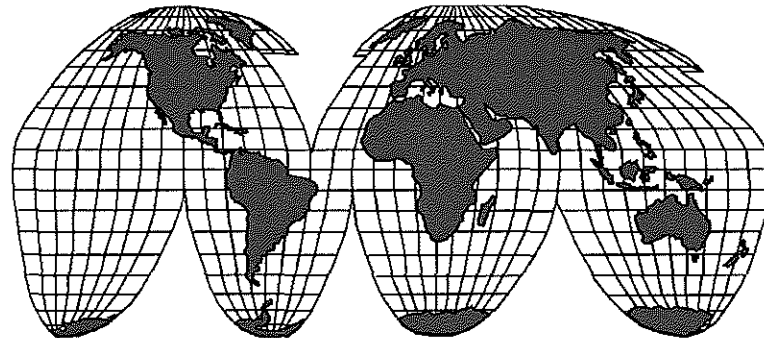


# **Lessons Learned from the North Texas Barnett Shale: In Regards to the Pennsylvania Marcellus Shale, the Jewel of the Northeastern U.S.**

**Draft Research Paper and Presentation for Northeastern, PA Meeting  
November 18-19, 2008 for Center of Urban Studies and Pennsylvania  
Senate Hearing**

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by

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**November 18-19, 2008**

Footnote: A great deal of thanks and appreciation is due to Mr. Gene Powell whose weekly BARNETT SHALE Newsletter offers more information on the Marcellus Shale than all other sources combined ([www.barnettshalenews.com](http://www.barnettshalenews.com))

# **Lessons Learned from the North Texas Barnett Shale: In Regards to the Pennsylvania Marcellus Shale, the Jewel of the Northeastern U.S.**

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Dept. of Finance, Insurance, Real Estate and Law**

## **Abstract**

The Barnett Shale Oil and Gas boom in the urban and suburban Dallas/Ft. Worth region of North Texas over the last eight years has added richly to the area's employment, royalty owners' individual wealth, and the tax base and revenues of all levels of government, state, county, city and school districts. The size and scope of investment by oil and gas companies has led to the drilling and completion of over 10,500+ successful wells in a very short period of time on a cost basis of over \$21 billion (assumes "average" well at \$2 million each). The paper considers the environmental costs/benefits and lessons learned by individuals, governments, and companies that allowed the development of the oil and gas resources, while limiting or reducing the environmental impact and loss in value of the surface estate. The economic boom to the North Texas economy and real estate market has been substantial. The Marcellus Shale Gas Zone offers greater potential geologically and economically; however, the political and legal environment are serious threats to major development of the resource.

## **Introduction**

The socioeconomic, legal and local/state legislative learning curve and extensive development of 10,500+ deep gas wells in the urban/suburban Dallas/Ft. Worth metro area (4,000± sq. miles) was relatively rapid (8years) and can provide valuable insights and lessons to areas of the Marcellus Shale in the Northeastern U.S. By comparison, the Marcellus Shale is much larger in area (41,000± sq. miles) being primarily rural (farmland or woodlands) and extends over 2/3<sup>rd</sup> of the state of Pennsylvania. There is every indication that the geologic zone is even more prolific and potentially much more valuable than the phenomenal Barnett Shale Oil and Gas play in Northern Texas, which is currently the largest most productive gas-field in America today.

A balanced and unbiased view of the potential of the Marcellus Shale in regards to the cost-benefit analysis of the potential \$20+ billion potential investment in the State of Pennsylvania is part of the objective of this paper.

The historic rise and fall of the heavy industrial steel industry and its associated coal and iron ore mining, strip mining and pollution that once made Pittsburg an industrial powerhouse appears to have been replaced with

- 1) Static to falling population
- 2) Lack of new industrial jobs
- 3) Financial stress at all levels of government
- 4) High corporate and personal income taxes
- 5) Exploding local property taxes and revaluation of real estate values to unaffordable levels for many people on fixed incomes
- 6) City budgets in Philadelphia in shambles (closing 11 libraries and 60 swimming pools 11-6-08)

The ultimate question is what overall cost and benefit would drilling 10,000 new gas wells in Pennsylvania have on:

- a) Individual/ citizens at large?
- b) Individuals with mineral rights and land?
- c) The general overall environment and quality of life?
- d) The overall health, welfare and safety of the people of PA?
- e) The wealth and health of local and state governments through lower tax rates and higher income due to gas drilling?
- f) New jobs and consumers?
- g) Research opportunities for universities?

At the present it appears that a general lack of specific well production benefits and production information (which is public information in Texas) when combined with a disjointed jungle of agencies, boards, counsels and regulatory bodies having little cooperation, charging arbitrary fees at every level and unpredictable permitting success or denial based on any one (1) "roadblock" or justifiable reason... are reducing the chance that the Marcellus Shale as a resource will ever be developed.

### **Texas and Pennsylvania Historic Perspectives**

The first oil well in the U.S. as the "Drake Well" drilled in Titusville, PA in 1859. But it was essential coal that seems to have shaped mineral law and rights as iron ore steel and labor combined with coal to make Pittsburg, PA an economic giant in the U.S. Strip and pit mining production and reserve information is protected by law to protect King Coal and the steel industry, which seems to have allowed the rapid growth of Pennsylvania in the early 1900's. Apparently under the same law, oil and gas well production and information remains commercial "secret" for five years.

In the early 1900's, Texas took stern legislative action to protect and encourage the oil/gas industry by making mineral rights superior over surface rights and imposing a production "flat tax" on 100% of all oil and gas for the benefit of state universities and state government. The powerful Texas Railroad Commission can permit oil and gas wells in 30 days or less and gives

mineral/royalty and oil and gas companies superior access rights, privileges and total public information about well production and completion techniques. In return all Texans benefit with

- a) No personal state income taxes
- b) Severance taxes of
  - 7.5% of all gas income produced
  - 4.6% of all oil revenues produced
- c) A 2008 State of Texas surplus of \$11 billion (11-08)
- d) Full accounting and public access to all well information for the State Controller's royalty owners and taxpayers. Everyone gets paid and pays taxes with a series of checks and balances through multiple cross checks.

To further encourage oil and gas exploration and development the Texas Railroad Commission also controls, regulates and administers pipelines and trucking to assure marketability of all hydrocarbons produced. They also regulate, monitor, permit, and administer all salt water disposal wells as an important link to oil and gas production.

In contrast:

Pennsylvania Laws Favor:	King Coal
Texas Laws Favor:	King Oil & Gas

**“How much is my/our/their Marcellus mineral rights worth per acre and how much will I/we/they realize from the resource over time? How much are my mineral rights worth today?”**

The answer of course: It depends!

While individual oil and gas well performance, and therefore realizable reserves, varies widely, the per acre value of mineral rights also varies widely due to a large number of variables:

- a) Geological variations:
  - depth/pressure differential
  - thickness of zones
  - BTU of gas in place
  - The amount of natural fracturing
  - Other productive zones encountered while seeking the “Target Marcellus”
- b) Type of well and completion techniques:
  - Vertical (V) vs. Horizontal (H) wells ( huge differential in gas productivity) (2-10 x production)
  - Quality of engineering
  - Size of fracing
- c) Quality of operator and financial stability over time
- d) Availability of pipelines to market

- e) Natural gas prices over time:
  - Supply
  - Demand
  - Natural gas pipeline contracts for gas
  - Competitive alternative energy prices over time
- f) Cost to drill wells and drilling rig/equipment availability:
  - Regulatory costs and fees to get permits (all permits currently required as of 11-08)
  - Political risk of not being able to drill
  - Time delays due to permitting for wells, water, roads, pipelines, water disposal , etc.
- g) Cost of 2-4 acre surface locations ready to drill, complete and sell gas for 600-1500 acres from one (1) location over horizontally undisturbed surface acres:
  - Topography
  - Access/public roads
  - Cost and availability of fresh water to drill and complete
  - Cost and reasonable safe disposal of “frac” water
- h) Property/Mineral owners and oil and gas companies mineral lease terms:\*
  - Bonus money paid up front (per acre)...currently dropping gently in Texas – down 30-70% 11-08)
  - % royalty paid, 12.5-25% (varies widely based on competition level between firms and location)
  - Damages paid for surface locations to private land owners.
  - Length of leases 3-5 years with options  
(\*lower royalty in superior areas will be drilled first)
- i) Transparent and verifiable public information on well completions, performance, and income paid/received by all parties at all levels
  - Total income and total royalty income verification for federal, state, local taxation purposes
  - Complete and transparent well completion information and production data improves all future wells and accelerate development of the field
  - Royalty owners want to know they are being fully paid on all production

The present value of Marcellus Shale gas royalty/mineral rights per mineral acre to individual property owners could easily realize \$10,000 – \$25,000 per acre, when oil and gas appraisal techniques are applied. (Currently use up to seven (7) approaches to value in Texas)

Per Acre\$ Bonus monies paid at signing of lease	+ Present value of royalty income over 20-25 years, discounted at 10% (assuming \$5.00/MCF* gas and “average” shale decline curve)	= Present Value Mineral Rights
--	--	--------------------------------

\*MCF – 1000 cubic feet of gas; how natural gas is priced in the public commodities market.

<p>“SAY” \$1500/AC</p>	<p>+</p>	<p>\$8500 – 23,500/AC Discounted value/Acre</p>	<p>=</p>	<p>\$ 10,000-\$25,000 per acre (based on \$5.00/MCF and 4% increase/ year gas prices over time)</p>
------------------------	----------	---	----------	---

The size and income/wealth potential for the region is enormous. Barnett Shale Gas royalty owners (individuals with mineral rights) in one (1) of twenty (20) counties in Texas received \$600 million in royalties in one year (Denton County TX, 2006).

However, the present value (PV) and future value (FV) of the Marcellus Shale potential wealth contribution and value per acre to mineral rights owners and society is highly speculative at this point in time. Unless various road blocks, technical difficulties and infrastructure (pipeline processing plants and water disposal and water disposal facilities) problems are solved, leasing, bonus monies and the pace of drilling will cease and the resource, potential jobs and benefits to society as a whole will evaporate or move elsewhere in the Marcellus Zone (other states), U.S., or the world.

#### **Advice to State and Local Government of Pennsylvania**

This research will attempt to consider and compare the following in order to offer insights as well as both time and cost saving recommendations to allow a more rapid and orderly development of the Marcellus Shale. The state of Pennsylvania, local governments and individuals first need to develop definite, strong and dependable leadership and policies that will send clear signals to oil and gas companies as to whether or not the privately owned land and minerals may be developed. This needs to be accomplished without arbitrary or capricious rules and regulations that could be legally considered to be a costumed “taking,” of private rights, lands or potential income under the U.S. Constitution. If one assumes that a private individual owning land would welcome a well under their lands, all levels of government are needed to coordinate and enhance the prospects of

- a) Orderly development of the resources at a minimum disruption to the general health and welfare of the region for the betterment of individual property owners economic status and the overall “Public Good.”
- b) Develop equitable property, equipment and royalty/minimum tax policies that will greatly benefit the state, local communities, and schools.
- c) Provide strong leadership at the state level for legislation, rules and policies that
  - i. Protect private property rights and those of oil and gas companies
  - ii. Create policies that allow an industry-funded, streamlined permitting process that assures a drilling permit can be approved within 30 days of submission and ensure complete well information and ongoing production information will be open and public record for all stake holders and invested parties.

## Key Assumptions

- 1) That land and mineral/oil and gas rights are private rights and that owners, through their attorneys and representatives, have and will negotiate their own appropriate levels of surface damage, upfront bonus payments, royalty and lease terms/conditions.
- 2) That State and Governments want to develop the oil and gas mineral resources to encourage new jobs, to build the wealth of property owners, and to increase the growth of new tax revenue from royalties and equipment associated with oil and gas.
- 3) That reasonable and achievable environmental legislation, rules and regulations will allow the orderly development of oil and gas, and that the benefits outweigh costs when considering the overall benefit to federal, state, and local governments as well as building wealth for the citizens of the state.

The valuation of mineral rights to royalty/mineral owners was published in the Appraisal Journal (Baen) as well as a research papers concerning the implication of oil and gas activities to the value of farmland from the standpoint of a single two acre drill site for a 600 acre farm.

## Literature Review

To date there have been no academic papers published about the Marcellus Shale in regard to individual property owners, public policy implications or cost/benefit analysis to society. There have been many O & G articles published in industry journals, the popular press and local newspapers about the Marcellus Shale which concentrate primarily on the following:

- 1) The great potential of the resource. (Pro O& G article and industry technical article about individual wells and vast size of field).
- 2) Leasing, royalty, and bonus income levels.
- 3) Environmental concerns and problems: sources of water, water permits, water disposal, road traffic, pipeline right-of-way easements, etc.

There are several unpublished research papers that are, however, applicable to the Marcellus although they were written in regard to the orderly development of the DFW Barnett Shale in Texas. The following research papers are available (see Baen's website at [www.coba.unt.edu/firel/baen/](http://www.coba.unt.edu/firel/baen/) )

- 1) WHAT TO DO/ SAY WHEN THEY CALL!! Pipeline Companies, Right of Way Agents, Oil Companies Perspectives Lecture Handout May 16, 2007 NEW! (PDF Format) Live Video at Barnett Shale Expo Presentation free at [http://www.barnettshaleexpo.com/breakout\\_pipeline.php](http://www.barnettshaleexpo.com/breakout_pipeline.php) or view with Windows Media Player
- 2) The Valuation and Tax Considerations of Oil and Gas Rights and Pipeline Easements NEW! May 2008 Barnett Shale Expo
- 3) Oil and Gas Mineral Rights in Land Appraisal (PDF Format)

- 4) The Impact of Mineral Rights and Oil and Gas Activities on Agricultural Land Values (PDF Format)
- 5) Rural/Urban Energy Farms: Onsite Alternative Energy Production from Wind Rights, and Geothermal and Mineral Rights as Value Added or Potential Cash Flow Sources ARES 2007 NEW! (PDF Format)
- 6) Urban and Public Lands (BLM) Oil and Gas Site Planning, Drilling, Construction, and Production - Techniques to Reduce or Eliminate Surface Estate Value Impacts and Environmental Damages: Lessons From the Barnett Shale and Methane Gas Development (PDF Format)
- 7) Cost/Benefit Analysis and Ad Valorem Tax Benefits of Oil and Gas Drilling in the DFW Barnett Shale of Urban and Suburban North Texas (PDF Format)
- 8) Urban and Public Lands (BLM) Oil and Gas Site Planning, Drilling, Construction, and Production - Techniques to Reduce or Eliminate Surface Estate Value Impacts and Environmental Damages (PDF Format)
- 9) Texas Land & Mineral Owners Association  
[www.tlma.org](http://www.tlma.org)  
2006 Membership Application in PDF Format



**Recommendations to Various Stakeholders and Technical Suggestions to the State of Pennsylvania if the People desire to allow the Development of Marcellus Shale Gas Formation in order to Maximize Wealth, while minimizing negative environmental impacts.**  
(Attached to this paper)

Table I Minerals/Coal and “Mining” Jobs/Employment in Texas, Pennsylvania and New York  
(Encyclopedia/World Book/ Old Data)

Table II Pennsylvania/Marcellus Shale Acreage, Public Oil and Gas Companies, Acreage and Results/data as of March 08, (From Public Sources/and Jefferies & Co Inc Report/Chandra, Various Oil and Gas Journal References and Barnettshalenews.com.

Table III Comparative Analysis of the DFW Barnett Shale and Marcellus Shale Gas Fields  
(charts)

Table IV Comparative Development, Time Table, Contrasting the Barnett Shale 10,500 Wells of DFW North Texas in 8 years, Potential of the Marcellus Shale of the state energy/varies.

Table V “Reported” Pennsylvania Marcellus Shale Productivity and Royalty Income Stream per well to Individual Property Owners (varies per well greatly and depends on size and drilling unit, productivity of every well is unique some may be dry!)

Table VI The State of Texas Railroad Commission’s Public Monthly Well Reporting Process.  
Available on the Internet on Every Well in Texas

Table VII Research on Oil and Gas Companies Perceived Economic and Political Disincentives for Drilling Wells in Pennsylvania

Table VIII Dear Pennsylvania Land/Mineral Owners: Potential, Realty and Suggestions about the Marcellus Shale

Table IX The Pennsylvania Vital Challenge and Opportunities of Open Records/Data for Oil and Gas Well Permits, Completion and Monthly Production / Income Per Well

Table X The Challenge Land Opportunities of Economical Alternative

Table XI Dear Pennsylvania Exhibit, The challenge and Opportunities Drilling Water and Frac Water Disposal Possibilities and/or Reuse of Water

Table XII Valuation and Tax Implications of the Barnett Shale

Table XIII Warning to Pennsylvania Elderly and the Uninformed! Unscrupulous companies often send fraudulent offers that appear to be leases but are in fact the sale of mineral rights or a mineral deed at bonus level prices (\$1500+/acre)

## Conclusion

The potential of the Marcellus Shale is real, achievable and can positively change the economy of Pennsylvania if the people embrace and encourage it. If not, the millions of acres of leases will expire, the oil and gas companies' resources and efforts will go elsewhere and the State of Pennsylvania will remain in the same or similar environment and economic status.

"In August (2008) Chesapeake Energy Corp. CEO Aubrey McClendon cautioned gas market observers not to 'expect the Barnett-style ramp up of gas production from the Marcellus. There are way too many regulatory, topographic, water, and infrastructure issues that will keep the Marcellus from making a meaningful contribution to our country's gas production until at least 2013-15.' " Source: *Oil and Gas Journal* October 6, 2008.

"The budget reduction (Chesapeake's) also includes \$500 million for the anticipated drilling capex carry in a Marcellus shale 25% JV the company expects to complete by the end of this year." Source: *Oil and Gas Journal* Oct 13, 2006.

Recent price drops, Wall Street woes and other factors have changed the economics of the Marcellus Shale. Perhaps the opportunity and regulatory process can improve before many firms move out of Pennsylvania and the door of opportunity closes for a while. The gas has been under Pennsylvania for millions of years and may remain there untapped for millions more if the road blocks to development are not removed and replaced with economic benefits for all the citizens.

## References

1. Powell Barnett Shale Newsletter: [www.barnettshalenews.com](http://www.barnettshalenews.com) 2004-2008 (many Marcellus Shale related news articles)
2. *The World Book Encyclopedia*, 1994 World Book Inc,
3. Texas Almanac ©1999, *The Dallas Morning News*, L.P, P.O. Box 655237, Dallas TX 75265
4. Operators Increase Stakes in the Marcellus. Rach, MM, *Oil and Gas Journal*, October 6, 2008, pp 50-55
5. Harper, John A., "The Marcellus Shale- An Old "New" Gas Reservoir in Pennsylvania *Bureau of Topographic and Geologic Survey*, Spring 2008.
6. Chesapeake Energy Corp., second-quarter 2008 earnings conference call, Aug. 1, 2008
7. New York State Senate Bill S08169, passed June 23, 20089, <http://assembly.state.ny.us/leg>

**Table I Minerals/Coal and “Mining” Jobs/Employment in Texas, Pennsylvania and New York (Encyclopedia/World Book/ Old Data)**

Source: J.S. Baen, PhD, University of North Texas, 2008

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(Sources: Public Sources/and Jefferies & Co Inc Report/Chandra, Various Oil and Gas Journal References and Barnettshalenews.com. by J.S. Baen, PhD, University of North Texas)

Name	Acreage	#Wells	# Vertical/ MCF	Horizontal/ MCF	Move Pipeline Capacity Needed?	Planned 08/09	Initial Production
Anadarko	250,000 Ac	0	0	0	yes	?	NA
Atlas Energy	506,000 Ac	52	52/*	0	yes	150	*
Carizzo (PA + NY)	50,000 Ac	"1"	0	0	yes	?	NA
CABOT Oil & Gas	100,000 Ac+	4	4/*	1H*	yes	(18v/12H) 08 (70-100) 09	v=8-1 MCF/ day
Chesapeake Energy	"200,000 Ac+"	0	0	0	yes	selling?	NA
Equitable Resources	400,000 Ac	1	0	1H*	yes	8-10	
Exco	415,000 Ac	1	0	1H*	yes	(10v 08)	
EOG/ Seneca Resources	230,000 Ac	9	5/*	4H*	Yes!	(10v 09)	"1.5-2Bcfe/ well"
Range Resources	921,000 Ac	78	63v	15H*	Needs + pipeline capacity	20v/ 40H'08	3 New H = (Av.) 14.3 MCF/ day
Rex Energy	48,000A c	"2"	2v *			6-8 v tests'08	
South Western Energy	100,000 Ac	2	2v *				
Quest Resources	52,000A c	1	1v *				
Ultra Pet/ East Resources	250,000 Ac	2	2v*			4v in 08	
XTO	50,000 Ac					?	

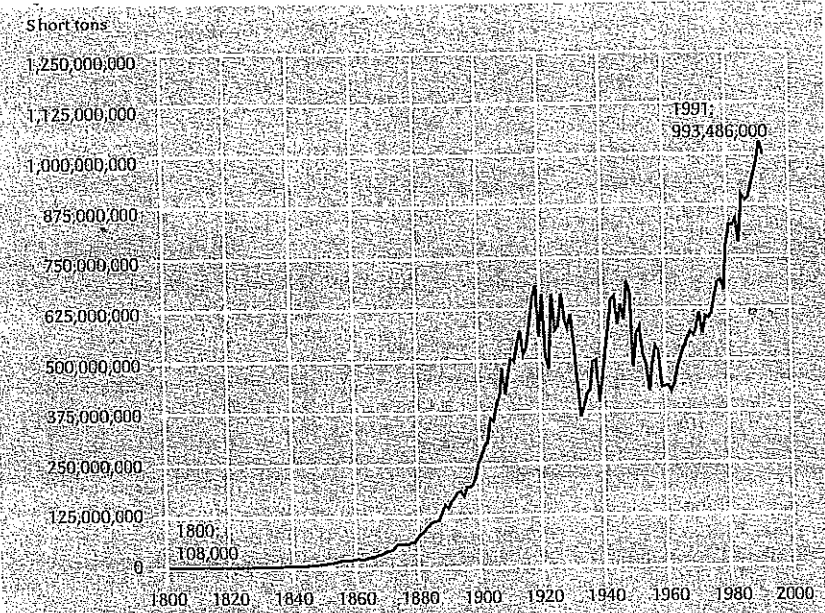
(\* = No Data Reported)

4,282,000 Acres + Small Independent Acreage = 42,000 Wells Needed @ 100 +/- Ac per Well @ 71 Rigs  
@ 14 Wells/Rig per year = \_\_\_\_ years to drill! (short term leases)

**Table III Comparative Analysis of the DFW Barnett Shale and Marcellus Shale Gas Fields**  
 Source: J.S. Baen, PhD, University of North Texas, 2008

	Barnett Shale, TX		Marcellus PA	
Number of Counties	20 (of 254)		40 (2/3 <sup>rd</sup> of state)	
Type of Drilling	High density urban drilling		Low density rural farmland and woodlands	
“Average” Bonuses Paid	\$1,000-25,000/ Ac		\$1500/ac	
“Average” Royalty	18.67-25%		15%	
# Wells Drilled to Date	9000+		±”600”	
Well Permitting Process	State *County (max) City (max) (*generally not required)	<10 days 30 days 1-6 months	State County (max) City (max) Etc Etc	30 days ? ? 10 permits +
Size of Drill-site	2-4 acres		2-4 acres	
# Wells per Drill-site	1-6		?	
Public Well Information	100%		Zero (0%)	
Source of Drilling/Frac Water	Private Farm Ponds, Private Wells, City Water Supply, Private lakes		Various public agencies apparently own all the water	
Depth of Wells	+8,000 ft		?	
Cost of Wells	Vertical- \$1-1.5 million Horizontal- \$2.5-5 million		?	
Production/ Well - “Av” 1 <sup>st</sup> yr Vertical - “Av” 1 <sup>st</sup> yr Horizontal	Public Information 577 MCF/day or 3,000/day 1,200 MCF/day		Private Information ? ?	
Production Taxes on - Oil - Gas	4.6%/BBI 7.5%/MCF		Zero (0%) Zero (0%)	
State Income Taxes	Zero (0%)		2.3% Personal 9.98% Corporate	
Local Property Taxes - PV of Royalty - Equipment - Facilities	3±% 3% 3%		Zero (0%) Zero (0%) Zero (0%)	

Coal production in the United States since 1800\*



Year	Short tons	Metric tons
1800	108,000	97,980
1810	178,000	161,500
1820	334,000	303,000
1830	881,000	799,200
1840	2,474,000	2,244,400
1850	8,356,000	7,580,400
1860	20,041,000	18,180,900
1870	40,429,000	36,676,600
1880	79,407,000	72,036,800
1890	157,771,000	143,127,400
1900	269,684,000	244,633,200
1910	501,596,000	455,040,200
1920	658,265,000	597,167,900
1930	536,911,000	487,077,400
1940	512,256,000	464,710,800
1950	560,388,000	508,375,400
1960	434,330,000	394,017,300
1970	612,661,000	555,796,700
1980	825,673,000	749,038,000
1985	883,638,000	801,623,000
1990	1,026,307,000	931,050,000
1991	993,486,000	901,275,000

\*Includes all types of coal—anthracite, bituminous and subbituminous coals, and lignite. Sources: U.S. Bureau of Mines; U.S. Energy Information Administration.

Minerals. Texas is one of the world's great petroleum rehouses. The state's known petroleum deposits account for a third of the country's known supply. Most of

**Production and workers by economic activities**

Economic activities	Texas/State	
	Per cent of GSP <sup>1</sup> produced	Employed workers Number of persons Per cent of total
Community, social, & personal services	18	1,774,300 24
Manufacturing	17	986,500 13
Wholesale & retail trade	15	1,735,600 23
Finance, insurance, & real estate	15	427,700 6
Government	11	1,276,700 17
Transportation, communication, & utilities	11	434,300 6
Mining	2	185,100 2
Construction	4	347,200 5
Agriculture	2	266,900 3
Total	100	7,434,300 100

<sup>1</sup>GSP = gross state product, the total value of goods and services produced in a year. Figures are for 1991. Sources: World Bank estimates based on data from U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, and U.S. Department of Agriculture.

Texas' first producing oil well was drilled by Lyne Barrett at Melrose in Nacogdoches County in 1866. The following year, a well was brought in at nearby Oil Springs by Anthony Kelly Starr and Peyton F. Edwards. Other wells followed, making Nacogdoches County the site of Texas' first commercial oil field, first pipeline and first effort to refine crude. Several thousand barrels of oil were produced, but the price of oil was not high enough to justify further efforts.

For Texans, the 20th century did not begin on January 1, 1901, as it did for everyone else. It began nine days later, on Jan. 10, when, spurring drilling pipe, mud, gas and oil, the Lucas No.

Mining. Mining accounts for 1 per cent of Pennsylvania's gross state product. The state ranks fourth behind Wyoming, Kentucky, and West Virginia in coal production.

Pennsylvania's eastern counties mine about 3 million short tons (2.7 million metric tons) of anthracite (hard coal) yearly. This total accounts for all the anthracite mined in the United States. The western counties and other parts of Pennsylvania mine about 67 million short tons (61 million metric tons) of bituminous (soft) coal a year.

Revenue. Taxation accounts for about 60 per cent of the state government's general revenue (income). Most of the rest comes from federal grants and other U.S. government programs. A general sales tax and a per-

Local government. Pennsylvania has four kinds of local government units: (1) counties, (2) townships, (3) cities, and (4) boroughs. Sixty-two of the state's 67 counties are governed by a board of three commissioners, elected to four-year terms.

Beginnings of the oil industry. Most historians trace the start of the oil industry on a large scale to 1859. That year, a retired railroad conductor named Edwin L. Drake drilled a well near Titusville, Pa. Drake used an old steam engine to power the drill. After Drake's well began to produce oil, other prospectors drilled wells nearby. Within three years, so much oil was being produced in the area that the price of a barrel dropped from \$20 to 10 cents.

**Production and workers by economic activities**

Economic activities	New York State		
	Per cent of GSP <sup>1</sup> produced	Employed workers Number of persons	Per cent of total
Community, social, & personal services	24	2,325,800	29
Finance, insurance, & real estate	23	754,600	10
Wholesale & retail trade	15	1,602,900	20
Manufacturing	13	1,057,100	13
Government	11	1,446,800	18
Transportation, communication, & utilities	9	418,600	5
Construction	4	274,900	4
Agriculture	1	103,400	1
Mining	2	5,100	0
Total	100	7,989,200	100

<sup>1</sup>GSP = gross state product, the total value of goods and services produced in a year. Figures are for 1991. Sources: World Bank estimates based on data from U.S. Bureau of Economic Analysis, Bureau of Labor Statistics, and U.S. Department of Agriculture.

**Table IV Comparative Development, Time Table, Contrasting the Barnett Shale 10,500 Wells of DFW North Texas in 8 years, Potential of the Marcellus Shale of the state energy/varies.**

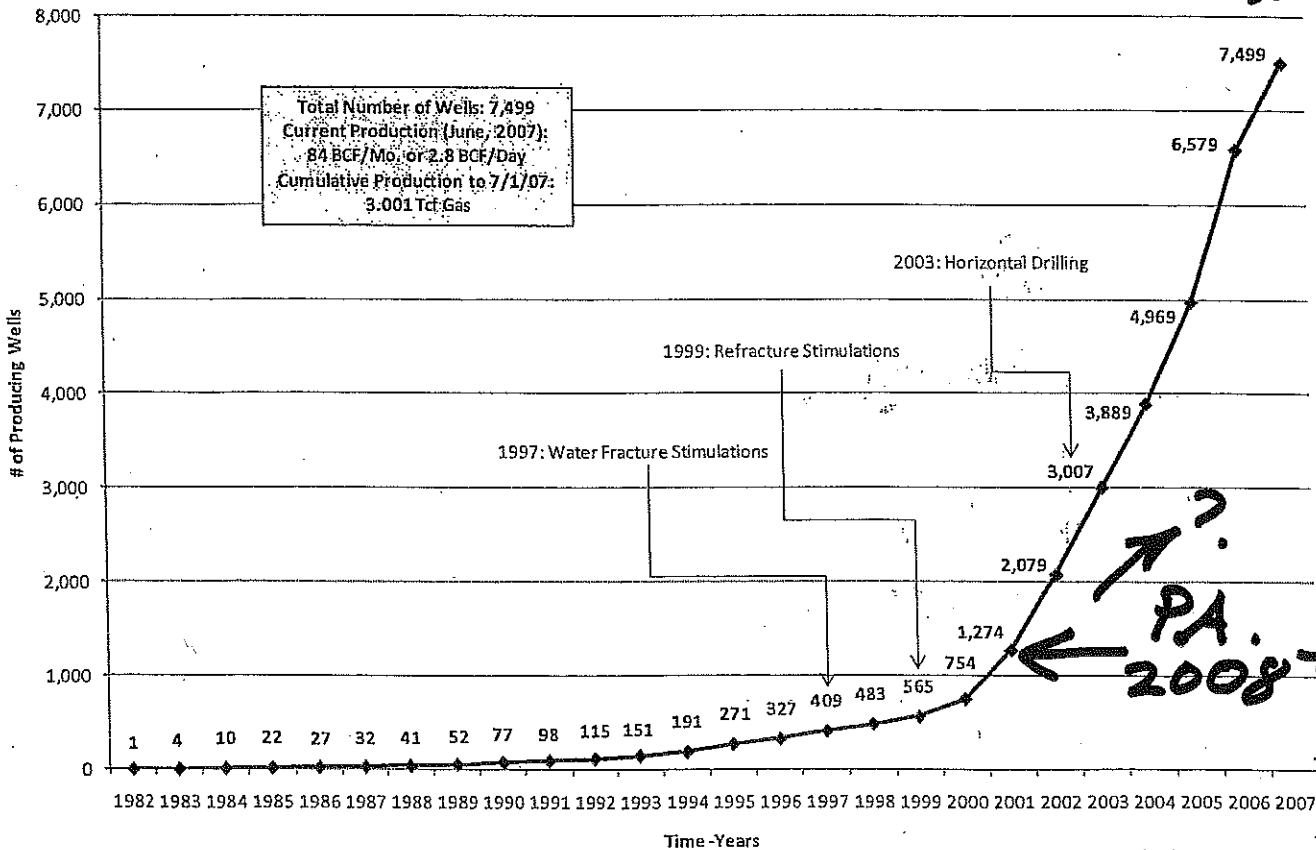
Source: J.S. Baen, PhD, University of North Texas, various publications, barnettshalenews.com, etc

**BARNETT SHALE RESEARCH**

**Number Of Producing Wells In The Barnett Shale**

The wells plotted below represent our research of wells in the Barnett Shale in the Fort Worth Basin which have had production of gas and/or oil. Other wells assigned Lease Codes but which are WDW (water disposal wells) wells, etc. were not included. The list includes all counties, fields, and RRC Pending file wells we could find. Sources for this research included our data bases, IHS Energy (Dwights Production data) and Railroad Commission data.

**Number of Producing Barnett Shale Wells Over Time as of July 1, 2007  
All Counties/Fields in the Fort Worth Basin**



*TX  
2008  
10,500+*

*PA.  
2008?*

**Complete**  
Production Services



**Table V “Reported” Pennsylvania Marcellus Shale Productivity and Royalty Income Stream per well to Individual Property Owners (varies per well greatly and depends on size and drilling unit, productivity of every well is unique some may be dry!)**

Source: J.S. Baen, PhD, University of North Texas, 2008

Name	Type of well	IP	“SAYAV”/ year 1	“Size of Unit”	Price of Gas	Year 1 15% Annual Royalty
PA Sate Government Report by MR. John A Harper PA Geology Vol 38 #1 Spring 2008	Vert.	?	45 MCF/day	“40 Ac”	@5.00/MCF	
Cabot Oil and Gas Corp (#1 Ret)	Vert.	800-1,000 MCF/day	577 MCF/day	“40 Ac”	@5.00/MCF	
CNX Mr. Albert Pres Release 10-2-0 (Barnett Shale Newsletter @ <a href="http://www.barnettshalenews.com">www.barnettshalenews.com</a> pg33	Vert.	?	450 MCF/day	“40 Ac”	@5.00/MCF	
CNX Mr. Albert Pres Release 10-2-0 (Barnett Shale Newsletter @ <a href="http://www.barnettshalenews.com">www.barnettshalenews.com</a> pg33	Horz.	1,200 MCF/day	“800,000 MCF/day”	“80 Ac”	@5.00/MCF	
Range Resources Corp (Oil and Gas Investor October 2008, p. 121)	7 Horiz.	4,900 MCF/day	300 MCF/day	“80 Ac”	@5.00/MCF	
Atlas Energy Corp Oil and Gas Journal Oct 20, 2008 p. 38 and webcast October 8, 2008	80 Vert.	?	60,000,000,000	“40 Ac”	@5.00/MCF	

\* Royalty sells for 30-78 months of income and there is a ready market.

**Table VI The State of Texas Railroad Commission's Public Monthly Well Reporting Process. Available on the Internet on Every Well in Texas**

Source: J.S. Baen, PhD, University of North Texas, 2008

- 1) Public drilling permits and information approved in 10 days or less
  - Proposed zone
  - Depths
  - Type well (vertical/ horizontal)
  - All other potential productive zones
- 2) Public completion information on every well prior to production
- 3) Monthly production figures of all oil, gas and water produced from
  - a. Operator driller
  - b. Well-site meter
  - c. Pipeline sales
  - d. Processed gas
- 4) Reports to Texas controller for collection and cross-check of taxes due and paid at well-head of 100% of products produced (valuable from royalty owners and public)
- 5) Violations by operators, fines and hearings
- 6) Permit status and monitoring of commercial and on-lease water disposal wells

**Table VII Research on Oil and Gas Companies Perceived Economic and Political Disincentives for Drilling Wells in Pennsylvania**

Source: J.S. Baen, PhD, University of North Texas, various publications

- 1) As many as ten (10) different permits and/or approvals are requested in order to drill one (1) well on private and leased land having property owners who want wells. The State of Pennsylvania seems to offer an attitude of “take it or leave it” and changes rules during the application process and the process offers no assurance at any level that there may be success:
  - a. State of Pennsylvania drilling permit
  - b. Three (3) water permits (at least one (1) costing \$45,000 to submit)
  - c. Local road use permits, approvals and/or bonding requirements at \$6,000-\$12,000 per mile
  - d. Pipeline permit and environmental impact statement in order to market natural gas
  - e. “ENS” environmental studies for one (1) pad-site
  - f. Water disposal permits and/ or planning documents
  - g. Local zoning and land use permit in towns/cities or districts
  - h. Etc, etc., (an one lack of approval at any level stops or delays wells)
  
- 2) Various regulatory bodies meet only every 90 days or quarterly.
  
- 3) Fees for any application does not seem to equate to actual cost of processing. Period fines for any violation for any reason, even “innocent” mistakes are extreme, four(4) fines were allegedly used to fund a retirement program of one (1) of the regulatory “agencies”
  - Fines quoted to date (unverified)
    - a. \$450K
    - b. \$400K
    - c. \$200K
    - d. \$150K
  
- 4) Four -eight month well permitting time. (drilling rigs lease/cost (\$26,000-32,000 per day of rig time) Delays cost \$, real \$!
  
- 5) Lack of public and verifiable oil and gas production rates due to “commercial privacy laws.” How can companies share information and how do royalty owners know they are being paid properly by any one?
  
- 6) Excessive notification in press of planned projects on private lands
  
- 7) The inconsistent cost and prices for water requirements to drill a well.\*
  - \$0.14/ 1,000 gallons
  - \$0.28/ 1,000 gallons

\$1.00/42 gallon barrel

\$15.00/42 gallon barrel

(\*Texas water is rare and water sells for 10¢= 50¢/ 42 gallons or 1 barrel

- 8) Lack of leadership, direction, and solution by state government should the citizens want to develop the wealth of their mineral resources.
- 9) Lack of educated, trained, skilled workers for the boom which could lead to slower development of the region... lake of qualified, skilled labor!
- 10) The industry's drilling rig companies are concerned that a long distance move of a rig from other areas (Texas to PA) may lead to an idle rig due to over regulation or cancelation of permits after granted.
- 11) The oil and gas companies and their investors (public stock companies) does not generally feel welcome or appreciated in Pennsylvania and Pennsylvanian's don't seem to care!

**Table VIII Dear Pennsylvania Land/Mineral Owners: Potential , Realty and Suggestions about the Marcellus Shale**

Source: J.S. Baen, PhD, University of North Texas, 2008

- 1) Most people think an oil and gas lease is primary about upfront bonus payments (ranges of \$50-2,000/acre which varies on location, thickness, competition between firms, the price of natural gas) and land owners share of royalties from wells (ranging from 12.5%-20% and seem to average 15% in PA)
- 2) Surface owner's written mutual agreement of access roads, pipeline locations, drill-site locations and negotiation of appropriate tax free deferred "damages" are imported parts of good leases. Protecting the surface estate while developing the gas resources can be done with a bit of planning that can ADD value to your lands.
- 3) Estate planning and protecting your minerals for generations in extremely important as well as reducing your estate tax liabilities. Once a well is drilled, the valuation of the cash flow can lead to an IRS 55% estate tax on the current value of the annuity/ income and force your heirs to sell your land or royalties!
  - a. Deed your mineral into a trust or Family Limit Partnership
  - b. Split the land and mineral estate into two (2) estate
  - c. Do not borrow money or sell land until your minerals have been deeded off
    - Buyer's issue and accidental sales of minerals
    - Mortgage companies can get your royalty income stream and apply them toward the loan
- 4) The world does not rotate around PA or your land! Without a friendlier more efficient and reasonable attitude and approval process by governments at all levels...state, county, townships, cities, water districts and environmental agencies... fewer to no wells will be drilled. The companies will move to the many other states having similar natural gas shales and will be welcomed with open arms.
- 5) Be prepared to pay new types of taxes if/when wells are drilled to share the wonderful wealthy gas drilling could bring forth. You want all of the community to win and to support this fabulous new potential wealth. Support your state legislature when/if they decide to assist the development of gas drilling by reducing red tape and roadblocks to drilling.

**Table IX The Pennsylvania Vital Challenge and Opportunities of Open Records/Data for Oil and Gas Well Permits, Completion and Monthly Production / Income Per Well**

Source: J.S. Baen, PhD, University of North Texas, 2008

- 1) To protect and inform the public about the true cost/benefit of gas drilling
- 2) To make oil and gas companies fully accountable to land/mineral/royalty owners on all monies paid/owed/recovered
- 3) To grow the tax base of the state and improve state and local policies for new jobs, facilities, education and future growth
- 4) To allow various oil and gas companies to share information to improve their production techniques for the public good of all stakeholders
- 5) To attract other industry to the area and perhaps make high energy user/employers locate and develop their own source of power on-site at new PA industrial parks
- 6) To better plan for pipelines processing plants, electric plants to export energy out of state
- 7) Information is vital for the business and sound government of PA

## **Table X Water Sources for Drilling and Completions: The Challenge and Opportunities of Economical Alternatives**

Source: J.S. Baen, PhD, University of North Texas, 11-19-08

### **Water Sources vs. Political Roadblocks/ Fees**

- 1) Rivers/streams
- 2) Existing lakes
- 3) New privately developed multi use lakes (water farming for money)
  - Drilling water
  - frac water
  - Recreation
  - Land/lake houses/ Lot Sales
  - Developing Fishing Lodges, etc.
- 4) Water wells paid for by
  - Oil companies
  - State
  - Private individuals/landowners
  - Public entities as a profit center
- 5) Out of state water purchases/pipeline?
- 6) Use of sanitary and storm water/"waste-water" for wells.
- 7) Recycled water theory/ long range hope

### **Transportation of water/ Cost factors/Distance**

- 1) Onsite water wells?
- 2) On site new lakes? (easier permits to build?)
- 3) Temporary surface flow lines/pipelines to/from well-sites
- 4) Gravity flow in existing stream beds from other basins?
- 5) 18 wheeler truck hauling
- 6) Out of state pipeline?

### **Current Problems Indicated**

- 1) Time delays
  - Delays in water purchases/ permits
  - Some regulatory bodies meeting only 4 times/ year (this is a 24x7 business)
- 2) Political power structure attitude tough luck –buy H2O somewhere else
- 3) Water use fines (rumors of \$250K, \$200K, \$150, etc) and use of those funds for “water board” Retirement account funding (rumor)
- 4) Lack of standard, defendable, justifiable or supportable price for water \$0.50-\$15.00/ BBI for oil companies vs. new industry, commercial or residential use

Solutions? State or federal laws/intervention for the public good, energy independence and national security of U.S.? New local or attitudes for support or deny development of the gas resources?

**Table XI Dear Pennsylvania Exhibit, The challenge and Opportunities Drilling Water and Frac Water Disposal Possibilities and/or Reuse of Water**

Source: J.S. Baen, PhD, University of North Texas, 11-19-08

The bigger the frac, the more water is used, the more gas is made over a 25 year period... direct, straight line relationship! The two cost constraints are chlorides and transportation distance/handling to treatment/disposal locations:

Alternatives for disposal of drilling/frac water, the chlorides or salt water appears to be the problem ... possible solutions:

- 1) Private or commercial or state water disposal wells in depleted or new unproductive deep wells (Texas) (land owners get \$0.50-\$1.00 per barrel for disposal fees) Very regulated and monitored by State of Texas. The correct theory is, salt water exists and came from these zones and needs to be replaced there and does no harm.
- 2) Surface Evaporative Pits with concentrated brine later handed off to commercial disposal firms (Not practical in PA due to rain, humidity and cold winters)
- 3) Treatment and dilution of frac-water to the point that it meets or exceeds water in exiting rivers. EPA, State, local standards would be met and reasonable fees paid by oil companies for the service.
- 4) Theoretical Exotic uses and treatments involved with commercial uses of large amounts of water: steel, coal, nuclear cooling plants, etc, (long-term hope pipedream)
- 5) Portable or Regional recycling facilities with tertiary treatment of waste water to higher quality than drinking water (cost constraints)
- 6) Pipelines to other states who make a business of water disposal
- 7) Pipelines to ocean or bays after all but chlorides are removed?
- 8) Inland saltwater lakes and a tourism business for striped bass, blue fish and Marlin Fishing? (Joke?)
- 9) Giant Electrolysis Systems that can handle huge quantities of water? (not practical)
- 10) No solution to problem? No development of the Marcellus.



# Valuation and tax implications of the Barnett Shale

Along with the blessings of various forms of income from the current oil and gas boom, also comes the "curses" of those pesky taxes that help keep this great country, state, counties, cities and school districts running. The only thing worse than no cash or having no direct income from the oil and gas boom, is getting lease bonus money, damages money and royalty payments...and being ignorant about your taxes that are due at the end of the year. Worse yet is not realizing that these income blessings are all taxable, if not now, eventually.



JOHN S. BAEN  
University of North Texas

I am not a CPA, not a lawyer, however, I am wise enough to know I need one of each in my life to maximize my income and honestly defer, reduce or avoid altogether my federal, state and local taxes.

The valuation of pipeline rights of ways and mineral rights, (undeveloped, leased, drilled/producing, partially developed or fully developed) is important for many reasons and the conclusions require multiple approaches to estimate their value depending on the intended use and purpose of the appraisal.

The basic over-simplified version of oil and gas associated income and tax issues are as follows:

## Bonus payments at signing of a lease:

This taxable income in the year received and is added to your other ordinary income.

**Question:** Could you defer, not sign, the lease until January? This could delay taxes until the following year.

## Well-site damages on your land

Can be claimed as ordinary IRS income or preferably treated as "damages" that reduce your basis or cost/price paid at the time you acquired the property. While still reportable, this changes the "value" of the damage payment and converts the "income" from ordinary income to capital gains (taxed at 15 percent in 2008) when and if the property is sold.

**Question:** If they drill on my homestead and there are no taxes due on the sale (zero taxes due up to \$500,000 - tax free profit) of my homestead, is it ever taxed?

## Royalty payment IRS taxes:

Yes, these payments are taxable every year by the IRS and there are few expenses or deductions to reduce or avoid paying the tax.

**Question:** How can I minimize these taxes? How you need a CPA.

• **Depletion allowance:** A small portion of the income is excluded from taxation.

• **Your annual royalty income statement:** The statement will be sent to you and the IRS at

the end of the year by the oil company but is more income than you actually received. Danger - Most oil companies send a gross income statement before legitimate expenses (you did not receive this amount of money).

**Question:** How can I reduce these taxes?

Keep every check stub, and every monthly report, which is called a "check and well/lease detail statement." Common deductible expenses include, but are not limited to, the following.

- State severance taxes
- Marketing charges (rip off to us)
- Compressor charges
- Pipeline/Transportation charges
- Other exotic charges (there are many)

## Texas State Severance Taxes:

No options here, everyone pays and your check always has this tax taken out first.

Texas is a wealthy state and has no state income taxes due to our blessings of oil and gas. A visit by the Penn State Team in my office should lead to Pennsylvania following the Texas model. They pay no severance taxes. Our Texas \$8 billion surplus is due to the following taxes collected at the well head on every drop and cubic foot of natural gas.

**Severance taxes:** Gas @ 7.5%  
Oil = 7.5 percent on every barrel produced at market value. That is \$9.75 per barrel of oil at \$130 per barrel.

4.6% Oil 4.6%  
Natural gas = 4.6 percent or 50 cents per 1,000 square feet (mcf) at \$9.

**Question:** How do I know if I am getting paid fairly or how much oil and gas is actually being sold under my land?

Trust me, you are not getting cheated and I will explain this at the seminar.

## Local ad valorem taxes and royalty:

Oil and gas rights and their values in Texas are not taxable as part of your real estate until oil and gas is produced and sold. One of the biggest little "dirty" secrets in the oil and gas boom is that you will get an end-of-the-year tax statement from the appraisal district on the present accessed/market value of your royalty income stream - just like you do on your house. A good idea is to save 5 percent to 8 percent of your monthly income to pay your city and school taxes in December. Oil companies pay their part, but never yours.

There is much confusion on this for several reasons:

- The tax offices are running months behind due to the 8,600 wells drilled in North Texas and delays in information, reporting and royalty payments held in suspension on many wells.
- Outside contracting firms handle your oil and gas valuation and tax statements from far-away places, like Austin.
- The appeal process is cumbersome, time consuming and quite often the information provided on your statement is wrong. Not all wells show up in the data, but local taxes will eventually

be due and payable or your rights can be sold on the courthouse steps.

• The Texas law and valuation model on royalty/mineral taxes is complicated, but in my opinion, friendly to the oil companies and royalty owners, and is much less than "true market value."

## Pipeline easements and damage payments:

All income is reportable to the IRS but not all income is taxable the year received if you have good representation at the time an easement is signed and also have a good professional and qualified CPA and appraiser. The actual damage income to the value of the land and remainder of your land can be deferred until the land is sold, similar to the well-site damages. I recommend two checks: one for the granting of the easement (taxable) and one for damages, marked damages.

## Estate taxes on mineral rights to the IRS:

Danger - You are likely unaware that you have a Texas lotto ticket that you have won that has an income stream from royalty that has a market value of 50 months to 60 months of income - potential mineral right values worth much more (all known and unknown oil and gas producing zones). Without estate planning at your death, the present value of your mineral estate will be values by the IRS and will be added to your estate and taxed at 35 percent to 55 percent on monies you or your heirs have not yet received. If you receive \$10,000 per month royalty checks and you are over the estate exclusion limits after considering the value of all your other assets, (house, business, cash, collectibles, stocks, bonds, etc.) your estate could easily owe an additional \$200,000 to \$300,000 to the IRS because of the value of your royalty and minerals rights.

**Question:** How can I reduce these estate taxes and liabilities, but yet still get the money to spend in my life?

• Time your death carefully. Fifty-five percent will be the new tax after Bush's tax relief expires and greatly depends on year of your death and the exclusion amounts for any given year through 2011.

• Deed your minerals to a trust or family limited partnership.

The "best" of the two options are topics of huge discussions between CPAs, estate planners, lawyers, professors and owners. Oil and gas income are blessings, but taxes will be paid. Dividing your land into two estates (surface and minerals) is a wise decision for many reasons and only requires a mineral deed (\$350 to \$500 per deed) and a valuation of both estates to establish an IRS basis or remaining values.

Baen is a professor of business at University of North Texas and offers several articles on the Barnett Shale and oil and gas topics at [www.coba.unt.edu/firell/baen](http://www.coba.unt.edu/firell/baen)

**Table XIII Warning to Pennsylvania Elderly and the Uninformed! Unscrupulous companies often send fraudulent offers that appear to be leases but are in fact the sale of mineral rights or a mineral deed at bonus level prices (\$1500+/acre).**

Source: J.S. Baen, PhD, University of North Texas, June 19, 2008.

- 1) Oil and Gas Leases are short term (3-5 years) agreements that pay upfront signing/bonus payments
- 2) Mineral deeds are the out-right sale of 100% of all mineral rights forever
- 3) Royalty deeds are the sale of existing future oil and gas wells

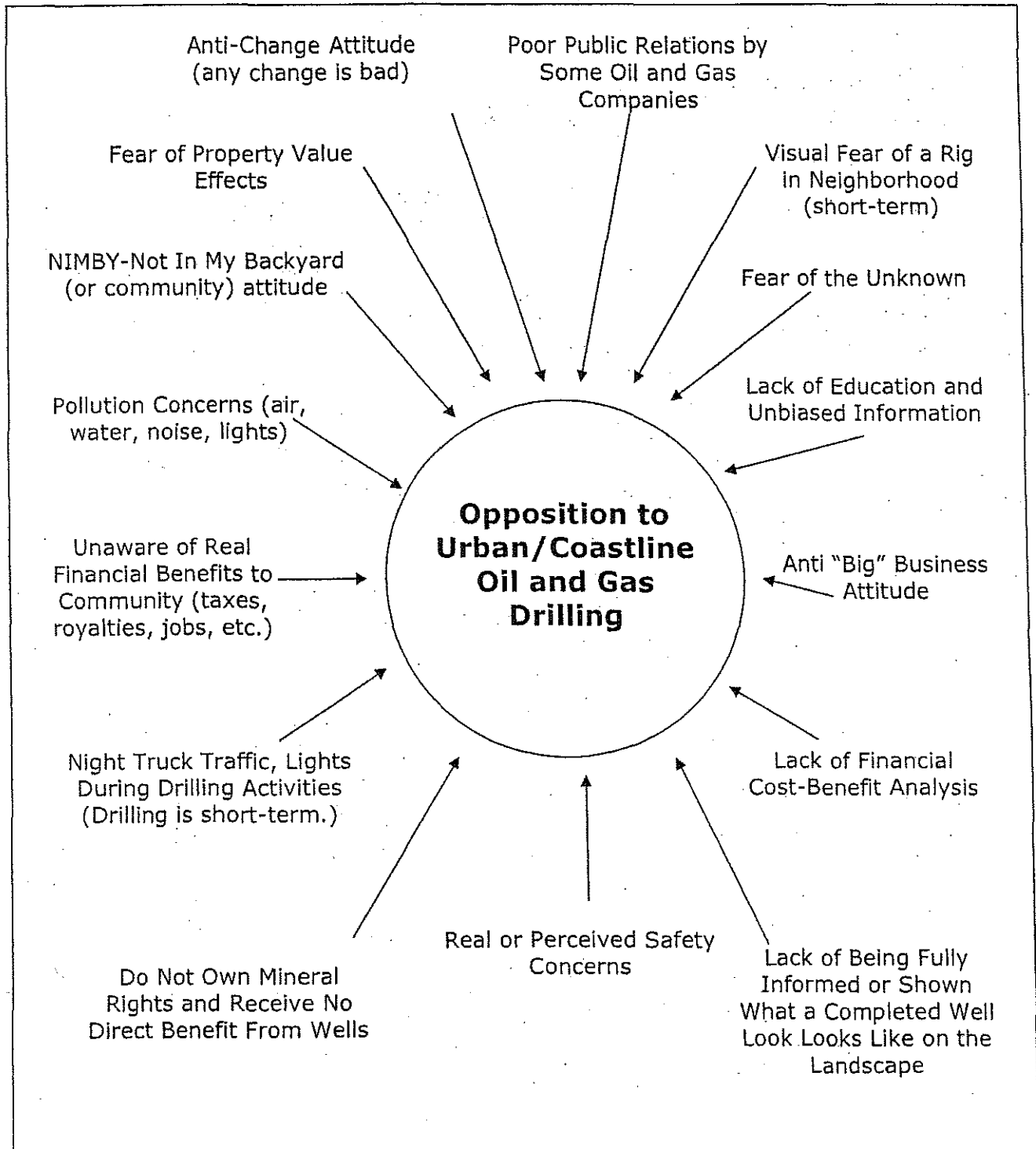
While there are many honest companies that buy producing monthly royalty income from individuals (30-40 month income). There are also a lot of crooks.

Suggestion: Public services ads should be offered:

**WARNING TO CITIZENS OF PENNSYLVANIA** from the Attorney General's Office. Do not sign a mineral or warranty deed thinking it is an oil and gas lease. Consult your attorney or knowledgeable person before signing any legal document. Know what you are signing.

# Figure 1: Why Some U.S. Citizens and Cities Oppose Oil and Gas Drilling In the DFW Barnett Shale Gas Field of North Texas

By John S. Baen, Ph.D., College of Business Administration, University of North Texas



## Pennsylvania Towns Appealing Court Decision Prohibiting Gas Drilling Ordinances

The *Pike County Courier* reports several advocacy groups have filed briefs with the Pennsylvania Supreme Court in support of two townships which have filed appeals with the court. The municipalities are asking the high court to overturn lower court rulings which prohibit municipalities from establishing local gas drilling ordinances. The *Courier* reports the Supreme Court is considering the extent to which Pennsylvania's Oil and Gas Act preempts local ordinances to regulate gas drilling.

The *Courier* reports the townships want to have the ability to regulate aspects

## **MARCELLUS SHALE NEWS**

### New York Town Imposes 6-Month Moratorium on Gas Drilling

The Oneonta *Daily Star* reports the town of New Lisbon, NY has adopted a six-month moratorium on natural gas drilling. Writer Tom Grace reports town officials

### Treatment Plant Proposed in Pennsylvania for Marcellus Wastewater

The Towanda *Daily Review* reports several companies have expressed interest in constructing a small treatment plant in Bradford County, Pennsylvania to process wastewater from Marcellus Shale natural gas drilling operations. Writer James Loewenstein reports the proposed plant is being discussed by companies and local officials.

Two options are being considered for the plant, Loewenstein reported. The first involves treating the wastewater entirely at the plant and then discharging the treated water into the Susquehanna River. The second option would be to "pre-treat" the water at the proposed plant and then pipe it via the sewer main to the Towanda Municipal Authority's existing sewage treatment plant. The water would be treated further at the sewage treatment plant before being discharged into the river, Loewenstein reported.

Officials told Loewenstein that the small treatment plants which have been proposed can remove most all of the contaminants other than salt. Loewenstein reported the Towanda sewage treatment plant cannot remove salt either and officials of the state Department of Environmental Protection and the Susquehanna River Basin Commission are concerned about wastewater with a high salinity content being discharged into the Susquehanna River.

Loewenstein reported de-salination equipment could be incorporated into the wastewater treatment plant, but is considerably expensive to construct.

POWELL BARNETT SHALE NEWSLETTER [www.barnettshalenews.com](http://www.barnettshalenews.com) - ISSUE OF OCTOBER 27, 2008 34 of 46

While the Pennsylvania Oil and Gas Association opposes any tax on natural gas, Levy reported lawmakers are trying to find a way for the state to reap the benefits of natural gas drilling and raise badly needed revenue while trying to not to drive energy companies out of doing business in Pennsylvania.

Related Article: Philadelphia Inquirer 10/25/2008 Pa. considers adding natural gas to the tax rolls by Marc Levy

## **SRBC Officials: River Basin Has Enough Water for Marcellus Shale Operations**

The Wilkes-Barre *Times Leader* reports officials of the Susquehanna River Basin Commission stated at a public hearing that the river basin has enough water to

## **Officials Considering Selling Treated Effluent to Energy Companies**

The *Press & Sun-Bulletin* reports sewage treatment officials in New York State are considering selling treated effluent from their treatment plants to energy companies for use in natural gas drilling in the Marcellus Shale. Writer Tom Wilber reports selling the effluent could provide a financial boost to cash strapped sewage treatment plants.

Wilber reported the board of the **Binghamton-Johnson City Joint Sewage Treatment Facility** is asking the state Department of Environmental Conservation to **Court Rules TRWD's Lawsuit Against Oklahoma** water from the plant.

The *Fort Worth Star-Telegram* reports the Tarrant Regional Water District has won a legal round against the state of Oklahoma in a lawsuit which challenges the state of Oklahoma's moratorium on out-of-state water sales. Writer

## **Group Releases Report Alleging Gas Drilling Threatens New York City's Water Supply**

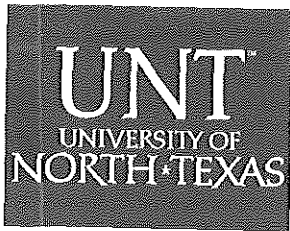
A report released July 22 claims that natural gas drilling in the Marcellus Shale poses a threat to New York City's water supply, according to the website *Water Technology Online*. *Water Tech* reported that a group called ProPublica, "which describes itself as an independent nonprofit organization in the public interest" and New York City

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Wilber reported the board of the **Binghamton-Johnson City Joint Sewage Treatment Facility** is asking the state Department of Environmental Conservation to how much they should be allowed to draw. streamline its permitting process more efficient and effective for Marcellus Shale operations.

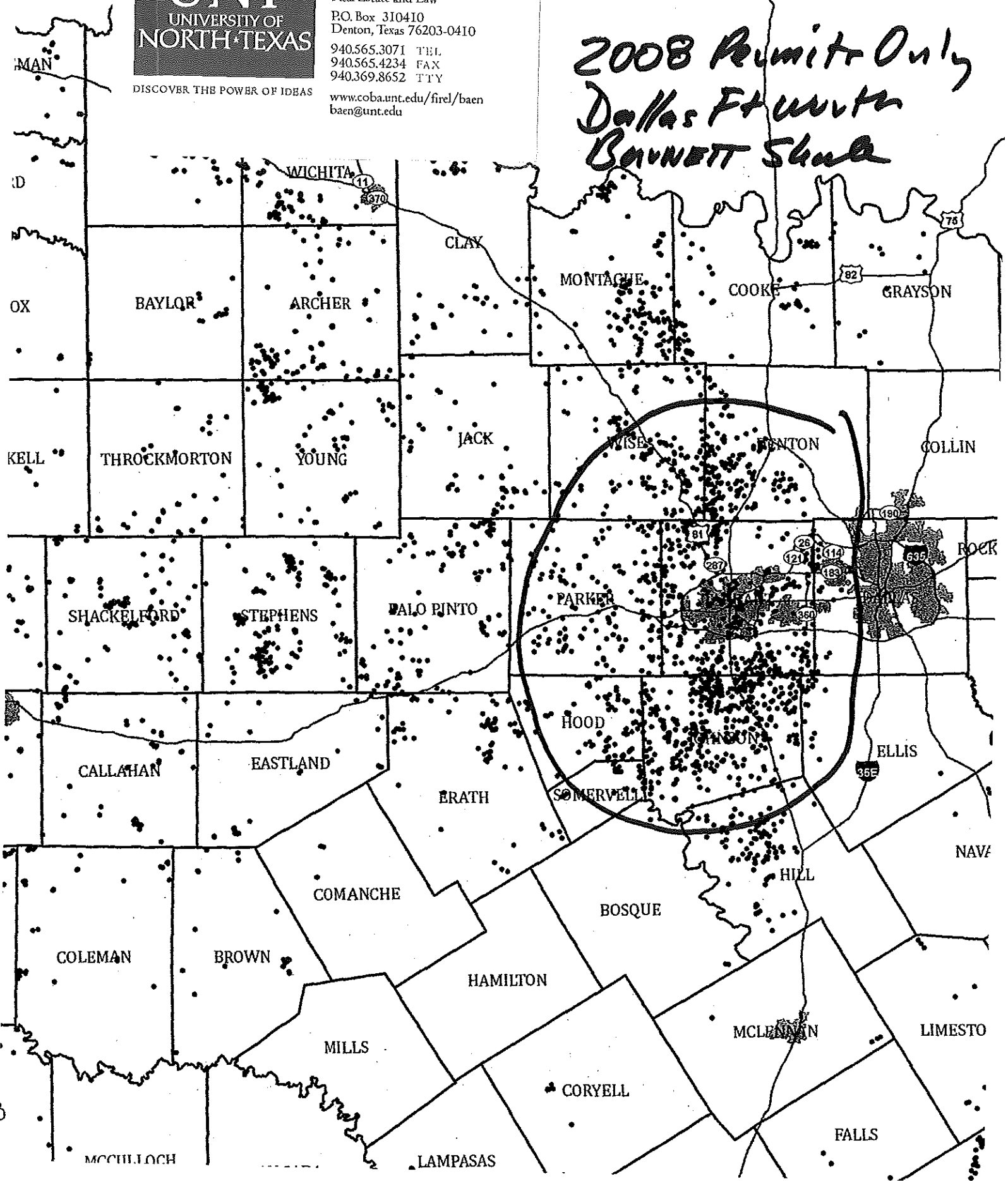
Related Article: *Press & Sun-Bulletin* 10/21/2008 *Sewage plant could benefit from natural gas rush* by Tom Wilber  
<http://www.pressconnects.com/article/20081021/NEWS01/810200356>

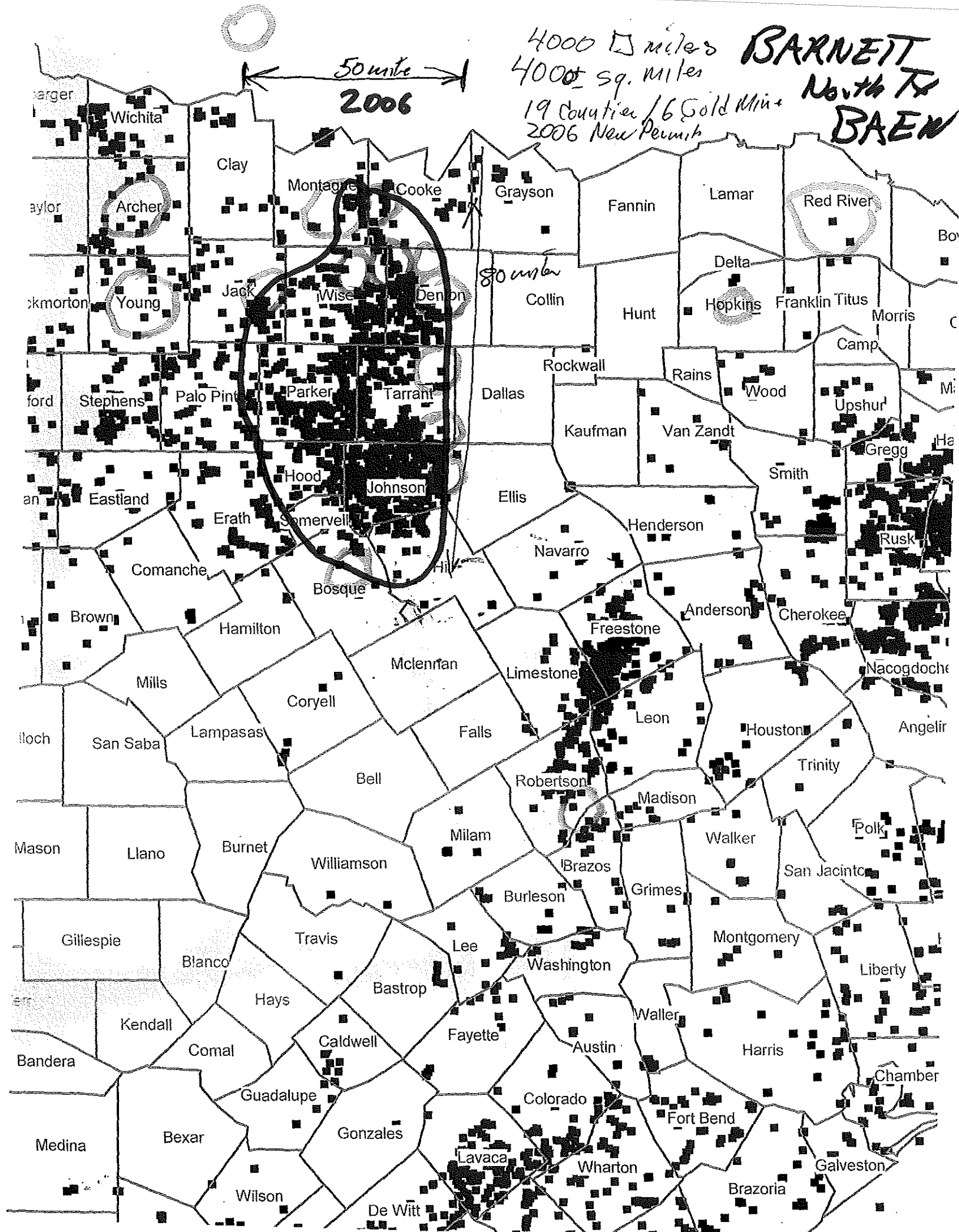


DISCOVER THE POWER OF IDEAS

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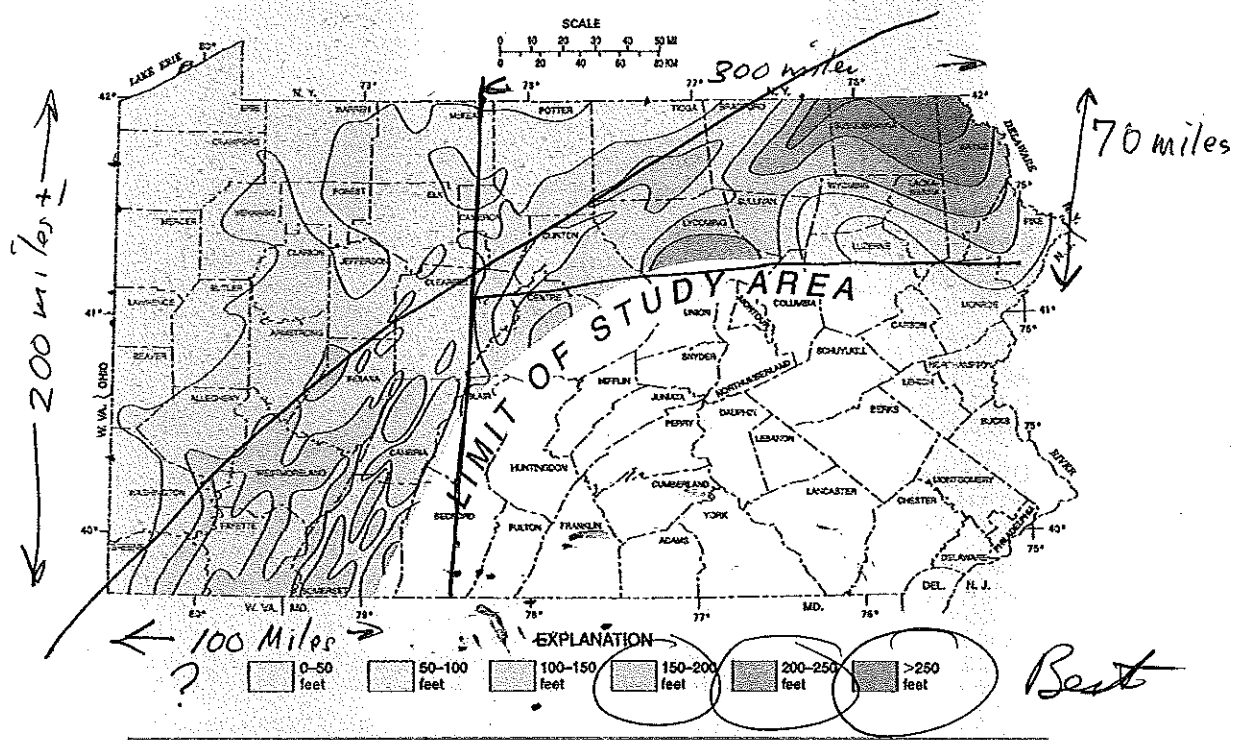




**NET FEET OF ORGANIC-RICH SHALE IN THE MARCELLUS FORMATION**

(Modified from Piotrowski and Harper, 1979, Plate 4)  
(See article on page 2.)

PA.  
Spring 2008  
41,000  $\square$  miles?



Bureau of Topographic and Geologic Survey  
Department of Conservation and Natural Resources  
3240 Schoolhouse Road  
Middletown, PA 17057-3534

Presorted Standard  
U.S. Postage  
Paid  
Harrisburg, PA  
Permit No. 747

Address Service Requested

$$\begin{aligned}
 &70 \text{ miles} \times 300 \text{ miles} = 21,000 \text{ } \square \text{ miles} = 13,440,000 \text{ Ac.} \\
 &100 \times 200 = 20,000 \text{ } \square \text{ miles} = 12,800,000 \text{ Ac.} \\
 &\hline
 &41,000 \text{ } \square \text{ miles} = 26,240,000 \text{ Ac.}
 \end{aligned}$$

- ± 1) Marcellus
- 2) Plus Other ZONES Found ↓





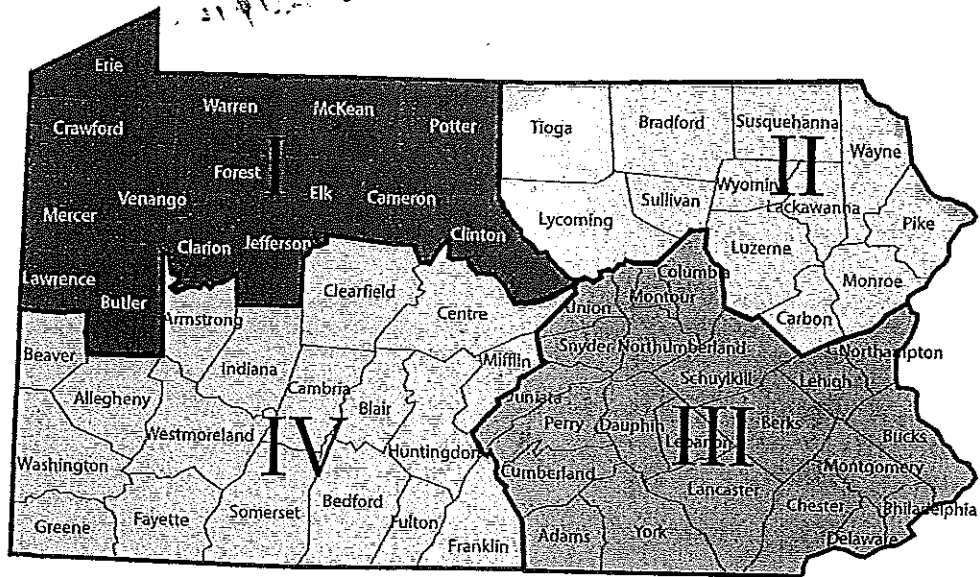
Company	Rating	Well	Spud Date	County	API Number
Cabot Oil & Gas	Buy	Teel 5	5/17/2008	Susquehanna	115-20024
		Teel 7	5/6/2008	Susquehanna	115-20023
		Ely 6h	4/18/2008	Susquehanna	115-20041
		Teel 2	2/21/2008	Susquehanna	115-20010
Dominion	Hold	Ba Griffin N2015s	4/21/2008	Tioga	117-20194
		Wh Haupt Co N2010s	4/10/2008	Tioga	117-20189
		Mark Roberts N2014s	4/8/2008	Tioga	117-20193
		Jl Trimmer N2011s	4/2/2008	Tioga	117-20190
EOG Resources	Buy	Olsyn 2	4/15/2008	Bradford	015-20075
		Olsyn 1	4/1/2008	Bradford	015-20076
		Houseknecht 2h	3/10/2008	Bradford	015-20080
Range Resources	Buy	Ogontz Fishing Club 3h	3/20/2008	Lycoming	081-20067
		McWilliams Unit 1h	2/20/2008	Lycoming	081-20063
Southwestern	NC	Price 1	4/3/2008	Susquehanna	115-20031
		Greenzweig 1	2/21/2008	Bradford	015-20081
Stone Energy Corp	NC	Matoushek 1	5/5/2008	Wayne	127-20006
Ultra Resources Inc	Buy	Marshlands H Bergey Unit 1	5/5/2008	Tioga	117-20199

II

AX

many more!

Exhibit 47: Quadrant Map of Pennsylvania



Source: Jefferies & Company, Inc.

Phone Discussion /  
with permission  
via Jefferies + Co Mr. Stephen Beck  
11-14-08.

Quadrant IV

Company	Symbol	Well	Spud Date	County	API Number
Atlas Energy Resources	ATN	Keslar 9	4/22/2008	Fayette	051-23961
		Richter 1	4/17/2008	Fayette	051-23819
		Prah 2	4/13/2008	Fayette	051-23960
		Richter 2	4/8/2008	Fayette	051-23820
		Fair 1	4/7/2008	Fayette	051-23948
		Fugozotto 2	4/6/2008	Fayette	051-23642
		Richter 3	4/6/2008	Fayette	051-23831
		Ferens 5	4/5/2008	Fayette	051-23916
		Szuhay 5	4/5/2008	Fayette	051-23926
		Vidovich 2	4/3/2008	Fayette	051-23947
		Hustosky 6	3/28/2008	Fayette	051-23837
		Ferens 9	3/28/2008	Fayette	051-23886
		Hustosky 5	3/26/2008	Fayette	051-23836
		Bertovich 16	3/26/2008	Fayette	051-23931
		Nine 4	3/25/2008	Fayette	051-23861
		Thompson 35	3/19/2008	Fayette	051-23749
		Honsaker 3	3/19/2008	Fayette	051-23889
		Vidovich 1	3/18/2008	Fayette	051-23921
		Thompson 31	3/14/2008	Fayette	051-23745

IV  
 + Many More Companies  
 + Many More

**ONLY Public Data**

Range Resources	RRC	Well	Spud Date	County	API Number
		Gulf Usa (Tkl) 2h	4/15/2008	Centre	027-21454
		Shearer Ronald Unit 7	3/27/2008	Fayette	051-23648
		Cox Unit 6	2/14/2008	Greene	059-24589
		Howard 9h	1/7/2008	Greene	059-24562
		Cox Unit 6	1/7/2008	Greene	059-24589
		Bedillion-Day Unit 2h	5/16/2008	Washington	125-23153
		Dunn John Unit 1h	5/5/2008	Washington	125-23008
		Miller J Ohn Unit 1h	5/5/2008	Washington	125-23098
		Johnston Charles Unit 9h	4/8/2008	Washington	125-23041
		Hoskins June Unit 2h	4/5/2008	Washington	125-23032
		Dunn John 2	4/5/2008	Washington	125-23130
		Johnston Charles Unit 8h	3/26/2008	Washington	125-23040
		Paxton Isaac 6	3/10/2008	Washington	125-23056
		Paxton Isaac Unit 5h	3/3/2008	Washington	125-22897
		Zappl Constance Unit 2h	3/3/2008	Washington	125-23048
		Paxton Isaac Unit 7	2/21/2008	Washington	125-22899
		Cowden Unit 1h	2/19/2008	Washington	125-23023
		Little Unit 1h	2/18/2008	Washington	125-23008
		Dunn Clingerman Unit 1	2/2/2008	Washington	125-22720
		Abramson 845-3	3/17/2008	Westmoreland	129-26980
		Allegra 1801-9	3/10/2008	Westmoreland	129-26904
		Suter Robert 1844-3	3/3/2008	Westmoreland	129-26853
		Halwakx Unit 4	2/9/2008	Westmoreland	129-26688
		Halwakx Unit 5	2/8/2008	Westmoreland	129-27202

IV  
 + Many More Companies

Source: Pennsylvania DEP.

Oct 27, 2008

US ONSHORE AND OFFSHORE DRILLING ACTIVITY

Table 3

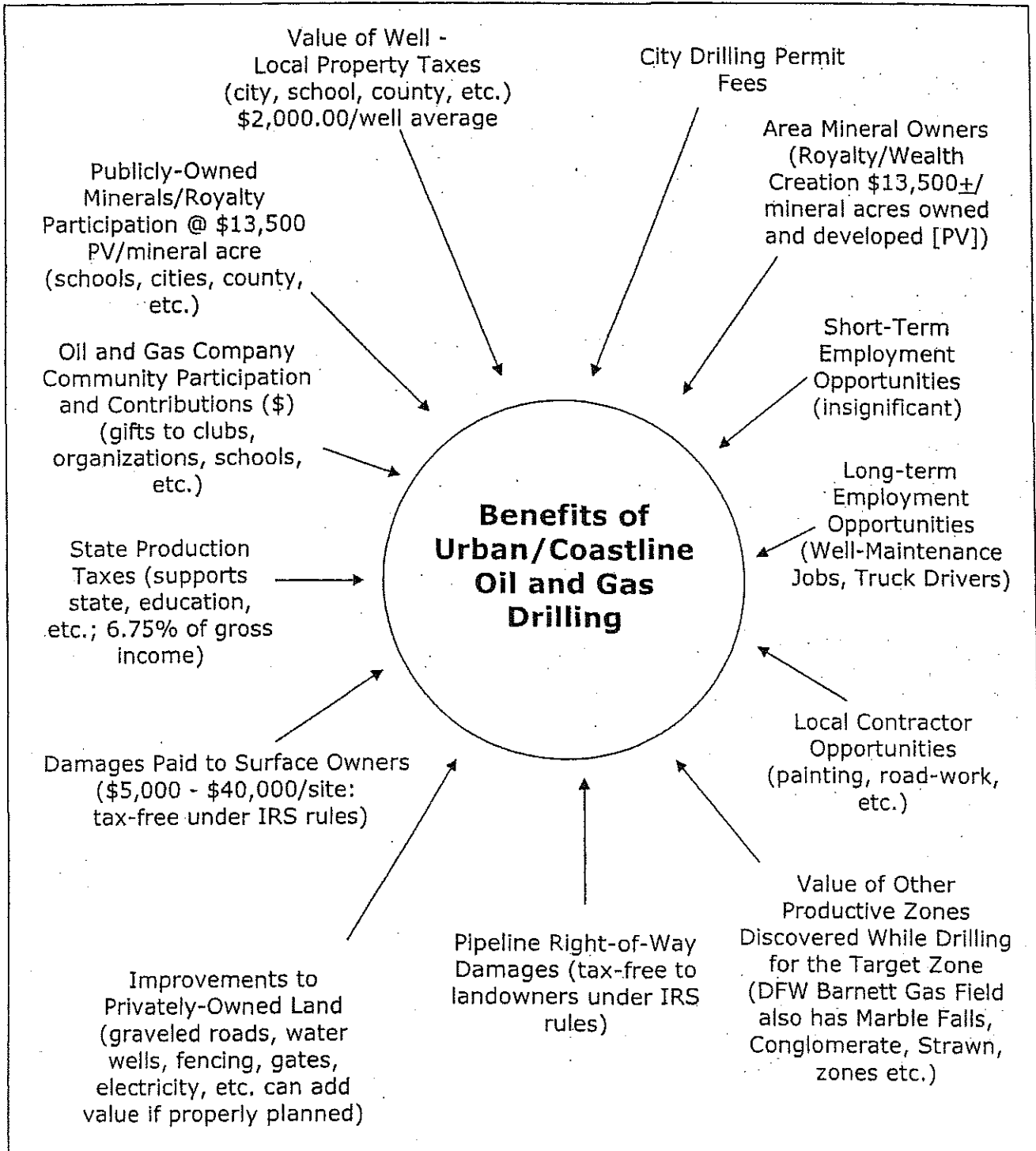
State, district	Baker Hughes's rig count				RigData's working rigs				Waiting to spud
	— 4-week avg. —		— Week, as of —		— 4-week avg. —		— Week, as of —		
	2007	2008	9/14/08	9/21/08	2007	2008	9/14/08	9/21/08	
Alabama	4	5	4	4	4	4	4	3	1
Offshore	1	1	1	1	—	—	—	—	—
<b>Total</b>	<b>5</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>1</b>
Alaska	5	8	8	8	12	14	15	15	1
Offshore	—	3	3	3	—	2	2	2	—
<b>Total</b>	<b>5</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>12</b>	<b>16</b>	<b>17</b>	<b>17</b>	<b>—</b>
Arkansas	49	59	59	59	52	67	66	64	4
California	34	47	46	46	39	43	42	40	1
Offshore	2	1	1	1	—	—	—	—	—
<b>Total</b>	<b>36</b>	<b>48</b>	<b>47</b>	<b>47</b>	<b>39</b>	<b>43</b>	<b>42</b>	<b>40</b>	<b>—</b>
Colorado	116	115	116	109	117	130	129	126	4
Florida	—	1	1	1	—	1	1	1	—
Offshore	1	2	2	2	—	—	—	—	—
<b>Total</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>—</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>—</b>
Illinois	1	—	—	1	7	10	10	11	—
Indiana	2	2	2	2	4	2	1	2	—
Kansas	14	11	10	12	50	59	55	59	4
Kentucky	11	12	12	12	11	14	13	17	—
Louisiana									
North, land	62	85	89	85	71	105	102	108	3
South, land	25	26	25	26	42	36	36	34	5
Offshore	56	55	56	51	46	59	61	58	4
Inland waters	25	19	21	14	39	36	37	35	—
<b>Total</b>	<b>168</b>	<b>185</b>	<b>191</b>	<b>176</b>	<b>198</b>	<b>236</b>	<b>236</b>	<b>235</b>	<b>12</b>
Michigan	2	2	2	2	11	11	10	10	—
Mississippi	11	16	17	16	24	20	19	19	1
Montana	13	11	10	10	18	14	15	11	2
Nebraska	—	—	—	—	5	1	—	1	—
Nevada	3	3	3	4	2	1	1	1	—
New Mexico	74	91	91	91	67	93	95	93	—
New York	6	7	7	8	6	9	9	8	*
North Dakota	43	74	73	75	44	88	85	88	4
Ohio	14	10	10	10	12	14	14	14	—
Oklahoma	195	212	211	202	218	246	240	244	12
Oregon	—	—	—	1	—	—	—	—	—
Pennsylvania	16	27	27	27	43	59	63	61	*
South Dakota	2	2	2	2	2	2	1	1	—
Tennessee	5	2	2	2	4	2	1	1	1
Texas	168	—	—	—	—	—	—	—	—
District 1	26	27	27	25	27	28	30	28	3
2	33	36	35	38	42	42	44	44	—
3	56	62	59	61	63	77	76	79	10
4	86	91	93	87	93	98	99	100	12
5	186	187	185	189	186	188	186	186	13
6	122	132	135	141	128	146	148	146	9
7b	37	31	29	30	51	50	46	51	4
7c	59	71	71	69	62	73	69	69	3
8	110	132	130	129	126	150	149	149	9
8a	19	27	29	26	24	32	30	32	4
9	37	42	43	44	44	57	56	58	1
10	60	99	100	100	70	96	96	94	3
Inland waters	1	1	—	—	2	4	4	4	—
Offshore	6	11	11	11	10	13	12	13	—
<b>Total</b>	<b>831</b>	<b>937</b>	<b>936</b>	<b>939</b>	<b>916</b>	<b>1037</b>	<b>1029</b>	<b>1036</b>	<b>71</b>
Utah	42	45	42	43	53	61	62	61	2
Virginia	3	6	6	6	3	4	4	4	—
Washington	1	1	1	1	1	1	1	1	—
West Virginia	33	28	28	28	33	35	33	33	1
Wyoming	78	80	83	80	135	146	142	148	2
US deep water	—	—	—	—	37	42	43	41	1
<b>Total</b>	<b>1,787</b>	<b>2,018</b>	<b>2,018</b>	<b>1,995</b>	<b>2,140</b>	<b>2,483</b>	<b>2,457</b>	<b>2,468</b>	<b>124</b>

Source: RigData; a summary of data presented in the Sept. 26, 2008 edition of "LOCATION & OPERATORS" report

NY  
PA.

## Figure 2: Quantifiable Financial Benefits of DFW Barnett Shale Oil and Gas Drilling in North Texas

By John S. Baen, Ph.D., College of Business Administration, University of North Texas



IN MY OPINION

## THE BUBBLE BURSTS, AND THE BIG BONUSES VANISH

Another bubble has popped, much closer to home, and big signing bonuses are over.

If Alan Greenspan is losing faith in self-correcting markets, he might take a look at the Barnett Shale bonus play. It's an example of how prices can overheat and create a bubble, only to quickly deflate.

The giant natural gas field beneath North Texas will be pumping money into the area for decades, so it will remain a key part of the local economy. But we can already start talking about the good old days, as in the time when Tarrant County homeowners sold their mineral rights for a bonus of \$32,500 an acre.

That's where prices topped out last month for presidents of



MITCHELL SCHNURMAN  
mschnurman@star-telegram.com

Marine Creek Estates, and don't be surprised if that number eventually looks like 5000 on the Nasdaq.

The technology stock index hit that peak in early 2000, before the dot-com bubble burst. The Nasdaq soon plunged and

More on SCHNURMAN on 2E

COMING TOMORROW



Hanna Truong at Saigon Taipei in Arlington. BY BRUCE MAXWELL

### Freshness, unique items key to Asian supermarket's success

The fresh seafood and unusual produce at the Saigon Taipei grocery stores have been a draw for Asian shoppers for several years in Arlington, Haltom City and Garland. But now, with the move of the Arlington grocery into a new, expanded facility, owners are trying to use their fresh selection and low prices to reach other shoppers as well. Staff writer Andrea Jares reports

### Keep track of spending

Little things can add up. Small regular expenditures on grande mocha lattes or DVD rentals can cost you \$50 to \$100 a month. And failing to read the fine print of credit-card contracts and mortgage documents can cost the unwary consumer thousands of dollars. Kathy Kristof, 4E

### Informing your children

Don't try to explain "inflation," "commercial paper" or "credit swaps." Instead, spell out how the economy is affecting the family in as concrete a fashion as your child's age and maturity allow. 4E

CAREERS

## A primer on hot jobs in a cool economy

While thousands of workers in some industries are receiving pink slips, others in engineering, accounting, nursing, pharmacy and railroads are finding an eager market for their talents. There can be a downside to some currently hot jobs, ranging from boredom to long stretches away from home. But the pay can be phenomenal. 11E

CHARLES JAFFE

## Closed-end funds open up for bargains

# Schnurman: Bonuses, when offered, have reportedly fallen to \$5,000 an acre or less

never approached the price again. Today, it's fighting to reach 1600.

In the past two weeks, bonus offers in the Barnett have reportedly fallen to \$5,000 an acre, an 84 percent drop from last month's peak. And that's primarily for important fill-in pieces.

Most producers have stopped bidding at all for Barnett leases unless they're crucial to an existing play.

"The party's over for now," says John Baen, a real estate professor at the University of North Texas who tracks mineral rights closely. "Commodity trends move in waves, but I don't think we'll ever see bonuses get that high again. It was insanity."

As in any bubble, several factors combined to drive up local signing bonuses. The Barnett surge followed a global rise in commodities and a sharp increase in natural gas prices. Production volumes have been strong here and very predictable, making the drilling rights more valuable.

Perhaps most important, Fort Worth became the site of a heated competition that was part business, part personal. Several producers got into the action, but the heavyweight matchup was between Chesapeake Energy and XTO, and their high-profile CEOs.

The executives have a well-

known rivalry, and they created a land rush in an attempt to lock up Fort Worth's urban drilling.

At the time, both companies had rising stock prices and access to easy credit. That justified a big buildup in leases, bonuses and drilling.

Today, the climate couldn't be more different, with tight credit for every business, falling demand for commodities and declining asset values.

Those who missed out on the run-up are likely to bide their time, waiting for natural gas prices to rise again and hoping that producers will once more fight over their minerals. As with the stock market, it doesn't make sense for homeowners to sell in a panic, but they should scale back their expectations.

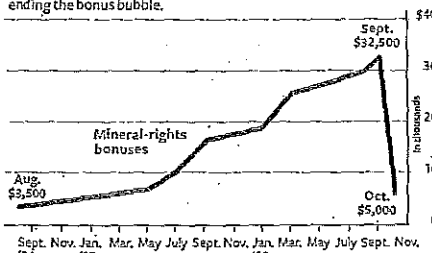
In hindsight, the Barnett Shale bonuses look like a one-time spike, and Baen says that producers aren't likely to repeat the over-the-top bidding. About half the property owners in Tarrant County have signed leases. Some areas never got an offer, but others held out and missed a chance to cash in.

"They may be angry for the rest of their lives, because this was the Lotto ticket they didn't scratch," Baen said.

Chart the rise and fall of signing bonuses for local homeowners, and they track

### Bye-bye bonus bubble

Signing bonuses for Barnett Shale mineral rights surged in Tarrant County, as natural gas prices rose. Now, both have fallen sharply, ending the bonus bubble.



the price of natural gas. The pattern also resembles the stock-price movement for Chesapeake and XTO, which until recently had been Wall Street darlings.

For most of the past few years, natural gas prices bounced around \$7-\$8 per thousand cubic feet and started climbing sharply in early 2008. On July 4, the price for gas futures in the 12-month strip hit a peak of \$13.34.

Within a month, prices had fallen sharply and were below \$8 by mid-September. On Friday, 12-month gas futures were selling for \$6.81, a 52-week low.

Signing bonuses in Tarrant County began to rise about six months earlier than natural gas prices, as if in anticipation. And they stayed high a few months longer, probably because producers didn't realize how the economic crisis would affect almost every business.

Three years ago, homeowners were getting signing bonuses of about \$3,000 an acre, considered a standard rate. In

August 2006, Dallas/Fort Worth Airport signed for \$10,000 an acre, and officials said it was like striking gold. But homeowners weren't getting much more.

A year later, XTO paid \$10,000 to a Tanglewood residential neighborhood. By March 2008, just eight months later, the \$25,000 bonus became the new urban standard.

Bonuses rose more slowly through the summer, peaking at \$32,500 at Marine Creek Estates in September. By then, natural gas prices had returned to their pre-boom level, and the credit crunch was dominating the news.

What could drive up bonuses again? It has to start with a rise in natural gas prices.

A recession is likely to dampen demand, while production has been growing. Production in the continental U.S. was flat for nine years, ending in 2006, according to the Energy Information Administration.

But last year, natural gas production grew 3 percent, and then it surged almost 9 percent through the first seven months of 2008.

New technology made it

possible to unlock the gas buried in the Barnett and other shale fields, and further advances may improve volume or lower costs. That might drive up lease prices.

Some homes are strategically located near other activity, and that would make their rights more valuable, too.

But in general, Baen says homeowners should change their focus and put less emphasis on the bonus — and more on getting the gas pumping. The royalties they receive over many years will typically dwarf the value of the bonus.

He recently signed a deal for 40 acres in Young County on the outer edge of the Barnett, and agreed to a bonus of just \$100 an acre. He says he's thrilled at the prospect of just having the land drilled and collecting some royalties.

"It's all about getting out that gravel train and getting the cash flowing," he said.

Homeowners in Tarrant County can still play harder to get. But not like a few months ago.

MITCHELL SCHNURMAN'S COLUMN APPEARS SUNDAYS AND WEDNESDAYS. 817-390-7821.

BAEN  
UNT

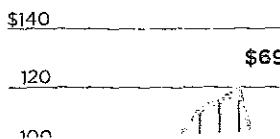
DILBERT | BY SCOTT ADAMS



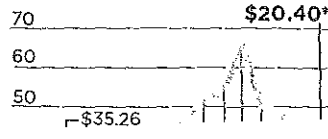
## Barnett Shale operators

Devon Energy is the largest producer in the Barnett Shale, and Chesapeake Energy is second. Below are the end-of-month share prices.

DEVON ENERGY



CHESAPEAKE ENERGY



natural gas, they have less money to spend on new drilling.

If natural gas prices drop further, the market could hit levels that make new wells uneconomical.

Each Barnett Shale company has a different threshold.

For those that drill in urban areas or where the shale is thin

by another set of data: rig count.

The number of rigs drilling wells in North Texas has been stable for months, around 255 rigs, according to data from oil-field services company Baker Hughes.

But producers must add rigs all the time to keep production

Land - Producing? Leased?  
Not Leased?

Speculative Value or Real - Real Estate Value  
Comp Sales of Land with/without Minerals etc

Luzerne County, Pennsylvania Value Quest  
**REASSESSMENT TAXPAYER GUIDE**

**I just received my new assessment notice.  
Now what do I do?**

**Why was the reassessment needed?**

Real estate taxes are calculated for each property, based upon the appraised *Fair Market Value* at a given point in time (base-year). This base-year is used for assessments each year or until a new base-year is established by another countywide reassessment. Ideally, a county should reassess all properties every three or four years. However, the typical period between reassessments in Pennsylvania is 20 to 25 years. A countywide reassessment should not be confused with a periodic change in individual assessments due to changes to the property (e.g., room addition).

The current state-published score for fairness (uniformity) of Luzerne County's tax base is 41 percent. A perfect score is zero percent; an excellent score would be 10 percent or less. The reassessment will improve uniformity to within 10 percent.

These statistics simply mean that, of all of the taxpayers paying more than their fair share, and of those paying less than their fair share, they are averaging more than 41 cents on the dollar too much or too little (41 percent error). Remember - this is only an average error and not the extreme. Some people are paying only 20 percent of their fair share, while others are paying more than four times their fair share.

**How was the reassessment conducted?**

- A. Properties are visited to obtain accurate descriptions of property characteristics.
- B. Real estate sales are studied to develop formulas for estimating *Fair Market Value* for each property.
- C. Final values are determined after consideration of all

Complete

Please explain the *Clean and Green* program and eligibility requirements.

*Clean and Green - Pennsylvania Farmland and Forest Land Assessment Act, Act 319* (amended by Act 156 of 1998 and by Act 235 of 2004) is a state law, authorized by the state constitution, that allows qualifying land which is devoted to agricultural and forest land use, to be assessed at a value for that use rather than *Fair Market Value*. The intent of the program is to encourage property owners to retain their land in agricultural, open space, or forest land use, by providing some real estate tax relief.

① Exclude Mineral Use as Non-Taxable except as Fair

Green values  
property owners should present their

② Include Sep. Category for Producing Minerals PD Income BAEW

property owners a of Assessment  
number?  
notices:  
using a staggered

- A. Market values in the year of a reassessment must be at 100 percent of true market value, and
- B. There must be uniformity among all properties of like characteristics and of like value.

- Mai
- Ch
- sch

When this is achieved, each property owner will be paying his/her fair and proper share of the tax burden.

- Informal reviews:  
You have 40 days from the date on your *change of assessment* notice to call and schedule an appointment for an informal review of your property value.

The problem with the real estate tax system is that property values change over time; therefore, assessments cease to reflect real market values. Since the real estate tax is an "at value" tax, the fairness of the tax changes as the real estate market changes. These changes vary between property types, geographic areas, and other factors.

- Formal hearings - Board of Assessment:  
You have 40 days from the date on your *change of assessment* notice to file a formal appeal to the Board of Assessment Appeals.

Luzerne County's last reassessment was in 1965. These 1965 base-year values have already deteriorated to the point where lack of uniformity is evident, and the current assessments are resulting in taxpayers paying more or less than their fair share of the tax burden.

Based on state-published figures (the Common-Level Ratio), Luzerne County's 1965 base-year assessed values are five percent (5%) of today's true market value. A perfect figure would be 100 percent of today's true market value. The reassessment will improve this figure to between 98 and 102 percent.

You may file an appeal by letter, stating the date, parcel number, and your address; however, you must complete an official appeal form and pay any applicable fees before a hearing will be scheduled.

All formal appeals at the county level must be heard before the Board of Assessment Appeals by October 31, 2008. The county has appointed several supplemental appeal boards to hear appeals.

the State of Texas or the State of New Mexico and those states do not have any authority or jurisdiction, and no action is required by them, over the monies once they are refunded to the Direct Taxpayers (as defined herein).

52. Venue is proper in the Eastern District of Texas pursuant to 28 U.S.C. § 1391 because one or more of the defendants reside in the Eastern District of Texas and/or a substantial part of the events or omissions giving rise to the claims occurred in, or a substantial part of the property that is the subject of this action is situated in, the Eastern District of Texas.

### **Background**

#### Natural Gas and Crude Oil Severance Taxes

53. Every year hundreds of millions of dollars in natural gas and crude oil production severance taxes are paid to the Texas Comptroller. The standard severance tax for natural gas is 7.5%, and for crude oil 4.6%, of the market value of the hydrocarbons produced. See TEX. TAX CODE §§ 201.052, 202.052.

54. All mineral interest owners, including royalty owners, bear their proportionate share of severance taxes. See TEX. TAX CODE §§ 201.205, 202.156. The producers or first purchasers of natural gas and crude oil are required to withhold from any payment due to "interested parties" their proportionate amount of tax due. *Id.* As a consequence, practically all severance taxes are paid by producers or first purchasers on behalf of other interested parties, including royalty owners. The taxpayers remitting severance taxes on behalf of other interested parties shall sometimes be referred to herein as "Direct Taxpayer(s)." The other

# The New York Times

UNDER Pressure *Cities  
Township  
State*

THE NEW YORK TIMES NATIONAL FRIDAY, NOVEMBER 7, 2008

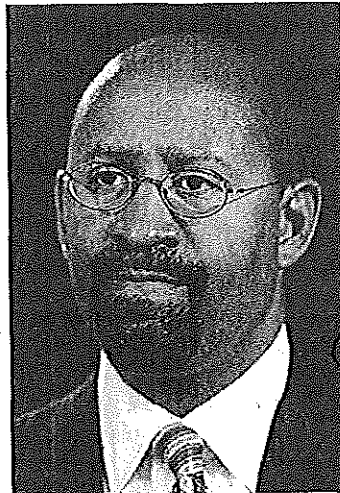
## Philadelphia Makes Big Cuts To Help Close a Budget Gap

By JON HURDLE

PHILADELPHIA — Mayor Michael Nutter said Thursday that he would close 11 libraries, eliminate hundreds of jobs and take a 10 percent pay cut to help plug a \$108 million budget gap caused by the national economic downturn.

The city, which employs about 23,000 people, will lay off about 220 workers and eliminate almost 600 unfilled positions while cutting 1,660 seasonal part-time jobs and 570 contractual jobs, Mayor Nutter said.

In addition, the city will close 62 swimming pools and it will have to shutter three ice rinks.



MATT ROURKE/ASSOCIATED PRESS

Mayor Michael Nutter will take a 10 percent pay cut.

less private funds can be found to keep them open, officials said. Planned tax cuts will be deferred until 2015, and the planned hiring of 200 extra police officers will be canceled.

On Tuesday, Mayor Michael R. Bloomberg of New York said that city would have to eliminate 3,000 positions to help fill a \$4 billion budget gap over the next two years.

In addition to cutting his \$185,000-a-year salary, Mr. Nutter said he would require non-union employees earning more than \$50,000 to take five days' unpaid leave this year and in 2009. Members of his cabinet will face salary cuts.

He called on the federal government to provide more help for cities in the current downturn, and said he would soon publish a plan to show how the Treasury Department could use the \$700 billion in financial bailout funds authorized by Congress to help Philadelphia and other cities.

He said he would ask President-elect Barack Obama to push for legislation to help cities, particularly for infrastructure renewal and employee pensions.

Revenue from the city's business privilege tax is down 10 percent and is expected to end the current fiscal year \$51.4 million lower than projected.

The real estate transfer tax another important source of revenue, is expected to be \$31.8 million, or 20 percent, below expectations by the end of the current year because of the housing market slump.

Meanwhile, the city's pension costs are soaring as its investments slump amid the global market downturn. Pension payments are expected to be \$1.3 million higher this year and to cost an extra \$300 million over the next five years, officials said.

- 1) Libraries 11 ✓
- 2) Swimming Pools 62 ✓
- 3) Jobs 3000 ✓
- 4) 20% Less RE Transfer Taxes ✓
- 5) Retail Sales ✓
- 6) Personal Inc Tax ✓
- 7) Corp. RE Taxes ✓
- 8) State Incomes ✓



Calif = < 11 Billion Def. > or < 45 Billion Total >  
 Texas = + 11 Billion Surplus with Zero Personal Income Taxes  
Oil + Gas Sev. Taxes  
no Income for Universities

FINANCIAL CRISIS | STATE GOVERNMENTS

< 11.2 Billion Def. >

# California, others bleeding red ink

Schwarzenegger calls for sales tax increase, extra unpaid days off

SACRAMENTO, Calif. — The nation's economic meltdown is taking state budgets down with it — especially in California, where Gov. Arnold Schwarzenegger said Thursday that he wants to close an \$11.2 billion gap in part by raising sales taxes on everything from cars to Disneyland tickets.

Several other states are confronting billion-dollar deficits.

Some, including Massachusetts, North Carolina and Wisconsin, have ordered broad and deep cuts in spending; others have only begun to consider how to compensate for their revenue wells drying up.

Mr. Schwarzenegger wants \$4.5 billion in cuts; one of his proposals would force state employees to take a day off each month without pay and give up two holidays. But he says cuts alone aren't enough to deal with a steep drop in revenue, and he proposes \$4.7 billion in tax hikes, including a three-

year, 1.5-percentage-point increase in the sales tax.

"We have a dramatic situation here and it takes dramatic solutions ... and immediate action," he said as he called the Legislature back into session to deal with the shortfall. "We must stop the bleeding."

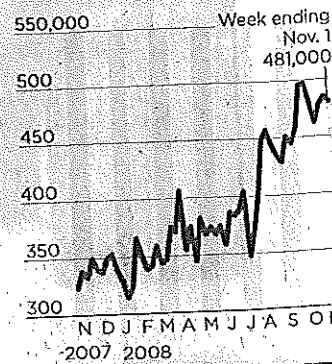
California's bleak new projections come just six weeks after Mr. Schwarzenegger signed this year's budget, which made \$7.1 billion in cuts to services to help close a \$15.2 billion deficit.

The Associated Press

## Jobless claims

Initial claims for unemployment benefits dropped 4,000 from the previous week.

Weekly jobless claims, seasonally adjusted



SOURCE: Department of Labor  
The Associated Press

# A Clean-Energy Defeat

## California has spoken; Washington should listen

Californians' overwhelmingly turned down three clean-energy ballot measures this week, including a T. Boone Pickens-backed proposal giving residents rebates to buy natural-gas and other alternative-fuel-powered vehicles. The other two initiatives — one in San Francisco and the other statewide — called for the most aggressive re-

while, were rejected as too onerous and unrealistic.)

We hope these setbacks are anomalies that help refine, rather than reduce, the energy debate because the nation desperately needs to reduce its dependence on fossil fuels. This newspaper strongly supports a national policy that encourages conservation, wind farms, solar power, nuclear energy and limited offshore drilling.

President-elect Barack Obama should factor in concerns such as those expressed in California as he begins work on his aggressive "green" jobs energy program. He and the next Congress must craft a national plan that balances worthy initiatives with consumer and taxpayer realities.

Without careful thought and planning, the nation could end up with proposals that only perpetuate our national addiction to fossil fuels and quash the entrepreneurial spirit that could spawn revolutionary breakthroughs in alternative-energy technologies.

California has spoken. Washington should listen.

## The Dallas Morning News

Established October 1, 1885

... most taxpayers up to \$10 billion, unfairly favor natural gas over other alternative energy sources and help the legendary Texas wildcatter make a lot of money on the state's dime.

With California in a budget crunch and still smarting from Enron's manipulation of its energy market, Mr. Pickens walked into a political buzz saw. (The other two measures, mean-

# City, speedway to share gas revenue

FORT WORTH — City officials announced a plan to share the wealth from gas beneath Texas Motor Speedway, but critics immediately jumped into the fray, saying the city is giving away public funds.

The Fort Worth Sports Authority, a city-run agency that owns the track, has been negoti-

ated with the city to share the revenue to be generated from drilling. Although the sports authority owns the facility, the speedway laid claim to the mineral rights because it has an option to buy the track after 30 years.

Meanwhile, the city and speedway may have missed out on the best days of the Barnett Shale boom. Lasting deal, however,

### Three keys to the agreement

1. The Fort Worth Sports Authority would use gas revenue to pay off \$15.5 million in debt.
2. The speedway would then get 75 percent of royalties, and the city 25 percent.

Lone Star 2nd annual Fort Worth film festival hits its stride tonight Live

# Fort Worth

Star-Telegram

Thursday, November 13, 2008

11-13-08

## BARNETT SHALE

# Fort Worth, TMS strike deal on gas drilling

As much as \$50 million has been estimated to be at stake in a three-year-plus dispute.

By MIKE LEE  
mikelee@star-telegram.com

FORT WORTH — City officials have reached a tentative agreement to split the estimated \$50 million to \$50 million that might

be gained from natural gas drilling beneath Texas Motor Speedway.

Proponents said the deal breaks a deadlock over who

### Blogging the Barnett Shale

Dig into the gas boom at [star-telegram.com/blogs](http://star-telegram.com/blogs)

owned Fort Worth Sports Authority would use the bonus and royalties to pay off an estimated \$15.5 million that the city

Thursday, November 13, 2008 | 7B

## TEXAS YOUTH COMMUNITY

# Consolidating juvenile programs

## HIGHER EDUCATION

# UTA expects \$75 million from gas wells

By GENE TRAINOR  
gtrainor@star-telegram.com

Natural gas drilling at the University of Texas at Arlington is expected to generate \$50 million to \$100 million over the next 10 years, school President James Spaniolo told UT System regents at their meeting Wednesday in El Paso.

Six natural gas wells are on the southeast corner of the campus.

For planning purposes, university administrators are estimating the revenue at \$75 million for the decade

### Gas money

UT-Arlington officials estimate that natural gas wells will generate \$75 million in the next 10 years. Here's how they plan to spend the money:

- \$30 million. Recruitment and retention of outstanding faculty.
- \$15 million. Campus master plan, including building projects such as a special-events center.
- \$30 million. Scholarships and fellowships.

Source: University of Texas at Arlington

the expectation that the state will not consider it a windfall.

About 25 percent of the university's \$417 million annual budget comes from the state, down from about 80 percent in the 1980s, officials

"This is our T. Boone Pickens," Stevens said, referring to the billionaire energy investor who has donated millions to Oklahoma State University.

# as Morning News

Dallas, Texas, Wednesday, June 11, 2008

dallasnews.com

*Exxon, Conoco, Devon,  
EOG, ENCANVA etc  
etc*

## ENERGY COMPANIES

# FW firm to pay \$4.2B for Hunt Petroleum

XTO acquisition fuels growth strategy, fans trust fund fight

the legacy of oil tycoon H.L. Hunt.

Hunt Petroleum becomes a jewel in XTO's ravenous, \$7.5 billion acquisition

used with Hunt Oil — is owned by the family trusts of Margaret Hunt Hill and Hassie Hunt, two of the children of H.L. Hunt.

Al Hill III, Margaret's grandson, has sued his father, Al Hill Jr., several other family members and advisers over their plan to sell Hunt Petroleum and recon-

See HUNT Page 8A

## ENERGY

# XTO buys Hunt for \$4.2 billion

The company says its gas and oil production is expected to increase 30%.

By JIM FUQUAY  
jfuquay@star-telegram.com

XTO Energy said Tuesday that it will pay \$4.2 billion for Hunt Petroleum Corp. of Dallas, which dates to 1925 when legendary wildcatter H.L. Hunt founded his first oil company.

About 70 percent of the Hunt property is in East Texas and Louisiana, already big areas of operation for Fort Worth-based XTO. Most of the rest is along the Gulf Coast, onshore and off, with the remainder in Europe's North Sea. Production is about 80 percent natural gas — XTO's strong suit — and 20 percent oil.

XTO Chairman Bob Simpson called the transaction "a history-making deal for XTO." It's the company's largest acquisition ever and pushes its acquisitions this year to about \$8.5 billion.

And Simpson told investors that he will probably make further acquisitions this year worth between \$1 billion and \$1.5 billion. He said that even with the sharp rise in petroleum prices in the past year, "this will be a year of excellent opportunities" to buy assets that will likely be more expensive in the future.

XTO also boosted its growth forecast for the rest of the year. XTO officials said its production of natural gas and crude oil is expected to

More on XTO on 3C

## INTERNET

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## ELECTRICITY

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# Pennsylvania - State of Innovation

Home > Site Search

## Site Search

Your search for the keyword(s) **Corp. Tax rate** returned **368** results.

Local Services Tax

**Type:** Page | **Last Modified:** 10/24/2008

Act 7 of 2007 amends the Local Tax Enabling Act, Act 511 of 1965, to make the following major changes to the Emergency and Municipal Service Tax (EMST).

Local Services Tax FAQs

**Type:** Page | **Last Modified:** 10/6/2008

Do you have questions about local services tax, find the answer here.

? "Say" Personal Income Tax 3%

368 Laws/Expln.

2-3% Personal?

vs

7.5% Sev. Tax

Job Creation Tax Credits

**Type:** Program

A \$1,000-per-job tax credit to create new jobs in the Commonwealth within three years

Tax Information

**Type:** Page | **Last Modified:** 9/4/2008

Understanding local tax laws benefits businesses in Pennsylvania.

Film Tax Credit Program

**Type:** Program

Act 55 of 2007, the Film Tax Credit Law (Act 55) was enacted and authorized the issuance of \$75 million in tax credits in an effort to expand the activity of film, television and other production companies in Pennsylvania.

2007 Double Tier Tax

**Type:** File | **Last Modified:**

Double Tier Tax Exer

**Type:** File | **Last Modified:**

Single Tier Tax Exer

**Type:** File | **Last Modified:**

Phone: 866-GO-NEWPA

- Tried to figure out Personal and Corp. Income taxes for Oil+Gas/Repayment to calc. Diff a Severance Tax added to a total tax burden

## Valuation Techniques for Mineral Estates and Assessment

In classic valuation theory there are only three (3) approaches to be considered in valuing the surface estate of land and the various associated estates and components: market, income and replacement. While the income approach to valuation of minerals and royalty estates is perhaps the most appropriate, there is a strong market and demand for the sale price of mineral rights, although few sales are made public and are generally confidential in the normal course of business. Texas is a non-disclosure state, and no sales price details of land or minerals being sold are found in the public records.

There are six (6) valuation approaches or indications of market value for mineral royalty rights or interests in land located in areas having "proven" reserves and/or income from oil and gas production (1988, Baen, Appraisal Journal, pp.205-216). Theoretically, the value of oil and gas wells can be estimated and correlated for determining market value and/or assessed value as follows:

- I. Residual values or values by extraction of mineral rights from comparable sales of working interests and/or royalty interest.
- II. Comparable sales of mineral and royalty rights by deeds or assignments.
- III. Sale of undeveloped wells and/or underdeveloped reserves by oil and gas companies who must publish or disclose the purchase or sale price (SEC regulation)
- IV. The use of cash flow analysis of existing well performances, productivity, decline curves and allocation of values to producing and/or proven but non-producing mineral acres using a reasonable or market discount rate.
- V. The use of assessed values by local tax appraisal boards which follow state laws and utilize a combination of methods I-IV while utilizing oil and gas reserve engineers and publicly available production reports and mineral sales.
- VI. The replacement cost approach in valuing an oil and gas well for estimating its "market value" or value for property assessment purchase can add insight into the valuation process. However, cost does not necessarily relate to value as there are many variables, even when a well is "successful" that can ultimately determine if it is economic [i.e. leasing bonus/acre, title work cost, cost of road, pad-site, permit fees, engineering drilling, geo-physical studies, equipment, completion costs, amount of produce water, oil and gas prices, productivity of the individual well and technology used to create the well (vertical vs horizontal, etc.) competency of the operating company, etc., etc.].

If urban or coastal wells are not permitted to be drilled due to overly restricted local ordinances, the value of the mineral estates on local tax rolls and to the owners of the mineral is zero (0) and should not be taxed. However, failure to allow drilling in an urban environment with reasonable ordinances with cost effective and economically reasonable guidelines amounts to an economic loss of millions of dollars per year in taxes on productive wells at \$3-5 million per well head, with as many as five wells per 2-4 acre pad-site and a further loss of \$13,500+/mineral acre for royalty/mineral owners. (Barnett Shale Core Area Analysis, see Figure 5).



WILLIAMS PRODUCTION-GULF COAST COMPANY  
 P.O. Box 3102  
 Tulsa, OK 74101

How do you/we know  
 Sale #s accurate? Page 1 of 2

41

For Inquiries Contact Accounting Department At 1-918-573-1420

Oil Camp? Pipeline Co.

Payee No.	Payee	Date	Check No.	Check Total
479790	[REDACTED]	08/17/07	5055254	*****3,710.51

IRS from Checks

Net/MCF Key Not Ex.

WELL#	WELL NAME	SALE TYPE	PRICE	QUANTITY	VALUE	DEDUCTIONS	NET	INTEREST	VALUE	DEDUCTIONS	NET SHARE		
FD	FEDERAL OWNER WITHHOLDING					1779.53	FD	-1779.53	1.00000000	0.00	1779.53	FD	-1779.53
62040919	PRADO #1H		6.92	-124236.74	859713.63	82.91	CNV	-746913.48	0.00116278	-999.66	0.10	CNV	-868.49
TOTAL PROD:	0.00 BTU FACTOR: 1.000					51548.95	GTH		0.00116278		59.94	GTH	
						60567.28	SEV		0.00116278		70.43	SEV	
						601.01	FUEL		0.00116278		0.70	FUEL	
02/07 G OR	124236.74		6.92	124236.74	859713.63	82.91	CNV	746913.48	0.00232556	1999.32	0.10	CNV	1736.98
TOTAL PROD:	0.00 BTU FACTOR: 1.000					51548.95	GTH		0.00116278		59.94	GTH	
						60567.28	SEV		0.00116278		70.43	SEV	
						601.01	FUEL		0.00116278		0.70	FUEL	
03/07 G OR	48074.09		6.22	48074.09	298831.30	32.08	CNV	241057.04	0.00116278	347.48	0.03	CNV	280.31
TOTAL PROD:	47689.50 BTU FACTOR: 0.992					35712.68	GTH		0.00116278		41.53	GTH	
						19547.77	SEV		0.00116278		22.73	SEV	
						2481.73	FUEL		0.00116278		2.88	FUEL	
04/07 G OR	63661.75		6.82	63661.75	434300.15	42.49	CNV	332882.10	0.00116278	504.99	0.05	CNV	387.05
TOTAL PROD:	63152.46 BTU FACTOR: 0.992					50044.52	GTH		0.00116278		58.20	GTH	
						26993.89	SEV		0.00116278		31.39	SEV	
						24337.15	FUEL		0.00116278		28.30	FUEL	
05/07 G OR	84883.01		7.03	84883.01	596966.62	56.65	CNV	463792.46	0.00116278	694.14	0.07	CNV	539.29
TOTAL PROD:	84203.95 BTU FACTOR: 0.992					65983.47	GTH		0.00116278		76.72	GTH	
						37609.39	SEV		0.00116278		43.73	SEV	
						29524.65	FUEL		0.00116278		34.33	FUEL	
06/07 G OR	69451.20		6.99	69451.20	485201.54	46.35	CNV	416118.59	0.00116278	564.18	0.05	CNV	483.85
TOTAL PROD:	68895.59 BTU FACTOR: 0.992					20011.22	GTH		0.00116278		23.27	GTH	
						33743.10	SEV		0.00116278		39.24	SEV	
						-6931.78	FUEL		0.00116278		-8.06	FUEL	
						22214.06	TRAN		0.00116278		25.83	TRAN	
62040920	PRADO 2H		6.88	78594.86	540596.29	52.45	CNV	414356.34	0.00116278	628.59	0.06	CNV	481.79
TOTAL PROD:	78594.86 BTU FACTOR: 1.000					62293.02	GTH		0.00116278		72.44	GTH	
						33600.71	SEV		0.00116278		39.07	SEV	
						30293.77	FUEL		0.00116278		35.23	FUEL	
05/07 G OR	66565.52		7.02	66565.52	467102.92	44.42	CNV	362899.35	0.00116278	543.13	0.05	CNV	421.96
TOTAL PROD:	65899.86 BTU FACTOR: 0.990					51629.39	GTH		0.00116278		60.04	GTH	
						29427.87	SEV		0.00116278		34.22	SEV	
						23101.89	FUEL		0.00116278		26.86	FUEL	
06/07 G OR	48646.20		6.97	48646.20	339097.73	32.45	CNV	290816.96	0.00116278	394.30	0.04	CNV	338.15
TOTAL PROD:	48159.74 BTU FACTOR: 0.990					13985.45	GTH		0.00116278		16.26	GTH	
						20554.04	GTH		0.00116278		23.90	GTH	
						34658.47	SEV		0.00116278		40.30	SEV	
						-7119.81	FUEL		0.00116278		-8.28	FUEL	
						22816.62	TRAN		0.00116278		26.53	TRAN	

IMPORTANT INFORMATION: RETAIN THIS INFORMATION FOR TAX PURPOSES  
 DUPLICATES CANNOT BE FURNISHED

OWNER GROSS	OWNER NET DEDUCTIONS	OWNER NET TAXES	OWNER NET TOTALS
CURRENT CHECK	6801.32	2644.94	445.87
YEAR TO DATE	6801.32	2644.94	445.87
			3710.51
			3710.51

PRODUCTS/DEDUCTIONS

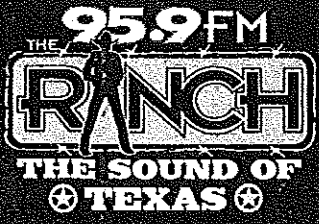
CNV - CONSERVATION/RESTORATION FEE / FD - FEDERAL WITHHOLDING / FUEL - FUEL 1 > NOT IN GRS / G - GAS / GTH - GATHERING > NOT IN GRS / SEV - SEVERANCE TAXES / TRAN - TRANSPORTATION > NOT INCLUDED IN GROSS /

**\*States NEED STANDARD Reporting Form To All Parties - STANDARD Inf. All Firms**

Deductions ? + M vs



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XTOENERGY



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VOL. 38, NO. 1  
Spring 2008  
Bureau of  
Topographic &  
Geology  
Saw

# Pennsylvania GEOLOGY

As of the end of 2007, more than 375 suspected Marcellus wells had been permitted in Pennsylvania. An additional 78 had been permitted as of this writing (end of February, 2008). Therefore, it appears that the Marcellus gas play will continue until and unless gas prices fall dramatically.



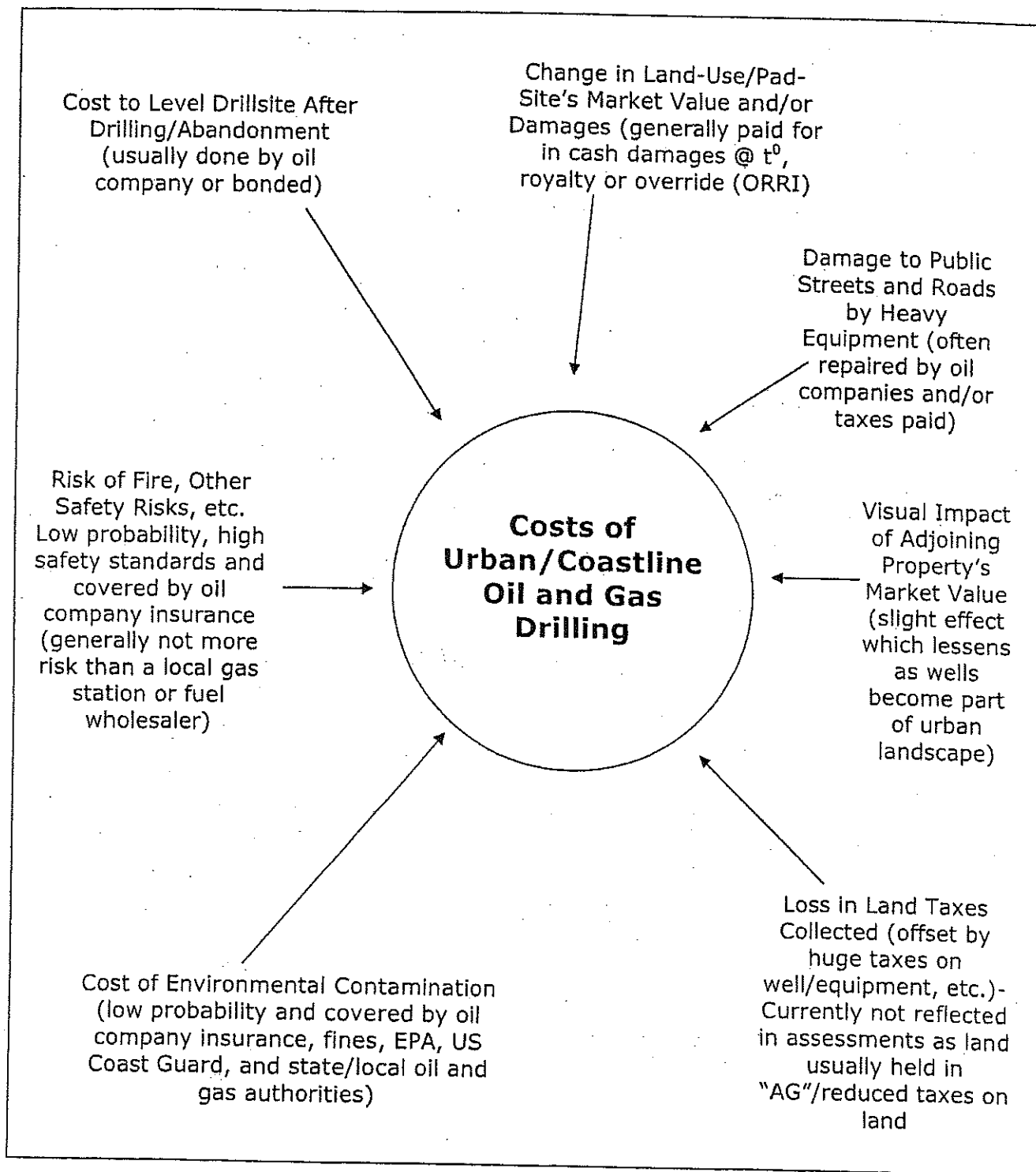
Cabot Oil and Gas Corporation, which is leasing and drilling in northeastern Pennsylvania, has been quoted as saying its wells are testing between 800,000 and 1,000,000 cubic feet per day (IHS, 2008, p. 1). Based on the limited production information that has been received by the state so far, the average daily production from a Marcellus well in Pennsylvania is about 45 thousand cubic feet of gas per day, which is considered marginal at best. It should be noted that this average is based on only two years' data from relatively few vertical wells. We still do not have any details from horizontal shale wells.



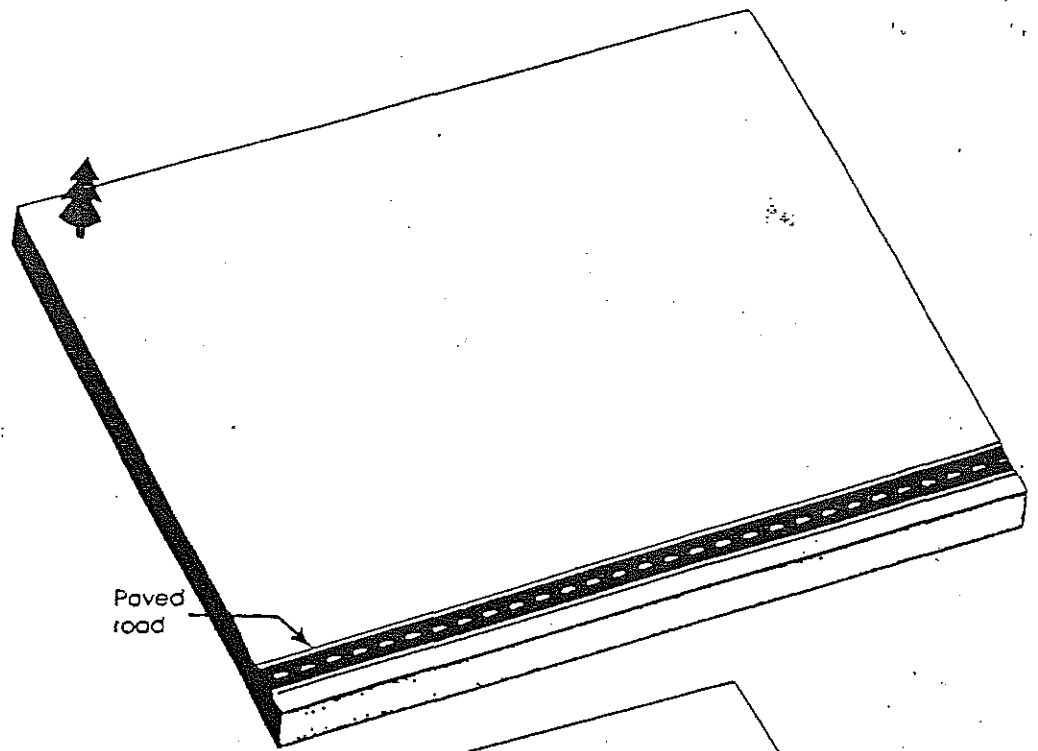
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45, mcf/Dry  
?  
How Do Royalty Owners Know they are Being Paid Properly?  
by Parrish and Harper Spring 2008

### Figure 3: Quantifiable Financial Costs of Poorly-Planned Urban/Coastline Oil and Gas Drilling

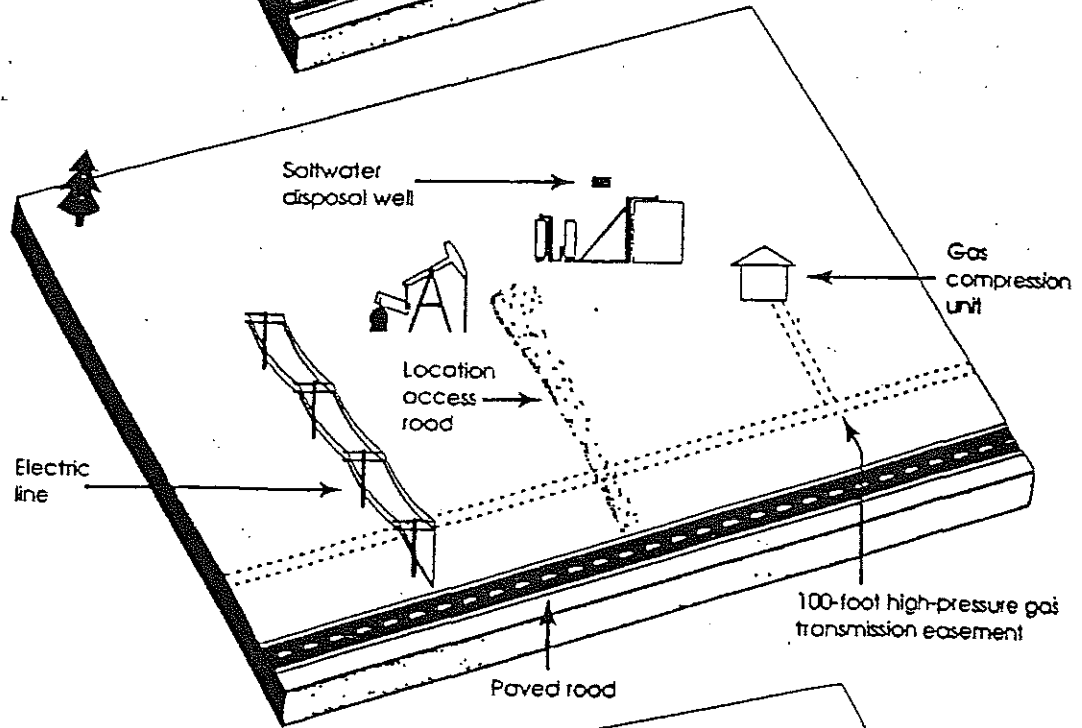
By John S. Baen, Ph.D., College of Business Administration, University of North Texas



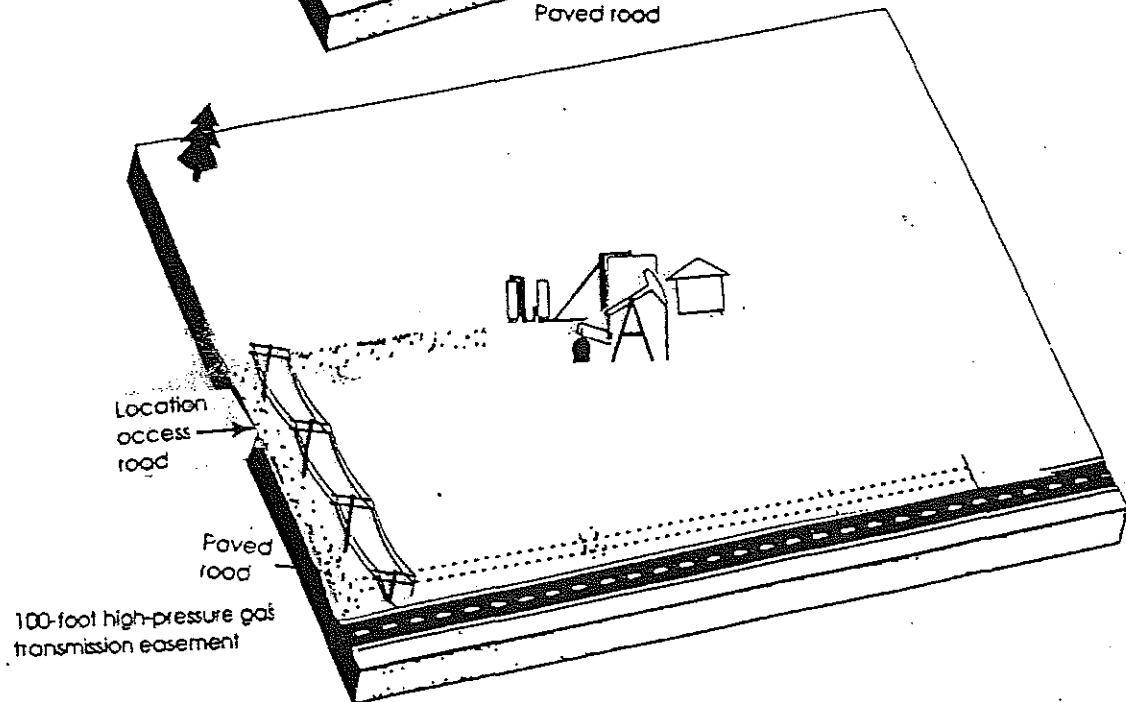
**Figure 1-1**  
 Indisturbed Drill sites  
 typical 40 acre well spacing/  
 60 acre lease vertical well  
 Barnett Shale Gas Formation  
 Dallas/Fort Worth Metro  
 Area North Texas



**Figure 1-2**  
 Typical Drill Site and  
 Production-Site/ 40 Acres  
 Well Spacing/ 360 Acre Lease  
 Unplanned Oil and Gas  
 Development without regard to  
 future surface use or land value  
 implications. Poor use of surface  
 estate and no surface or planning  
 found in mineral lease document.



**Figure 1-3**  
 Highly Planned Oil and  
 Gas Location  
 10-Acre well spacing  
 concentrate surface use,  
 equipment, and preserves  
 surface estate. Accomplished  
 by mineral lease provisions  
 or voluntarily by responsible  
 Oil and Gas Companies with  
 landowner input.





2008

Barnett Shale Operators Ranked by Well Starts

(through 10/17/2008) of 2611 New Permian

✓ Also in Marcellus Region of PA 2008.

	Well Starts	% of Total	Footage Drilled	% of Total	Average Footage
✓ 1 Chesapeake Operating, Inc.	558	21.4%	5,058,000	21.6%	9,065
2 Devon Energy Production Company, LP	471	18.0%	4,239,000	18.1%	9,000
✓ 3 EOG Resources, Inc.	412	15.8%	3,542,700	15.1%	8,599
✓ 4 XTO Energy, Inc.	242	9.3%	2,678,800	11.4%	11,069
5 Quicksilver Resources, Inc.	201	7.7%	1,712,400	7.3%	8,519
6 Burlington Resources Oil & Gas Co., LP	74	2.8%	667,200	2.8%	9,016
✓ 7 EnCana Oil & Gas (USA), Inc.	72	2.8%	648,000	2.8%	9,000
✓ 8 Range Production Company	64	2.5%	576,000	2.5%	9,000
✓ 9 Carrizo Oil & Gas, Inc.	48	1.8%	432,000	1.8%	9,000
10 Williams Production Gulf Coast, LP	43	1.6%	331,770	1.4%	7,716
11 Denbury Onshore, LLC	34	1.3%	238,900	1.0%	7,026
12 Rimrock Energy, LLC	31	1.2%	202,754	0.9%	6,540
13 David H. Arrington Oil & Gas, Inc.	30	1.1%	197,700	0.8%	6,590
14 Joint Resources Company	27	1.0%	241,014	1.0%	8,926
15 DTE Gas Resources, LLC	25	1.0%	167,500	0.7%	6,700
16 J-W Operating Company	24	0.9%	360,000	1.5%	15,000
17 Chief Oil & Gas, LLC	20	0.8%	178,000	0.8%	8,900
18 Aruba Petroleum, Inc.	19	0.7%	171,000	0.7%	9,000
19 Pioneer Natural Resources USA, Inc.	13	0.5%	78,203	0.3%	6,016
20 Forest Oil Corporation	12	0.5%	137,500	0.6%	11,458
21 Hollis R. Sullivan, Inc.	12	0.5%	106,000	0.5%	8,833
22 Rife Energy Operating, Inc.	11	0.4%	99,000	0.4%	9,000
23 Cornerstone E & P Company, LP	8	0.3%	66,892	0.3%	8,362
24 Swan Production Company	7	0.3%	47,000	0.2%	6,714
25 CDX Gas, LLC	6	0.2%	47,000	0.2%	7,833
26 Lakota Energy, Ltd.	6	0.2%	46,800	0.2%	7,800
27 Red Oak Gas Operating Company, LP	6	0.2%	51,600	0.2%	8,600
28 Adexco Operating Company	5	0.2%	33,500	0.1%	6,700
29 Barnes Oil & Gas, LLC	5	0.2%	43,400	0.2%	8,680
30 Burnett Oil Company, Inc.	5	0.2%	45,000	0.2%	9,000
✓ 31 Citrus Energy Corporation	5	0.2%	44,200	0.2%	8,840
32 Merit Energy Company	5	0.2%	58,900	0.3%	11,780
33 Ryder Scott Management, LLC	5	0.2%	42,100	0.2%	8,420
34 Teleo Operating, LLC	5	0.2%	43,100	0.2%	8,620
35 Vantage Fort Worth Energy, LLC	5	0.2%	31,400	0.1%	6,280
36 Braden Exploration, LLC	4	0.2%	34,000	0.1%	8,500
37 Dart Oil & Gas Corporation	4	0.2%	18,100	0.1%	4,525
38 Devon Louisiana Corporation	4	0.2%	36,000	0.2%	9,000
39 Grand Operating, Inc.	4	0.2%	27,600	0.1%	6,900
40 McCutchin Petroleum Corporation	4	0.2%	36,000	0.2%	9,000
41 North Texas Llano Operating Corporation	4	0.2%	36,000	0.2%	9,000
42 Aspect Energy, LLC	3	0.1%	26,300	0.1%	8,767
43 Canan Operating, Inc.	3	0.1%	24,995	0.1%	8,332
44 Crown Equipment Company	3	0.1%	18,300	0.1%	6,100
45 Enexo, Inc.	3	0.1%	25,500	0.1%	8,500
46 PDC-WV-CO Corporation	3	0.1%	14,900	0.1%	4,967
47 Ray Richey Management Company, Inc.	3	0.1%	22,000	0.1%	7,333
48 Western Chief Operating, LLC	3	0.1%	23,700	0.1%	7,900
49 Bagby Energy, LLC	2	0.1%	17,000	0.1%	8,500
50 Dallas Production, Inc.	2	0.1%	12,000	0.1%	6,000
51 Dune Operating Company	2	0.1%	19,000	0.1%	9,500
52 Endeavor Energy Resources, LP	2	0.1%	26,000	0.1%	13,000
53 Frost Brothers Resources, LLLP	2	0.1%	16,500	0.1%	8,250
54 Harding Company	2	0.1%	13,600	0.1%	6,800
55 Peba Oil & Gas Company	2	0.1%	9,998	0.1%	4,999
56 Sauder Management Company	2	0.1%	18,000	0.1%	9,000
57 Tema Oil & Gas Company	2	0.1%	13,925	0.1%	6,963

**Principal Natural Gas Pipeline Companies Serving the Northeast Region**  
with links to pipeline web sites

Pipeline Name	Principal Supply Source(s)	System Configuration*
		Primary/Secondary
<i>Interstate &amp; Importing Pipelines</i>		
Algonquin Gas Transmission Co	Interstate System	Trunk/Grid
Columbia Gas Transmission Co	Southwest, Appalachia	Grid
Dominion Cove Point LNG LP	LNG Imports, Interstate System	Trunk
Dominion Transmission Corp	Southwest, Appalachia	Grid/Trunk
Eastern Shore Natural Gas Co	Interstate System	Trunk/Grid
East Tennessee Natural Gas Co	Interstate System	Trunk/Grid
Equitrans Inc	Appalachia, Southwest	Grid
Granite State Gas Transportation Co	Interstate System	Trunk/Grid
Iroquois Gas Transmission Co <sup>1</sup>	Western Canada	Trunk
Maritimes & Northeast Pipeline Co <sup>1</sup>	Eastern Canada	Trunk
National Fuel Gas Supply Corp	Appalachia, Canada	Grid/Trunk
NORA Gas Transmission Co	Interstate System	Trunk
North Country Pipeline Co <sup>1</sup>	Western Canada	Trunk/Grid
Portland Natural Gas Transportation System <sup>1</sup>	Western Canada	Trunk
St. Lawrence Gas Co <sup>1</sup>	Western Canada	Trunk/Grid
Tennessee Gas Pipeline Co <sup>1</sup>	Southwest, Canada	Trunk
Texas Eastern Transmission Corp	Southwest	Trunk
Transcontinental Gas Pipeline Co	Southwest	Trunk
Vermont Gas Systems Inc <sup>1</sup>	Western Canada	Trunk/Grid
<i>Intrastate Pipelines**</i>		
Empire Gas Pipeline Co (NY) <sup>1</sup>	Canada	Trunk
Dominion Hope Gas Co (WV)	Appalachia, Interstate System	Grid/Trunk
KeySpan Energy Delivery (NY)	Interstate System	Grid
KeySpan Energy Delivery (NH)	Interstate System	Grid
National Fuel Gas Distribution Co (NY)	Interstate System	Grid
NorNew/Norse Pipeline System (NY)	Appalachia, Interstate System	Grid/Trunk
North Penn Gas Co (PA)	Appalachia, Interstate System	Trunk
Northern Utilities Inc (ME)	Interstate System	Trunk/Grid
Penn York Energy Corp (PA)	Appalachia, Interstate System	Trunk
Virginia Natural Gas Co	Interstate System	Trunk/Grid

\*System Configuration - natural gas pipeline system design layout. Some systems are a combination of the trunk and grid. Where two are shown, the first represents the predominant system design.

Trunk systems are large-diameter long-distance trunklines that generally tie supply areas to natural gas market areas.

Grid systems are usually a network of many interconnections and delivery points that operate in and serve major natural gas market areas.

\*\*Table is not necessarily inclusive of all intrastate natural gas pipelines operating in the region.

<sup>1</sup>Imports and/or exports natural gas between the United States and Canada.

SOURCE: Energy Information Administration, Office of Oil & Gas.

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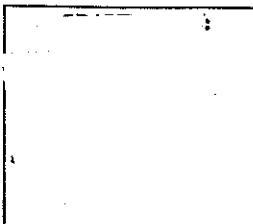
**Fedstats • USA.gov • Dept. of Energy**

DESIGN BY:	J.S.B.
DRAWN BY:	J.W.B.
CHECKED BY:	J.S.B.
SCALE:	N.T.S.
DATE:	4/14/04
JOB NUMBER:	41404
FILE NAME:	41404baen.dwg

**GAS PIPELINES**  
**AERIAL VIEW OF**  
**HORIZONTALLY**  
**DRILED OIL &**  
**GAS WELLS FROM**  
**ONE SURFACE**  
**LOCATION**

**360 ACRE LEASE/  
72 ACRE DRAINAGE PER WELL  
1 SURFACE LOCATION (5 AC.)  
5 HORIZONTAL WELL BORES  
1 ACCESS ROAD (0.5 AC.)  
TOTAL SURFACE DISRUPTION=  
5.5 ACRES (2%)**

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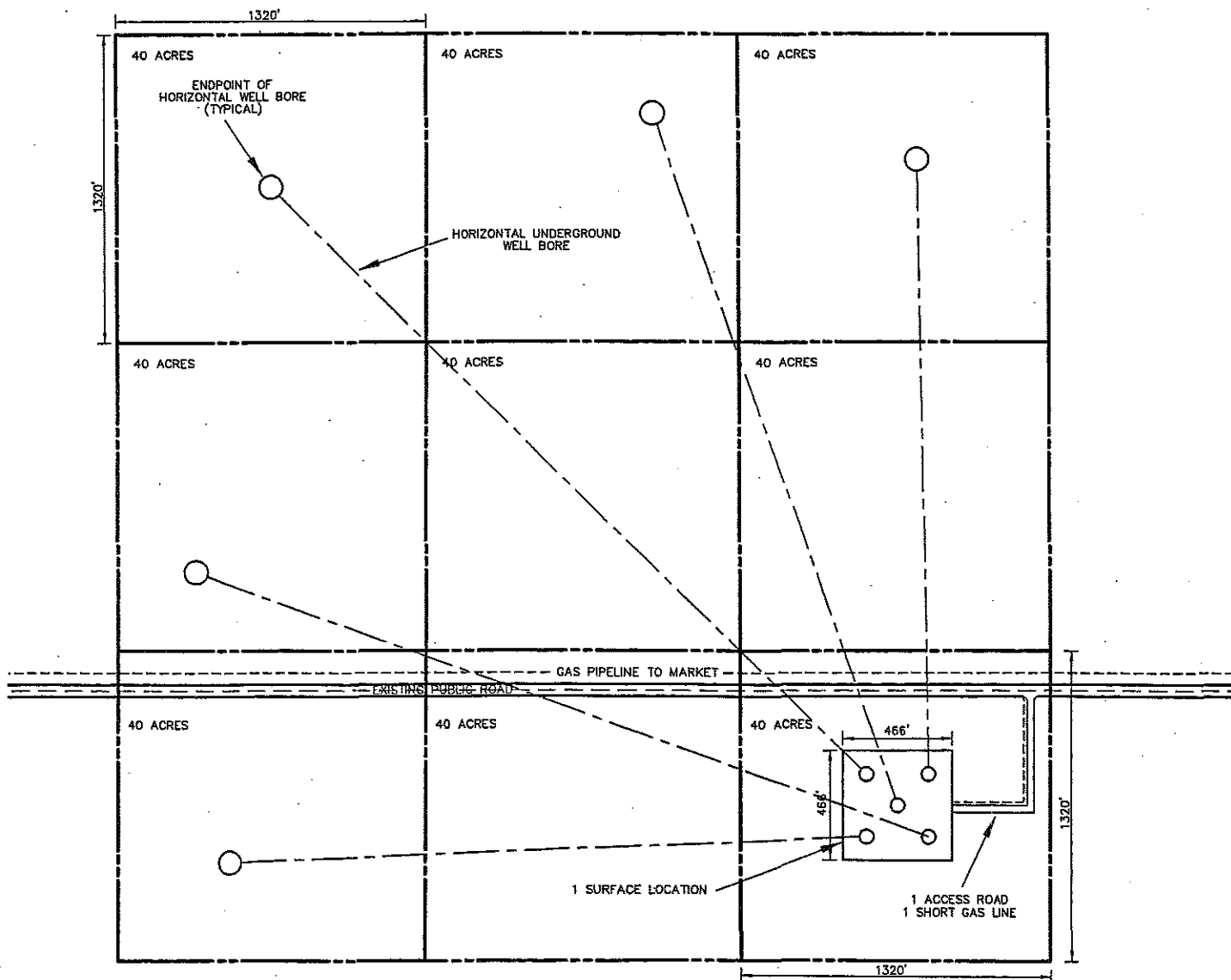
**Figure 3**

Aerial View of Horizontal Drilling of Oil and Gas Wells and Mineral Drainage Development for a 360-acre parcel of land  
By John S. Baen Ph.D. University of North Texas 2004. (Assumes blanket geologically productive zone and 40 acre spacing)  
Horizontal wells are drilled and completed with slotted line or multiple staged fracs that drain all the oil and gas along the well-bore that is drilled horizontally through the productive formation. While the drilling and completion costs are 200% of a traditional well, the wells make 300-400% more in a shorter period of time.

**Total Surface Area Used:**

- a) 1 drill-site at 3 acres (361 ft x 361 ft) = 3 acres
- b) 1320 ft of oil and gas access road x 35 feet in width = 1.1 acres
- c) 1320 ft of gas pipeline easement (included on /under road) x 50 ft in width (1.5 acres - 1.1 Road = .4 net addition acre) = 4.5 acres
- d) 3960 ft of Gas pipeline along public road x 50 ft in width =

Total Surface Disruption= 9.0 acres or 9 acres/360 acres= 2.5%

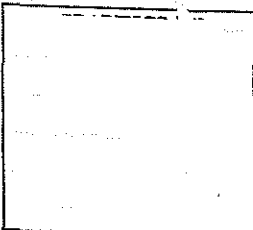


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**SIDE VIEW OF  
MULTI-LATERAL  
WELL**

**1 SURFACE LOCATION  
UP TO 7,000 ACRES OF  
COVERAGE IN ECONOMICALLY  
VIABLE AREAS. (ALASKA)**

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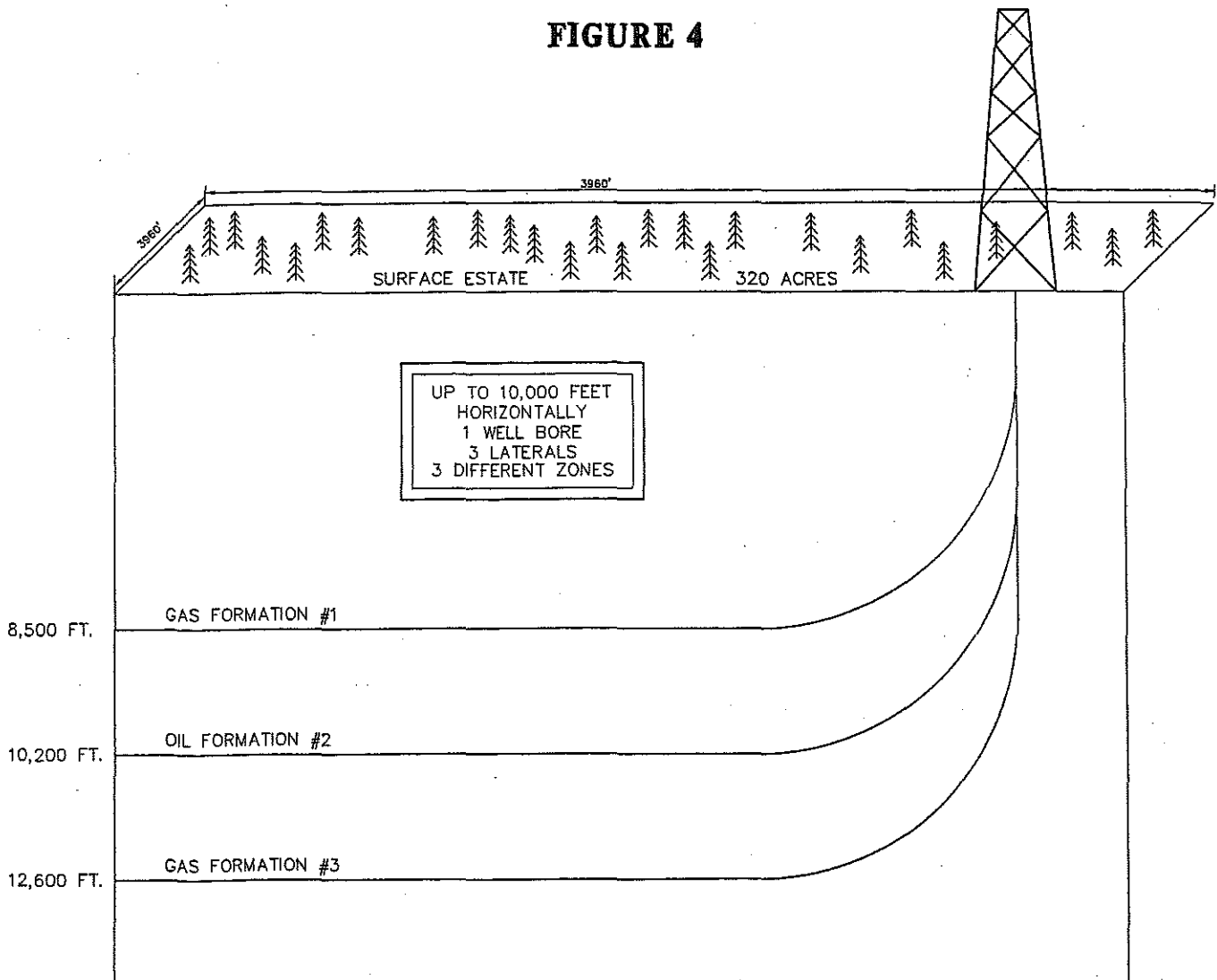


**Figure 4**

Side View of Multilateral Drilling of Oil and Gas Wells and Mineral Drainage Development for a 360-acre parcel of land  
By John S. Baen Ph.D. University of North Texas 2004. (Assumes blanket geologically productive zone and 40 acre spacing)

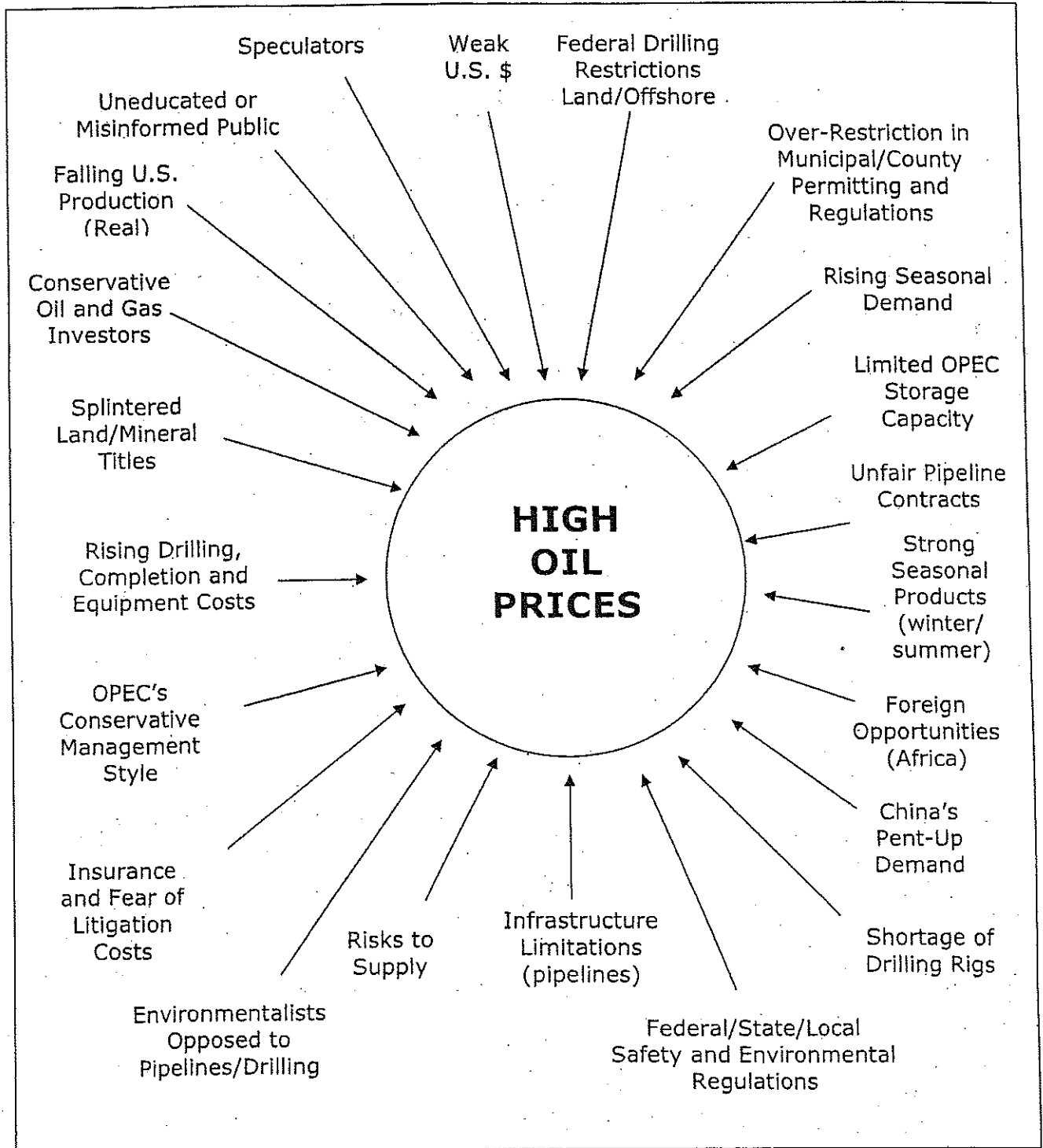
Figure 3 depicts the same surface land use required for multilateral wells on the subject property. The difference is that in many productive oil and gas areas, there are multiple productive oil and gas zones under the same property. Prior to the development of multilateral well technology, each zone required a new well or sets of wells to be drilled into each zone. Now several zones can be produced through the same well bore having off shoots or "side tracks" that allow for multiple zones production. This new technology reduces surface area impact and damages while maximizing the subsurface mineral production.

**FIGURE 4**



## Figure 4: Why High Domestic Oil and Gas Prices Will Not Go Away

By John S. Baen, Ph.D., College of Business Administration, University of North Texas  
[Partial Source (50%): *Drilling Contractor*, November/December 2004]





**TABLE 4**  
**Baen's Barnett Productivity / "Cash Flows"**  
**Oil and Gas Reserve and Cashflow Analysis**

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*Oil and Gas Leasing*  
*Lease Negotiating*  
*Land/Well Planning*  
*Estate Planning/Mineral Valuation/Appraisal*

		DECLINES			ESCALATION				
E:	N/A	SER.TAX, O:	4.61%	GAS, YR1:	50%	PRICES:		EXPENSES:	
D		SER.TAX, G:	7.50%	GAS, YR2:	25%	GAS, YR2:	3.25%	EXP, YR2:	3.25%
INTY:	Denton	AD Valor:	2.40%	GAS, YR3:	10%	GAS, YR3:	3.25%	EXP, YR3:	3.25%
FE:	Texas	OP EXP/AMO:	\$1000	GAS, YR4:	10%	GAS, YR4:	3.25%	EXP, YR4:	3.25%
FR:		# WELLS:	1	AFTER:	10%	AFTER:	3.25%	AFTER:	3.25%
NER:		OIL, MBO:	\$25.00						
FD:	1.0	OIL, MAXS:	\$40.00	OIL, YR1:	50%	OIL, YR2:	3.25%		
FD:	577	GAS, \$/MCF:	\$4.00	OIL, YR2:	25%	OIL, YR3:	3.25%		
	0.000%	GAS, MAXS:	\$10.00	OIL, YR3:	10%	OIL, YR4:	3.25%		
MRI:	0.000%	CAP. EXPS:	\$750,000	OIL, YR4:	10%	AFTER:	3.25%		
RR: (*)	18.750%	DISC FACT:	10.00%	AFTER:	10%				

YEAR	OIL		GAS			REVENUE		EXPENSES			NET INCOME		DISCOUNT C/FLW		PRICES	
	BARRELS		DAILYAVG	GROSSYR	NET(*)	OIL	GAS	TAXES	LOE	ADVAI/TAX	NET C/FLWYR	CUM C/FLW	NET 10%	CUM 10%	OIL \$/BO	GAS \$/CF
	GROSS	NET(*)														
1	263	49	577	210,605	39,488	1,233	157,954	11,903	0	3,375	143,908	143,908	130,826	130,826	\$25.00	\$4.00
2	132	25	289	105,303	19,744	636	81,544	6,145	0	1,688	74,347	218,256	61,444	192,270	\$25.81	\$4.13
3	99	18	216	78,977	14,808	493	63,145	4,759	0	1,266	57,614	275,870	43,286	235,556	\$26.65	\$4.26
4	89	17	195	71,079	13,327	458	58,678	4,422	0	1,139	53,575	329,444	36,592	272,148	\$27.52	\$4.40
5	80	15	175	63,971	11,995	426	54,526	4,109	0	1,025	49,818	379,262	30,933	303,081	\$28.41	\$4.55
6	72	13	158	57,574	10,795	395	50,669	3,818	0	923	46,323	425,585	26,148	329,229	\$29.34	\$4.69
7	65	12	142	51,817	9,716	367	47,084	3,548	0	830	43,073	468,658	22,103	351,332	\$30.29	\$4.85
8	58	11	128	46,635	8,744	341	43,753	3,297	0	747	40,050	508,707	18,683	370,916	\$31.27	\$5.00
9	52	10	115	41,972	7,870	317	40,657	3,064	0	673	37,238	545,945	15,793	385,808	\$32.29	\$5.17
10	47	9	103	37,774	7,083	295	37,781	2,847	0	605	34,623	580,568	13,349	399,157	\$33.34	\$5.33
11	42	8	93	33,997	6,374	274	35,108	2,646	0	545	32,191	612,760	11,283	410,440	\$34.42	\$5.51
12	38	7	84	30,597	5,737	255	32,624	2,459	0	490	29,930	642,689	9,536	419,976	\$35.54	\$5.69
13	34	6	75	27,538	5,163	237	30,316	2,285	0	441	27,826	670,515	8,060	428,037	\$36.70	\$5.87
14	31	6	68	24,784	4,647	220	28,171	2,123	0	397	25,871	696,386	6,813	434,849	\$37.89	\$6.06
15	28	5	61	22,305	4,182	204	26,178	1,973	0	357	24,052	720,438	5,758	440,607	\$39.12	\$6.26
16	25	5	55	20,075	3,764	188	24,326	1,833	0	322	22,359	742,797	4,866	445,473	\$40.00	\$6.46
17	23	4	49	18,067	3,388	169	22,605	1,703	0	290	20,781	763,578	4,111	449,584	\$40.00	\$6.67
18	20	4	45	16,261	3,049	152	21,005	1,582	0	261	19,315	782,893	3,474	453,058	\$40.00	\$6.89
19	18	3	40	14,635	2,744	137	19,519	1,470	0	235	17,952	800,844	2,935	455,994	\$40.00	\$7.11
20	16	3	36	13,171	2,470	123	18,138	1,366	0	211	16,684	817,529	2,480	458,474	\$40.00	\$7.34
21	15	3	32	11,854	2,223	111	16,855	1,269	0	190	15,507	833,035	2,095	460,569	\$40.00	\$7.58
22	13	2	29	10,669	2,000	100	15,662	1,179	0	171	14,412	847,447	1,770	462,339	\$40.00	\$7.83
23	12	2	26	9,602	1,800	90	14,554	1,096	0	154	13,395	860,842	1,496	463,835	\$40.00	\$8.08
24	11	2	24	8,642	1,620	81	13,525	1,018	0	138	12,449	873,291	1,264	465,099	\$40.00	\$8.35
25	10	2	21	7,777	1,458	73	12,568	946	0	125	11,570	884,861	1,068	466,167	\$40.00	\$8.62
26	9	2	19	7,000	1,312	66	11,679	879	0	112	10,753	895,614	902	467,069	\$40.00	\$8.90
27	8	1	17	6,300	1,181	59	10,852	817	0	101	9,994	905,608	762	467,832	\$40.00	\$9.19
28	7	1	16	5,670	1,063	53	10,085	759	0	91	9,288	914,896	644	468,476	\$40.00	\$9.49
29	6	1	14	5,103	957	48	9,371	705	0	82	8,632	923,528	544	469,020	\$40.00	\$9.79
30	6	1	13	4,592	861	43	8,611	648	0	74	7,933	931,461	455	469,474	\$40.00	\$10.00
Total	1329	249	2916	1064344	199564	57,645	11,017,540	\$76,668	50	\$17,056	\$931,461	\$19,997,216	\$469,474	\$12,025,797		

\*\$469,474/40AcUnits=\$11,736/Ac  
 Value of Minerals

\*No future profits may be promised and productivity varies widely  
 \*\* Projections only, based on "average" to "above average well"  
 \*\*\* All wells are "different", perform "differently" and are unique  
 \*\*\*\* Variables over time are significant and can alter results (gas prices, gas contracts, line pressure, BTU content and supply/demand for gas)

Figure 5: Baen's Barnett Productivity

**Table 1-A: City Ordinances: Typical vs. Unreasonable Constraint During 30-Day Drilling/Completion Phase**

By John S. Baen, Ph.D.; College of Business Administration; University of North Texas;

CATEGORY	TYPICAL	UNREASONABLE
Permit Fee	\$5,000	Should be based on cost to city to monitor/grant permit; \$25,000 is onerous
Distance to Nearest Residence	250 feet	1,000 feet is onerous, arbitrary and capricious
Distance to Parks, Churches, Schools	250-500 feet	800 feet is onerous, arbitrary and capricious
Distance to Water Well	350-400 feet	1000-1500 feet is onerous, arbitrary and capricious
Fencing and Security	8' Cyclone Fence	Masonry walls are generally unreasonable
Venting/Flaring Gas	Limited should be allowed	Prohibition is unreasonable and, under emergency conditions, unsafe
Noise Standards	Limited to 200 dB?	85 dB is unreasonable, arbitrary and capricious; equivalent to vacuum cleaner in a home
Financial Guarantees - Bonds	Limited to \$25,000-\$1,000,000 or actual cost in case of emergency	Greater than \$1,000,000 is unreasonable, arbitrary and capricious
Closed Drilling Systems vs. Temporary Earthen Pit	Temporary earthen pit	Closed drilling system
City Street Tonnage Limit	Limited to actual damages to be repaired by oil company	Less than 3 tons is unreasonable, arbitrary and capricious
Control of Well Insurance	Limited to actual damages/cost to city	A minimum of \$10 million is is unreasonable, arbitrary and capricious
Daily Fines for Infractions	Should be reasonable and not based on retroactive number of days if a violation occurred	\$2000 per day is unreasonable
City Permit Times	60 days is reasonable; many permits take 6 months-1 year	Less than 60 days is unreasonable.

**Table 2: Examples of Technology Reducing or Eliminating Environmental and Financial Costs of Drilling DFW Barnett Shale Wells in North Texas**  
*(must be cost-effective to all parties)*

By John S. Baen, Ph.D.; College of Business Administration; University of North Texas;

1	3-D Seismic Survey Technology	Reduces dry holes and surface disruption to less than 1-2% of 3800 wells drilled
2	Superior Downhole Logging Technology and Correlation	Creates better information and more productive gas wells
3	Directional Gas Wells	Allows development of gas resources at distant locations and under urban developments
4	Horizontal Wells	Allows maximum development and production of gas from 4000-6000 feet laterally from a distant location and saves surface disruption of more vertical wells
5	Multiple wells from one four-acre pad site	Allows up to five (5) wells to be drilled from one location in various directions; raises efficiencies and reduces maintenance and work areas
6	Use of super-quiet, gas or electric pumping units	95% of the gas wells flow without assistance on natural pressure - zero noise, except during workover and refracking (2-5 days every 1-6 years)
7	Downhole drill-bits that drive like a car and yield real-time, digital geologic information	Reduces dry holes and formation water produced
8	24-hour well production surveillance by radio waves	Good well monitoring is more efficient and safe
9	Gas compressors/collection areas housed in building and noise-proofed or reduction techniques	Reduces noise levels and raises profitability, royalties, taxes generated, etc.
10	Recycling of frack water and water production for re-use (Devon 2005)	Requires less water and less trucking of water on roads and streets
11	Shorter storage tanks for "oil" and water (8' vs. 16')	Lower profile on the urban/suburban landscape; painting with natural or camouflage colors is standard practice by most oil companies (2005)
12	Security fencing can be attractive in highly-developed urban areas	Masonry, concrete, and chain-link fencing with redwood slats are sometimes justified
13	Lease signs which are "air brushed" and professionally designed with multiple wells listed on one sign	First impressions and the public's viewing of entrances to leases is important. Some leases have 15 individual signs that are stark and unprofessional. [State law requires operators to post name, lease name, RRC#, and well(s).]

**Table 6: Professional Real Estate/Land Use Related Designations and Associations that Need Cost-Benefit Information and Education on Mineral Rights, Oil and Gas Lease Activities in Urban and Coastal Areas**

By John S. Baen, Ph.D.; College of Business Administration; University of North Texas;

	Profession	Designation/Organization	Areas of Concern and Education
1	Real Estate Brokers	Realtor/National Association of Realtors; Licensed by State	General lack of knowledge-mineral rights, cost-benefit analysis for communities
2	Real Estate Appraisers	Certified Appraiser/MAI; Licensed by State	Failure to consider value of minerals in appraisals
3	Right-of-Way Agents	Certified ROW Agents; Licensed by State; International Right-of-Way Association	Can be insensitive to long-term land value effects of easements and proper placement
4	Mortgage Lenders	Licensed Loan Officers; Licensed by State	Need general education on oil and gas royalties and low impacts on residential home
5	Title Company Closers and Examiners	Licensed by Texas Insurance Commission; Texas Land Title Association	In new productive areas, fail to include mineral clauses in deeds (many lawsuits)
6	Urban Planners	City Planners, Zoning Officers, American Institute of Planners	General lack of information and failure to plan for sites as part of urban master plans
7	City Administrators, City Councils and P&Z Boards	American Society for Public Administration	General lack of knowledge-mineral rights, cost-benefit analysis
8	Tax Assessors/Collectors	Registered Professional Appraisers (RPA); Registered Tax Assessors (RTA); National Association of Tax Assessor Collectors	Need general education on valuation of royalty, working interest, economic values and effects on surface values
9	Environmental Site Inspectors, Phase I, II, III	TBA	Environmental inspections required on bank loans often overstate effects of O&G activity
10	Mayors	TBA	General lack of knowledge-mineral rights, cost-benefit analysis for O&G activities
11	Attorneys-at-Law	Licensed by State (very few authorized oil and gas attorneys)	In need of refresher courses or information on oil and gas basics, estate planning, leases and mineral deeds

**Table 4**

**Two Contrasting Drilling Environments Study Areas**

By John S. Baen, University of North Texas, 2004. (baen@unt.edu)

	<b>Urban-Suburban Dallas-Fort Worth Metro Area</b>	<b>San Juan Basin Northwest New Mexico and Southwest Colorado</b>
<b>Environment</b>	Urban/Suburban	Wild lands/Rangeland/ Forest/BLM
<b># of Counties</b>	11	4
<b>Land Ownership</b>	Private	Public-BLM/ Indian Tribal Lands
<b>Mineral Ownership</b>	Private	Primarily Public/USA
<b>Target Zone</b>	Barnett Shale/Gas	Fruitland Coal/Methane Gas
<b>Formation Type</b>	“Blanket” Formation	“Blanket” Formation
<b># of Wells Drilled</b>	2,923 (2001-2004)	10,000 Proposed (2004-2006)
<b># of Dry Holes</b>	3	<10%
<b>*Land Planning Potential</b>	High	High
<b>Lease Type</b>	Private Party Negotiation	BLM Lease
<b>Access</b>	Private Lands via Lease Provisions	Remote Public Lands/BLM And frequently through hostile privately-owned land
<b>Surface Owner Damages</b>	\$5,000-10,000/Well	Generally None
<b>Pipeline Damages</b>	\$6-18/linear foot	Generally None

\*Due to generalized and known blanket formation throughout the region. Allows geology to yield to sensitive locational factors found on the surface estate (Existing and future land uses, subdivisions, parks, archeological areas, and special wilderness/“wild” areas)

## Examples of Reducing the Impacts of Drilling on the Surface Environment- Beyond Innovative Exploration and Drilling Techniques

These concepts and techniques are generalized and may or may not be economical in regard to the cost/benefit analysis of the target oil and gas zones. They may be implemented voluntarily, required by the lease document or by regulations.

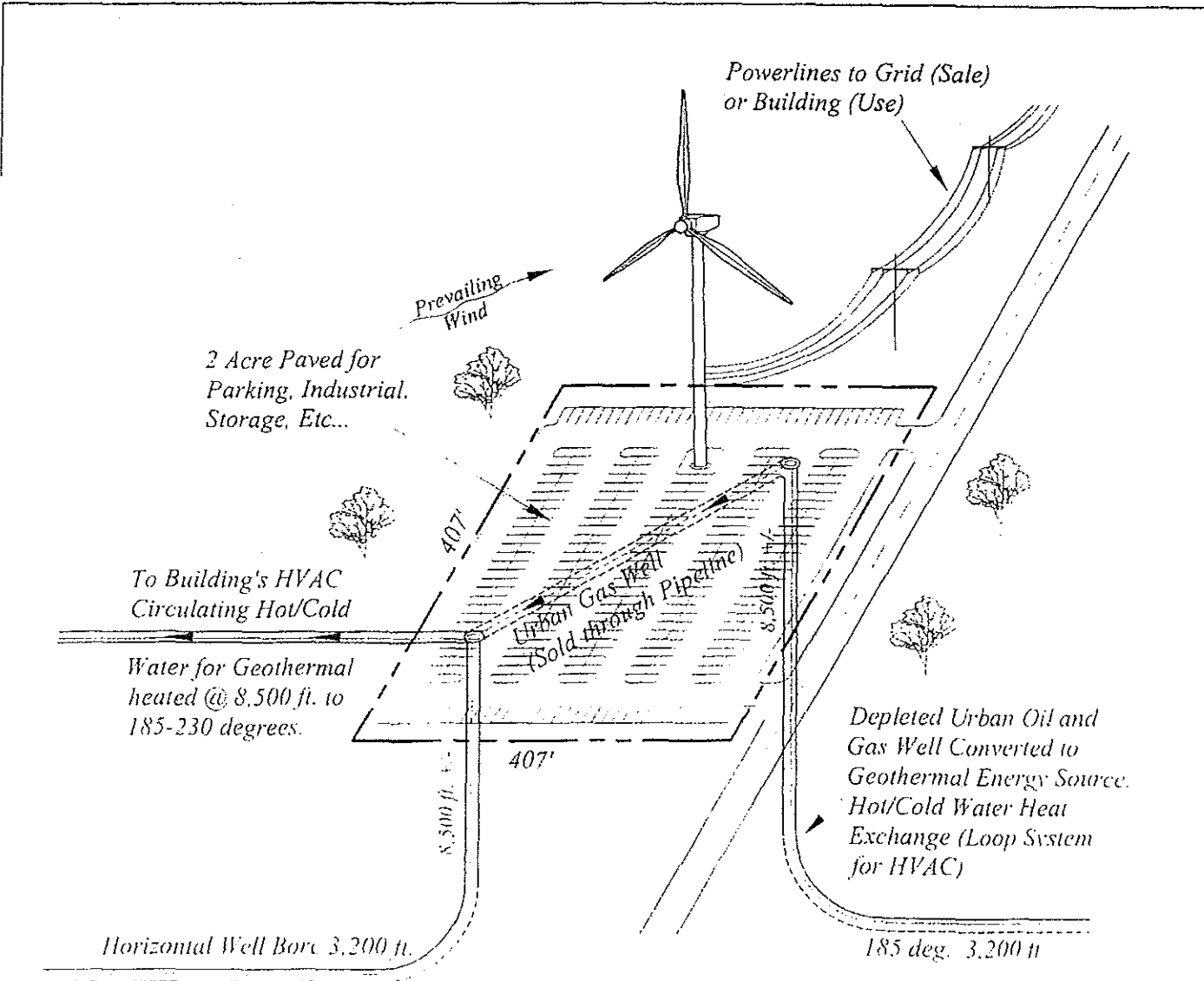
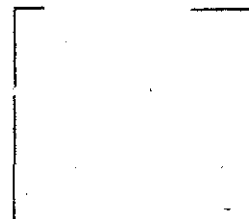
- 1) Well-planned drill-site access and minimum sized drill-site pad-site
- 2) Minimum sized drilling pit (either pit or self-contained metal pits)
- 3) Environmentally-friendly paint color for all surface equipment to match the surrounding environment:
  - a) sandstone beige (San Juan Basin)
  - b) forest green (Federal Lands)
  - c) desert tan (desert environment)
  - d) sage green (sagebrush environment)
- 4) Short production tanks (eight feet vs. fourteen feet) to reduce visibility
- 5) Earthen berms and landscaping (urban areas)
- 6) Underground (buried) electrical service with pumping units or gas-operated pumping with superior noise muffling systems
- 7) Buried flow lines and reseeded areas of soil disturbance
- 8) Well-planned and clustered production pad-sites that when possible, are out of site from the public using natural topography and vegetation (There are many wells located on the very tops of hills and plateaus that easily could have been planned off of the summit)
- 9) Controlled drilling times in periods of high traffic or high area visitation, such as hunting seasons (New Mexico), football games (University of North Texas), when campuses are closed (Texas Woman's University), etc.
- 10) High-Security fencing of production-site equipment and facilities in urban area.
- 11) Radio and remote-control well monitoring equipment with automatic shut-off valves and well problem indications (very common in Texas.)
- 12) Posted security numbers, emergency numbers and other signing to indicate a safety plan is in effect at all entrance gates and well sites.
- 13) Well and well-site monitoring by independent consultants, environmental engineering, or regulations to reduce or eliminate any environmental problems or potential maintenance issues, perhaps as part of an annual operation for paid by oil companies on a per well basis.

**Figure 1. Conceptual Use of 4 acres as an Urban Energy Farm for the Multiple Use of Energy Production from Wind, Oil and Gas, and Geothermal as well as other Uses of the Surface.**

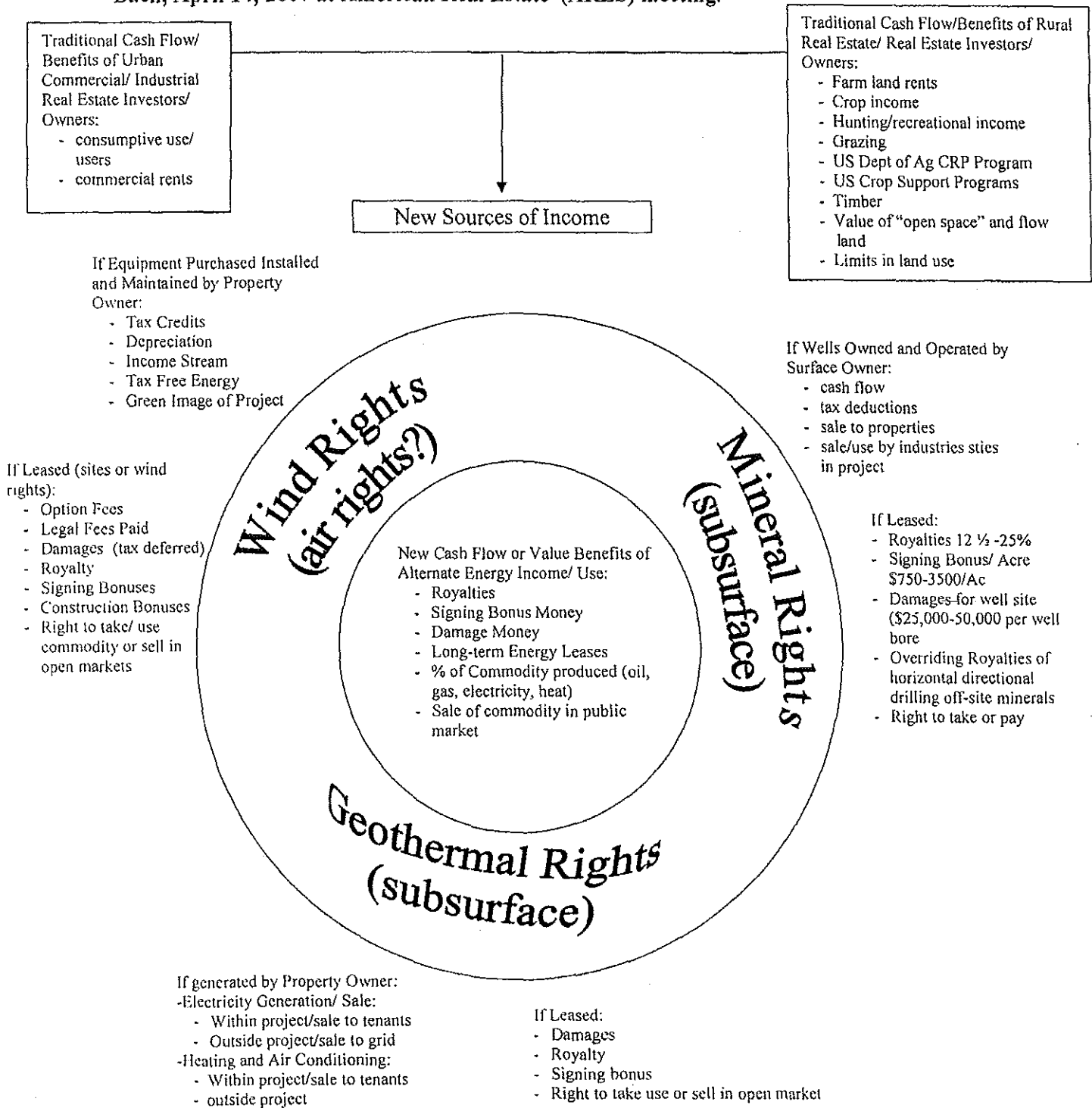
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**Traditional Urban Energy Farm**  
 2 Acre Multiple Uses and Energy Production Methods  
 (Regional Shopping Center Parking Lots, Industrial Complexes, Warehouse Districts, Ship Yards, Contaminated Land, Sanitary Landfills, Etc.)

BY:  
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**Figure 4. Wind/ Geothermal/Mineral Rights/ Exciting New Alternative Energy Value Added and Potential Cash Flow Sources for Rural/Urban Real Estate Investments which can add value to real estate investments (may vary by state laws and regulation) by John S. Baen, April 14, 2007 at American Real Estate (ARES) meeting.**



\*Existing Urban Oil and Gas Wells Dallas, Ft Worth Houston, Los Angeles, US Gulf Coast, Shreveport LA, and other locations can be converted to alternative energy/ cash flow generation without drilling well water.



# Sunday Business

The New York Times  
*Wind Gen on Every Hill, Mountain in PA.?*  
A Splash of Green for the

At Old Factories,  
Hope for a Future  
In Alternative Energy

By PETER S. GOODMAN

NEWTON, IOWA

LIKE his uncle,  
many of their  
sendaal spent  
the Maytag factory  
steel into washing n

When the plant cl  
ing 1,800 jobs out of this town of 16,000  
people, it seemed a familiar story of  
American industrial decline: another  
brought to its knees by

A Splash  
Of Green  
For the  
Rust Belt ?

From Page 1

cash," says Norman W. Johnston, who  
started a solar cell factory called Solar  
Fields in Toledo in 2003.

The market is potentially enormous.  
In a report last year, the Energy De-  
partment concluded that the United  
States could make wind energy the  
source of one-fifth of its electricity by  
2030, up from about 2 percent today.  
That would require nearly \$500 billion  
in new construction and add more than  
three million jobs, the report said. Much  
of the growth would be around the  
Great Lakes, the hardest-hit region in a  
country that has lost four million manu-  
unemployment, renewable energy has  
become a crucial source of good jobs,  
particularly for laid-off Rust Belt work-  
ers.

Amid a presidential election cam-  
paign now dominated by economic con-  
cerns, wind turbines and solar panels  
have been prominent in campaign ad-

Rust Belt

Any Source of Energy  
Has Surface Implications  
COAL WIND  
THE NEW YORK TIMES, SUNDAY, NOVEMBER 2, 2008



location of the horizontal wells found on Figure 6 represent less than 3% of oil and gas wells actually drilled (101:3091) but clearly indicates the areas. Table 2 indicates location and intensity of drilling activity.

The areas of the highest density represent both urban areas and the fastest growing suburban areas surrounding the city of Fort Worth, Texas. As a result of the "invasion" of 60 drilling rigs, many cities most which had never had any oil and gas activity in their history, rapidly responded with over-protective drilling ordinances to try to "control" development of the subsurface resources. Most of the attempts to overregulate, restrict, or prohibit drilling was a result of the general population not understanding oil and gas operations, unfounded safety issues, general lack of understanding of compensation negotiations, and fear of being treated unfairly by oil and gas companies. Many of the municipalities are very small and have very small budgets/tax-bases with little extra money to fight lawsuits that the cities would most likely lose in court. Minerals in Texas generally have a superior right over the surface estate.

Examples of over restrictive ordinances and reactions by some cities in the time period of 2002 - 2004 include but are not limited to the following:

- A. Roanoke, Texas imposed a "change of land use" due to wells drilled having spacing of one (1) well per forty (40) acres. Attempted "roll-back tax" penalties and imposed parkland dedication or equivalent cash contributions for developing the land as "industrial use" were forced on the oil company. A reversal of fines and parkland/cash equivalent fees being returned to the oil company settled the matter.
- B. Reno, Texas required drilling to occur only in "industrial" areas. The oil company purchased an "industrial" tract of land and was still denied a drilling permit. After education and further legal research occurred, the City reversed its policy and granted the drilling permit.
- C. The City of Fort Worth, Texas imposed a moratorium on all drilling until a new, less arbitrary and capricious city ordinance was adopted. Now the City of Fort Worth has some wells being drilled while trying to lease every mineral acre they own to generate new income for the city. Land is being leased under parks, recreation centers, libraries and vacant land.

Table-1A indicates various areas and provisions that many drilling ordinances consider in the North Texas area as well as examples of what this researcher considers, obvious, arbitrary and capricious provisions which are in fact restrictive to the point of making the drilling of wells prohibitive all together.

New technologies that raise the benefits and lower the cost of urban/coastal oil and gas drilling from the DFW Barnett Shale Gas Field are presented in Table 2 and Table 3. Land use efficiency is presented in Table 4 by types of wells drilled to date.

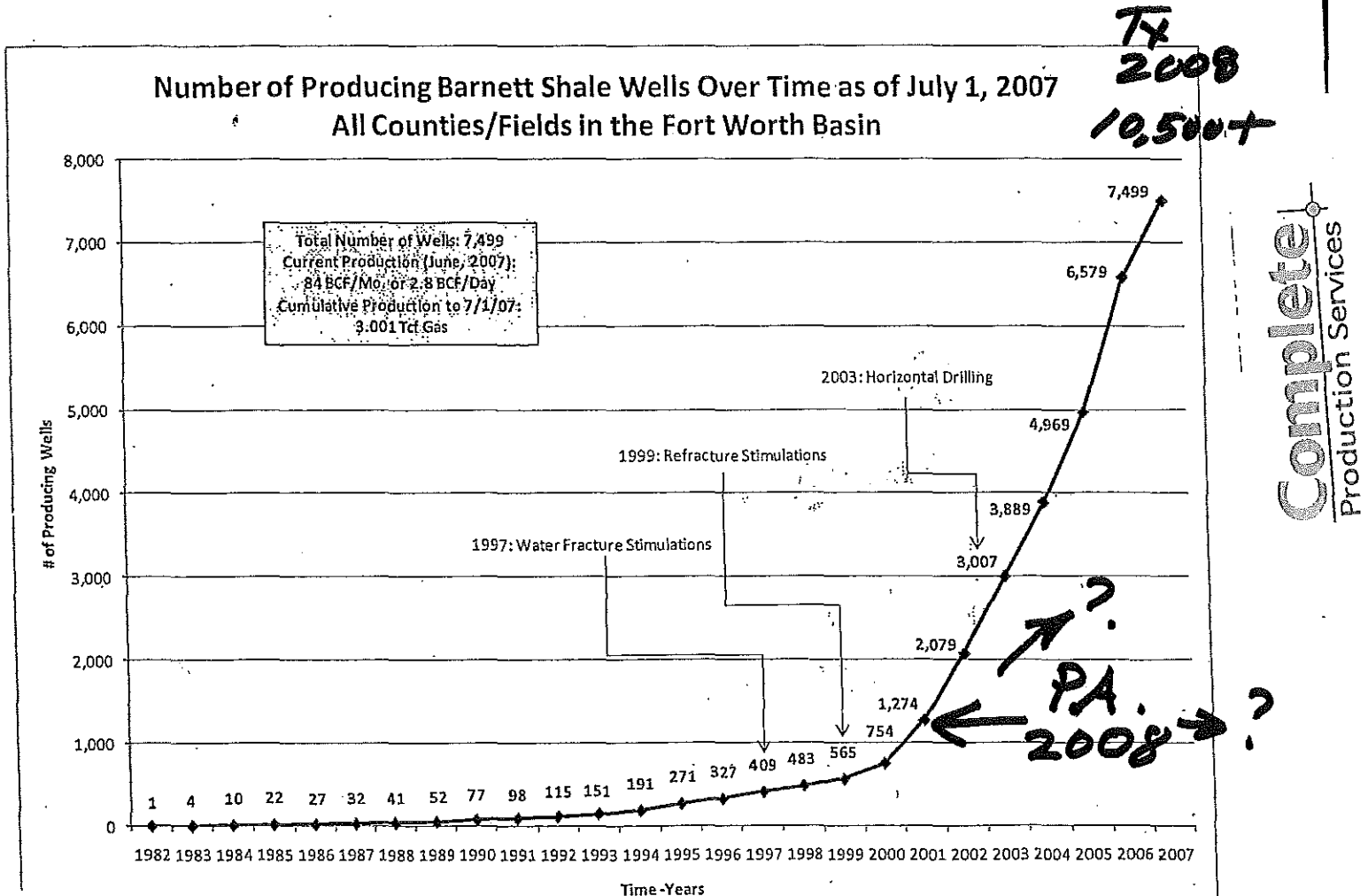
**Table IV Comparative Development, Time Table, Contrasting the Barnett Shale 10,500 Wells of DFW North Texas in 8 years, Potential of the Marcellus Shale of the state energy/varies.**

Source: J.S. Baen, PhD, University of North Texas, various publications, barnettshalenews.com, etc

## BARNETT SHALE RESEARCH

### Number Of Producing Wells In The Barnett Shale

The wells plotted below represent our research of wells in the Barnett Shale in the Fort Worth Basin which have had production of gas and/or oil. Other wells assigned Lease Codes but which are WDW (water disposal wells) wells, etc. were not included. The list includes all counties, fields, and RRC Pending file wells we could find. Sources for this research included our data bases, IHS Energy (Dwights Production data) and Railroad Commission data.



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## FAX COVER SHEET

**Baen, John**

**From:** Edward Charles Berry [ecb13@psu.edu]  
**Sent:** Friday, May 02, 2008 1:28 PM  
**To:** Baen, John  
**Subject:** Marcellus Shale

Dr. Baen:

My name is Edward Berry and I'm with Penn State University Cooperative Extension in Lycoming County. I am part of a seminar team trying to educate the rural population of Pa. in the Exploration and Drilling for natural gas in the Marcellus Shale Play.

Our workshops have been very successful and interest in the Energy Company activities has reached a fever pitch. This activity is still in its infancy and we recognize the age of the Barnett Shale Play in your area and we are trying to discover and learn future impacts. We are travelling to Fort Worth on May 5<sup>th</sup> and 6<sup>th</sup> to see for ourselves what the economic and social impact the Barnett Shale drilling has had. Several energy companies are providing tours of their activities on Monday May 5 and we plan to interview several people on the 6<sup>th</sup> in the Fort Worth area to discuss this impact.

We have learned that you are one of the foremost authorities regarding the impact of the Barnett Shale. I would like to ask if you would be available the evening of May 5<sup>th</sup> to have dinner with us and talk over some of the aspects the Barnett Shale Play. Of course, we would like to provide dinner and would even give a stipend to you for your travel and time. This would be extremely beneficial to our concerns. If that evening is not possible, I wonder if the morning of May 6 would be better.

Our group is headed by Dr. Timothy Kelsey, Penn State University and five others who provide the information to the populace of Pennsylvania. At the same time, we are laying the groundwork for a later trip which will include State Legislators and County Commissioners affected by the Gas wells and Drilling.

If you could find time on either of those two dates, we would be very appreciative. I called and left a message for you at your office at NTSU. I realize this very short notice, but trying to identify and connect with the right people can be difficult.

I would appreciate any consideration you may give to this request and if you would let me know I could place our meeting on our agenda. My number he is (570) 433-3040 or (570) 220-9148.

Edward Berry  
Penn State Cooperative Extension -Lycoming  
542 County Farm Rd. Suite 206