state and other research entities;

23 or

24           (3) enhancing existing research superiority by  
25 attracting from outside this state additional researchers and  
26 resources.

27          (b) The committee shall recommend proposals eligible for

H.B. No. 1765

1 funding under Section 490.251 and proposals solicited and  
2 identified under this section to the governor, lieutenant governor,  
3 and speaker of the house of representatives.

4 Sec. 490.254. PRIORITY FOR FUNDING. In awarding money from  
5 the fund under this subchapter, priority shall be given to  
6 proposals that:

7 (1) involve scientific or technical fields that have a  
8 reasonable probability of enhancing this state's national and  
9 global economic competitiveness;

10 (2) may result in a medical or scientific  
11 breakthrough;

12 (3) are interdisciplinary;

13 (4) have attracted or may attract federal and other  
14 funding for research superiority;

15 (5) are likely to create a nationally or  
16 internationally recognized locus of research superiority; or

17 (6) are matched with other funds available to the  
18 institution seeking funding under this subchapter.

19 Sec. 490.255. AUTHORIZED EXPENSES. Money awarded from the  
20 fund under this subchapter may be used for research and research  
21 capability acquisition, including salaries and benefits, travel,  
22 consumable supplies, other operating expenses, capital equipment,  
23 and construction or renovation of facilities.

24 Sec. 490.256. PROHIBITED ACTIVITIES. (a) An institution  
25 of higher education may not knowingly attempt to attract an  
26 individual key researcher or research superiority identified for  
27 consideration for funding by another public or private institution



H.B. No. 1765

1 of higher education in this state under this subchapter.

2 (b) An institution that violates this section is ineligible  
3 to participate in a program or receive funding under this chapter  
4 before the third anniversary of the date the institution last  
5 engaged in an activity prohibited by this section.

6 Sec. 490.257. DOCUMENTATION OF BENEFITS TO STATE. (a) A  
7 public institution of higher education must document specific  
8 benefits that this state may expect to gain as a result of  
9 attracting the research superiority before the institution may  
10 enter into a contract to receive funding or incentives under this  
11 subchapter.

12 (b) The governor, with the express written prior approval of  
13 the lieutenant governor and the speaker of the house of  
14 representatives, may terminate funding to an institution if the  
15 institution fails to realize a benefit specified in the contract  
16 before a time specified in the contract, as determined by a periodic  
17 program review conducted by the committee.

18 SECTION 2. (a) As soon as practicable after the effective  
19 date of this Act, a person seeking to nominate an individual for  
20 appointment to the Texas Emerging Technology Committee under  
21 Section 490.052, Government Code, as added by this Act, shall make  
22 any nominations.

23 (b) The governor shall appoint the Texas Emerging  
24 Technology Committee as required by Section 490.052, Government  
25 Code, as added by this Act, on or before September 1, 2005, or as  
26 soon as practicable after giving persons nominating individuals for  
27 appointment to the committee a reasonable time to make any

H.B. No. 1765

1 nominations.

2           SECTION 3. This Act takes effect immediately if it receives  
3 a vote of two-thirds of all the members elected to each house, as  
4 provided by Section 39, Article III, Texas Constitution. If this  
5 Act does not receive the vote necessary for immediate effect, this  
6 Act takes effect on the 91st day after the last day of the  
7 legislative session.

H.B. No. 1765

\_\_\_\_\_  
President of the Senate

\_\_\_\_\_  
Speaker of the House

I certify that H.B. No. 1765 was passed by the House on May 11, 2005, by the following vote: Yeas 136, Nays 1, 1 present, not voting; and that the House concurred in Senate amendments to H.B. No. 1765 on May 26, 2005, by the following vote: Yeas 138, Nays 2, 2 present, not voting.

\_\_\_\_\_  
Chief Clerk of the House

I certify that H.B. No. 1765 was passed by the Senate, with amendments, on May 24, 2005, by the following vote: Yeas 29, Nays 2.

\_\_\_\_\_  
Secretary of the Senate

APPROVED: \_\_\_\_\_

Date

\_\_\_\_\_  
Governor

Attachment 5  
*79th Legislature Interim:  
Notices, Minutes, Agendas,  
Witness Lists*

Senate Subcommittee  
on  
Emerging Technologies and Economic Development-  
Interim Public Hearings

SENATE  
NOTICE OF PUBLIC HEARING

COMMITTEE: S/C on Emerging Technologies & Economic Dev.

TIME & DATE: 9:00AM, Tuesday, May 9, 2006

PLACE: Betty King Comm. Room

CHAIR: Senator Kyle Janek

---

The Committee will meet to discuss Interim Charge #3 relating to the Texas Enterprise Fund.

Invited and public testimony.

---

**\*\* REVISION \*\***  
**SENATE**  
**NOTICE OF PUBLIC HEARING**

COMMITTEE: S/C on Emerging Technologies & Economic Dev.

TIME & DATE: 9:00AM, Friday, September 15, 2006

PLACE: Houston, TX

CHAIR: Senator Kyle Janek

THIS HEARING HAS BEEN CANCELED

---

**\*\*HEARING CANCELED\*\***

The Subcommittee will meet to discuss Interim Charges 2 & 3.

Invited and public testimony.

---

**SENATE**  
**NOTICE OF PUBLIC HEARING**

COMMITTEE: S/C on Emerging Technologies & Economic Dev.  
TIME & DATE: 10:00 AM, Tuesday, October 24, 2006  
PLACE: 2E.20 (Betty King Cmte. Rm.)  
CHAIR: Senator Kyle Janek

The subcommittee will meet to consider the balance of its' charges from the 79th Legislature:

- Study how Texas can better translate its' wealth of intellectual property and potential into commercialization
- Review the Texas Enterprise Fund and Texas Emerging Technology Fund and identify opportunities to both improve tracking and benefits derived by the state

**MINUTES**

**STANDING SENATE SUBCOMMITTEE ON EMERGING TECHNOLOGIES & ECONOMIC DEVELOPMENT**

Tuesday, October 24, 2006

10:00 a.m.

Betty King Committee Hearing Room, 2E.20

\*\*\*\*\*

Pursuant to a notice posted in accordance with Senate Rule 11.18, a public hearing of the Standing Senate Subcommittee on Emerging Technologies & Economic Development was held on Tuesday, October 24, 2006, in the Betty King Committee Hearing Room, 2E.20, at Austin, Texas.

\*\*\*\*\*

**MEMBERS PRESENT:**  
Senator Kyle Janek, Chair

**MEMBERS ABSENT:**  
Senator Kip Averitt  
Senator Kim Brimer  
Senator Craig Estes  
Senator Eddie Lucio, Jr.

\*\*\*\*\*

The chair called the meeting to order at 10:09 a.m. The following business was transacted: The Subcommittee Interim Charges: 1,2 & 3 were laid out, and invited witnesses testified in three panels, according to the charge being discussed. Public testimony was then heard from citizens registering at the hearing. Witnesses testifying and those registering on the charges are shown on the attached list.

At 11:50 a.m. Senator Janek moved that the committee stand recessed until 12:00 p.m; without objection, it was so ordered. At 12:02 p.m. the committee reconvened, and Senator Janek resumed the chair.

The chair then moved at 2:15 p.m. that the public testimony be closed; without objection, it was so ordered.

There being no further business, at 2:18 p.m. Senator Janek moved that the Committee stand recessed subject to the call of the chair. Without objection, it was so ordered.

---

Senator Kyle Janek, Chair

---

Richard Spence, Clerk



WITNESS LIST

S/C on Emerging Technologies & Economic Dev.  
October 24, 2006 - 10:00 AM

Best Practices - Fund Participants Review

ON:

Stedman, David CEO (Economic Development Alliance for Brazoria County)

Emerging Tech Fund

ON:

Spencer, David Chairman (Texas Emerging Technology Committee)

Emerging Tech. Fund

ON:

Morrow, William Member (Texas Emerging Technology Committee)

ETF- Commercialization Applications- Research Institutions

ON:

Diedrich, Guy Vice Chancellor (Texas A&M University System)

Public Testimony @ Hearing

ON:

Goodall, Randy (Sematech)

Public Testimony at Hearing

ON:

Poage, James (San Antonio Tech. Accelerator Initiative)  
Sullivan, Dan (Central Texas RCIC-Austin Tech. Council)

Registering, but not testifying:

On:

Davenport, Susan VP (Greater Austin Chamber, Business Retention)

RCIC evaluation; TxETF evaluation

ON:

Gonzalez, Miguel Director (Rio Grande Valley Regional Center for Innovation and Commercialization)

Research & Commercialization Update- Texas ETF

ON:

Butler, Bruce AVP - Research & Technology (University of Texas HSC- Houston)

Research & Commercialization ; RCIC update

ON:

Cardenas, Blandina President (University of Texas-Pan American)

Research & Commercialization Opportunities- ETF

ON:

Iverson, Brent Professor (University of Texas at Austin)

Research & Commercialization Update- ETF

ON:

Capelli, Chris VP - Technology Transfer (University of Texas MD Anderson Cancer Center- Houston)

Review ways to match business needs with TX ETF goals

ON:

Ritter, Phil Sr VP- Public Affairs (Texas Instruments Corporation)

Texas Emerging Tech Fund

ON:

Ackman, Ervin President (Ackman & Associates)

Ellison, Mark Director (Gov. Office- Texas Emerging Technology Fund)

Maldonado, Cesar Member (Texas Emerging Technology Committee)

Powers, Pike Vice Chairman (Texas Emerging Technology Committee)

Texas Enterprise Fund

ON:

Demerson, Aaron Exec. Director (Gov. Office- Economic Development and Tourism)

