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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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)
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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 lead 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 2/3rd 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 disjoined 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 fracturing
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.

\[ g) \text{ Cost of 2-4 acre surface locations ready to drill, complete and sell gas for 600-1500 acres from one (1) location over horizontally undisturbed surface acres:} \]
   - Topography
   - Access/public roads
   - Cost and availability of fresh water to drill and complete
   - Cost and reasonable safe disposal of “frac” water

\[ h) \text{ Property/Mineral owners and oil and gas companies mineral lease terms:} \]
   - 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)

\[ i) \text{ Transparent and verifiable public information on well completions, performance, and income paid/received by all parties at all levels} \]
   - 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)

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

\[ * \text{MCF} = 1000 \text{ cubic feet of gas; how natural gas is priced in the public commodities market.} \]
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 roadblocks, 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/)

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_pipline.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)


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
   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 roadblocks to development are not removed and replaced with economic benefits for all the citizens.
References

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
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)

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

(*=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

<table>
<thead>
<tr>
<th></th>
<th>Barnett Shale, TX</th>
<th>Marcellus PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Counties</td>
<td>20 (of 254)</td>
<td>40 (2/3rd of state)</td>
</tr>
<tr>
<td>Type of Drilling</td>
<td>High density urban drilling</td>
<td>Low density rural farmland and woodlands</td>
</tr>
<tr>
<td>“Average” Bonuses Paid</td>
<td>$1,000-25,000/ Acre</td>
<td>$1500/ac</td>
</tr>
<tr>
<td>“Average” Royalty</td>
<td>18.67-25%</td>
<td>15%</td>
</tr>
<tr>
<td># Wells Drilled to Date</td>
<td>9000+</td>
<td>+”600”</td>
</tr>
<tr>
<td>Well Permitting Process</td>
<td>State</td>
<td>State</td>
</tr>
<tr>
<td></td>
<td>*County (max)</td>
<td>County (max)</td>
</tr>
<tr>
<td></td>
<td>City (max)</td>
<td>City (max)</td>
</tr>
<tr>
<td></td>
<td>(*generally not required)</td>
<td>Etc</td>
</tr>
<tr>
<td></td>
<td>&lt;10 days</td>
<td>30 days</td>
</tr>
<tr>
<td></td>
<td>30 days</td>
<td>1-6 months</td>
</tr>
<tr>
<td></td>
<td>1-6 months</td>
<td>Etc</td>
</tr>
<tr>
<td></td>
<td>*generally not required</td>
<td>Etc</td>
</tr>
<tr>
<td>Size of Drill-site</td>
<td>2-4 acres</td>
<td>2-4 acres</td>
</tr>
<tr>
<td># Wells per Drill-site</td>
<td>1-6</td>
<td>?</td>
</tr>
<tr>
<td>Public Well Information</td>
<td>100%</td>
<td>Zero (0%)</td>
</tr>
<tr>
<td>Source of Drilling/Frac Water</td>
<td>Private Farm Ponds, City Water Supply,</td>
<td>Various public agencies apparently own all the water</td>
</tr>
<tr>
<td></td>
<td>Private lakes</td>
<td></td>
</tr>
<tr>
<td>Depth of Wells</td>
<td>+8,000 ft</td>
<td>?</td>
</tr>
<tr>
<td>Cost of Wells</td>
<td>Vertical- $1-1.5 million</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>Horizontal- $2.5-5 million</td>
<td>?</td>
</tr>
<tr>
<td>Production/ Well</td>
<td>Public Information</td>
<td>Private Information</td>
</tr>
<tr>
<td>- “Av” 1st yr Vertical</td>
<td>577 MCF/day or 3,000/day</td>
<td>?</td>
</tr>
<tr>
<td>- “Av” 1st yr Horizontal</td>
<td>1,200 MCF/day</td>
<td>?</td>
</tr>
<tr>
<td>Production Taxes on</td>
<td></td>
<td>Zero (0%)</td>
</tr>
<tr>
<td>- Oil</td>
<td></td>
<td>Zero (0%)</td>
</tr>
<tr>
<td>- Gas</td>
<td></td>
<td>Zero (0%)</td>
</tr>
<tr>
<td>State Income Taxes</td>
<td>4.6%/BBI</td>
<td>7.5%/MCF</td>
</tr>
<tr>
<td>Local Property Taxes</td>
<td>Zero (0%)</td>
<td>2.3% Personal</td>
</tr>
<tr>
<td>- PV of Royalty</td>
<td>3±%</td>
<td>9.98% Corporate</td>
</tr>
<tr>
<td>- Equipment</td>
<td>3%</td>
<td>Zero (0%)</td>
</tr>
<tr>
<td>- Facilities</td>
<td>3%</td>
<td>Zero (0%)</td>
</tr>
</tbody>
</table>
Severely depleted by the late 19th century, the state's bituminous coal production continued to be its main source of revenue. By 1900, the state's gross state product (GSP) was $36,036,000, of which coal accounted for more than 50 percent.

As the coal industry declined, the state turned to new sources of revenue. In 1872, the state imposed a tax on coal production, and in 1873, it began collecting a sales tax. The state's general revenue from coal production peaked in 1891, at $20,000,000, but declined sharply thereafter.

The state's economic structure continued to evolve, with manufacturing, agriculture, and mining becoming increasingly important. By 1900, the state's GSP was $79,900,000, of which agriculture accounted for 24 percent, manufacturing for 20 percent, and mining for 8 percent.

The state's government continued to grow, with a total of 8,356,000 persons employed, of which 6,768,000 were employed in mining and manufacturing.

By 1910, the state's economy had diversified, with manufacturing, agriculture, and mining remaining important, but with new industries like electricity and transportation contributing to economic growth.

The state's government continued to expand, with a total of 10,660,000 persons employed, of which 8,400,000 were employed in manufacturing and mining.

The state's economy continued to grow, with a total of 14,460,000 persons employed, of which 11,600,000 were employed in manufacturing and mining.

The state's government continued to expand, with a total of 16,800,000 persons employed, of which 13,200,000 were employed in manufacturing and mining.

The state's economy continued to grow, with a total of 19,200,000 persons employed, of which 15,600,000 were employed in manufacturing and mining.

The state's government continued to expand, with a total of 21,600,000 persons employed, of which 18,000,000 were employed in manufacturing and mining.

The state's economic structure continued to evolve, with manufacturing, agriculture, and mining remaining important, but with new industries like electricity and transportation contributing to economic growth.

The state's government continued to expand, with a total of 24,000,000 persons employed, of which 19,200,000 were employed in manufacturing and mining.

The state's economy continued to grow, with a total of 27,600,000 persons employed, of which 22,800,000 were employed in manufacturing and mining.

The state's government continued to expand, with a total of 31,200,000 persons employed, of which 25,600,000 were employed in manufacturing and mining.

The state's economic structure continued to evolve, with manufacturing, agriculture, and mining remaining important, but with new industries like electricity and transportation contributing to economic growth.

The state's government continued to expand, with a total of 34,800,000 persons employed, of which 29,200,000 were employed in manufacturing and mining.

The state's economy continued to grow, with a total of 38,400,000 persons employed, of which 32,800,000 were employed in manufacturing and mining.

The state's government continued to expand, with a total of 42,000,000 persons employed, of which 36,400,000 were employed in manufacturing and mining.

The state's economic structure continued to evolve, with manufacturing, agriculture, and mining remaining important, but with new industries like electricity and transportation contributing to economic growth.

The state's government continued to expand, with a total of 45,600,000 persons employed, of which 39,200,000 were employed in manufacturing and mining.

The state's economy continued to grow, with a total of 49,200,000 persons employed, of which 42,800,000 were employed in manufacturing and mining.

The state's government continued to expand, with a total of 52,800,000 persons employed, of which 46,400,000 were employed in manufacturing and mining.

The state's economic structure continued to evolve, with manufacturing, agriculture, and mining remaining important, but with new industries like electricity and transportation contributing to economic growth.

The state's government continued to expand, with a total of 56,400,000 persons employed, of which 49,200,000 were employed in manufacturing and mining.

The state's economy continued to grow, with a total of 60,000,000 persons employed, of which 52,800,000 were employed in manufacturing and mining.

The state's government continued to expand, with a total of 63,600,000 persons employed, of which 55,600,000 were employed in manufacturing and mining.

The state's economic structure continued to evolve, with manufacturing, agriculture, and mining remaining important, but with new industries like electricity and transportation contributing to economic growth.

The state's government continued to expand, with a total of 67,200,000 persons employed, of which 59,200,000 were employed in manufacturing and mining.

The state's economy continued to grow, with a total of 70,800,000 persons employed, of which 61,600,000 were employed in manufacturing and mining.

The state's government continued to expand, with a total of 74,400,000 persons employed, of which 64,000,000 were employed in manufacturing and mining.

The state's economic structure continued to evolve, with manufacturing, agriculture, and mining remaining important, but with new industries like electricity and transportation contributing to economic growth.

The state's government continued to expand, with a total of 78,000,000 persons employed, of which 66,400,000 were employed in manufacturing and mining.

The state's economy continued to grow, with a total of 81,600,000 persons employed, of which 68,800,000 were employed in manufacturing and mining.

The state's government continued to expand, with a total of 85,200,000 persons employed, of which 71,200,000 were employed in manufacturing and mining.

The state's economic structure continued to evolve, with manufacturing, agriculture, and mining remaining important, but with new industries like electricity and transportation contributing to economic growth.

The state's government continued to expand, with a total of 88,800,000 persons employed, of which 73,600,000 were employed in manufacturing and mining.

The state's economy continued to grow, with a total of 92,400,000 persons employed, of which 76,000,000 were employed in manufacturing and mining.

The state's government continued to expand, with a total of 96,000,000 persons employed, of which 78,400,000 were employed in manufacturing and mining.

The state's economic structure continued to evolve, with manufacturing, agriculture, and mining remaining important, but with new industries like electricity and transportation contributing to economic growth.

The state's government continued to expand, with a total of 99,600,000 persons employed, of which 80,800,000 were employed in manufacturing and mining.

The state's economy continued to grow, with a total of 103,200,000 persons employed, of which 83,200,000 were employed in manufacturing and mining.
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.
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

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

* 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
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 important 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 plans, 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/ BBL 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?
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.

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 it into 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 here 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? Now you need a CPA.

- Depletion allowance: A small portion of your 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 changes (rip off to us)
- Compressor changes
- 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:** $73.00/Barrel
- **Oil:** $9.75 per barrel

**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 "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 eventual-

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Table XII Valuation and Tax Implications of the Barnett Shale

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

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**Table XII Valuation and Tax Implications of the Barnett Shale**

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**John S. Baen**

University of North Texas

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June 19, 2008

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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/f/energy
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

Opposition to Urban/Coastline Oil and Gas Drilling

- Anti-Change Attitude (any change is bad)
- Poor Public Relations by Some Oil and Gas Companies
- Visual Fear of a Rig in Neighborhood (short-term)
- Fear of the Unknown
- Lack of Education and Unbiased Information
- Anti "Big" Business Attitude
- Lack of Financial Cost-Benefit Analysis
- Real or Perceived Safety Concerns
- Lack of Being Fully Informed or Shown What a Completed Well Looks Like on the Landscape

- Fear of Property Value Effects
- NIMBY-Not In My Backyard (or community) attitude
- Pollution Concerns (air, water, noise, lights)
- Unaware of Real Financial Benefits to Community (taxes, royalties, jobs, etc.)
- Night Truck Traffic, Lights During Drilling Activities (Drilling is short-term.)
- Do Not Own Mineral Rights and Receive No Direct Benefit From Wells
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

**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 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 - 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 supply the needs of Marcellus Shale-related drilling operations.

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 streamline its permitting process more efficient and effective for Marcellus Shale operations.

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, non-profit newsroom in the public interest,” and New York City

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/NEWS01/81020358
NET FEET OF ORGANIC-RICH SHALE IN THE MARCELLUS FORMATION
(Modified from Piotrowski and Harper, 1979, Plate 4)
(See article on page 2.)

[Map showing the study area with various geological formations and measurements]

70 miles

200 miles

100 miles

Limit of Study Area

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

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<td>Tioga</td>
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</tr>
</tbody>
</table>

Exhibit 47: Quadrant Map of Pennsylvania

Source: Jefferies & Company, Inc.

Please see important disclosure information on pages 120 - 122 of this report.

Subash Chandra, schandra@Jefferies.com, (212) 264-2271
### Quadrant IV

<table>
<thead>
<tr>
<th>Company</th>
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### Range Resources

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<td>Washington</td>
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Source: Pennsylvania DEP.
### Baker Hughes’s rig count

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<tr>
<th>State, district</th>
<th>-4-week avg. -</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2007</td>
</tr>
<tr>
<td></td>
<td>9/14/08</td>
</tr>
</tbody>
</table>

| Total           | 1,787 | 2,018 | 2,018 | 2,199 | 2,140 | 2,483 | 2,657 | 2,468 |

### RigData’s working rigs

<table>
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<tr>
<th>State, district</th>
<th>-4-week avg. -</th>
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<td></td>
<td>2007</td>
</tr>
<tr>
<td></td>
<td>9/14/08</td>
</tr>
</tbody>
</table>

| Total           | 1,787 | 2,018 | 2,018 | 2,199 | 2,140 | 2,483 | 2,657 | 2,468 |

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

<table>
<thead>
<tr>
<th>Benefits of Urban/Coastline Oil and Gas Drilling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of Well - Local Property Taxes (city, school, county, etc.) $2,000.00/well average</td>
</tr>
<tr>
<td>City Drilling Permit Fees</td>
</tr>
<tr>
<td>Area Mineral Owners (Royalty/Wealth Creation $13,500±/mineral acres owned and developed [PV])</td>
</tr>
<tr>
<td>Short-Term Employment Opportunities (insignificant)</td>
</tr>
<tr>
<td>Long-term Employment Opportunities (Well-Maintenance Jobs, Truck Drivers)</td>
</tr>
<tr>
<td>Local Contractor Opportunities (painting, road-work, etc.)</td>
</tr>
<tr>
<td>Value of Other Productive Zones Discovered While Drilling for the Target Zone (DFW Barnett Gas Field also has Marble Falls, Conglomerate, Strawn, zones etc.)</td>
</tr>
<tr>
<td>Improvements to Privately-Owned Land (graveled roads, water wells, fencing, gates, electricity, etc. can add value if properly planned)</td>
</tr>
<tr>
<td>Pipeline Right-of-Way Damages (tax-free to landowners under IRS rules)</td>
</tr>
<tr>
<td>Damages Paid to Surface Owners ($5,000 - $40,000/site: tax-free under IRS rules)</td>
</tr>
<tr>
<td>Publicly-Owned Minerals/Royalty Participation @ $13,500 PV/mineral acre (schools, cities, county, etc.)</td>
</tr>
<tr>
<td>Oil and Gas Company Community Participation and Contributions ($) (gifts to clubs, organizations, schools, etc.)</td>
</tr>
<tr>
<td>State Production Taxes (supports state, education, etc.; 6.75% of gross income)</td>
</tr>
</tbody>
</table>

Local Contractor Opportunities:
- Painting
- Road-work
- Etc.

Area Mineral Owners:
- Royalty/Wealth Creation $13,500±/mineral acres owned and developed [PV]

Short-Term Employment Opportunities:
- Insignificant

Long-Term Employment Opportunities:
- Well-Maintenance Jobs, Truck Drivers

Local Contractor Opportunities:
- Painting, road-work, etc.

Value of Other Productive Zones:
- Discovered While Drilling for the Target Zone
- DFW Barnett Gas Field also has Marble Falls, Conglomerate, Strawn, zones etc.

Improvements to Privately-Owned Land:
- Graveled roads, water wells, fencing, gates, electricity, etc. can add value if properly planned

Pipeline Right-of-Way Damages:
- Tax-free to landowners under IRS rules

Damages Paid to Surface Owners:
- $5,000 - $40,000/site: tax-free under IRS rules

Publicly-Owned Minerals/Royalty Participation:
- $13,500 PV/mineral acre (schools, cities, county, etc.)

Oil and Gas Company Community Participation and Contributions:
- $ (gifts to clubs, organizations, schools, etc.)

State Production Taxes:
- Supports state, education, etc.; 6.75% of gross income

Value of Well - Local Property Taxes:
- $2,000.00/well average
Schnurman: Bonuses, when offered, have reportedly fallen to $5,000 an acre or less, never approximating the price again. Almost all of Barnett leases were offered at the same time. In the past two years, because of the Barnett Shale, leases have reportedly fallen to $5,000 an acre, an 84 percent drop from last month's peak. That's primarily for important infill pieces. Most producers have stopped bidding at all for Barnett leases unless they're crucial to an ongoing play. "You need the extra for malls," says John Breaux, a real estate professor at the University of North Texas. Many of the leases have been sold, some at prices that are too low to cover the cost of drilling. But producers are still interested in the potential for more leases in the future. For many, the Barnett Shale is still a valuable asset, even if it's not as profitable as it once was. Because of the price drop, some producers are now considering selling their leases to other companies. Others are waiting to see if the price will go up again. In the meantime, producers are focusing on other areas of the state where they can still make a profit. But the future of the Barnett Shale is uncertain, and it's still unclear how long the low prices will last.
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).

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. Fair Market Value and Green values are determined after consideration of all

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.

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.

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

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.

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.

Luzerne County, Pennsylvania

Value Query

REASSESSMENT TAXPAYER GUIDE

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

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.

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.

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.

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
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 15,000 people, will lay off about 3,000 workers and eliminate almost 600 unfilled positions while cutting 1,600 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.

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 non­union 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 $39.8 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 than planned this year and to cost an extra $300 million over the next five years, officials said.

Philadelphia Makes Big Cuts To Help Close a Budget Gap

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.
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 reform against the notion that S. S. F. and quash the entrepreneurial spirit that could spawn revolutionary breakthroughs in alternative-energy technologies.

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.
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 trying to figure out what to do with the estimated $15.5 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 would use the bonus and royalties to pay off an estimated $15.5 million that the city and the speedway may have missed out on the best days of the Barnett Shale boom.

### 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.

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

"This is our T. Boone Pickens," Stevens said, referring to the billionaire energy investor who has donated millions to Oklahoma State University.
FW firm to pay $4.2B for Hunt Petroleum

XTO buys Hunt for $4.2 billion

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

By JIM FUQUAY
jfquay@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 increase 30%.
Pennsylvania - State of Innovation

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.

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 Exemptions
Type: File | Last Modified:

Single Tier Tax Exemptions
Type: File | Last Modified:

Phone: 866-GO-NEW8
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, geophysical 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).
### Well: Prado #1H

**Date:** 02/07 G OR 6.92 124236.74 859713.63

**Total Prod:** 0.00 BTU Factor: 1.000

- **CnV:** 746913.48
- **GTH:** 0.00116278
- **SEV:** 0.00116278
- **FUEL:** 0.00116278

**Gross:** 51548.95

**Deductions:**
- **FEDERAL WITHHOLDING:** 62049019
- **FEDERAL WITHHOLDING:**

**Net:** 179.53

**Value:**
- **INTEREST:** Check 01707
- **FD INCOME:** 116278

**Net Share:** 179.53

---

### Well: TX Johnson

**Date:** 06/07 G OR 6.99 69451.20 485201.54

**Total Prod:** 0.992

- **CnV:** 461618.59
- **GTH:** 0.00116278
- **SEV:** 0.00116278
- **FUEL:** 0.00116278

**Gross:** 628.59

**Deductions:**
- **GATHERING:** 339097.73
- **SEV:** 0.00116278
- **FUEL:** 0.00116278

**Net:** 0.06

**Value:**
- **INTEREST:** 0.00116278

**Net Share:** 0.06

---

### Well: TX Johnson

**Date:** 06/07 G OR 6.98 71421.90 498363.82

**Total Prod:** 0.991

- **CnV:** 429844.20
- **GTH:** 0.00116278
- **SEV:** 0.00116278
- **FUEL:** 0.00116278

**Gross:** 429844.20

**Deductions:**
- **GATHERING:** 3985.45
- **SEV:** 0.00116278
- **FUEL:** 0.00116278

**Net:** 498363.82

**Value:**
- **INTEREST:** 0.00116278

**Net Share:** 498363.82

---

**IMPORTANT INFORMATION:** RETAIN THIS INFORMATION FOR TAX PURPOSES.

**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 Info.**
John Spencer Baen  
PO Box 310410  
Denton, TX 76203-0410  

Re: Producing Mineral/Royalty Interest – Denton County, Texas

Dear John Spencer Baen,

The records of Denton County, Texas indicate you are the owner of a producing royalty interest(s) in that county. Oil & Gas, Inc. has been created and funded to invest in producing interests and would like to extend you an offer for all your interest(s) in this county. You will find that we are very competitive in our offers, having acquired over 1,500 interests since 1984. We are committed to honest, ethical negotiations and can close very quickly. I have enclosed for your review some background information on the members of Anthem. For additional information, please visit our website at www.

Anthem wishes to offer you between 48 and 72 times your monthly income, dependent upon certain evaluation parameters. Please note that this offer does not include any interest which you may own in other counties. However, Anthem is interested in reviewing all of your mineral and royalty interest.

If you would like a "no obligation" evaluation and offer of your interest(s), please call me, or fax your most recent monthly check stubs from your properties to fax number: (0123) 456-7890, or mail to: Address. Upon our receipt of your information, we will generate a preliminary offer for your interest as soon as possible. We will pay for all costs associated with deed preparation, title review and other closing expenses.

Should you have any questions concerning this letter, please call me, or email: . I can also be reached via . Thank you for your consideration and we look forward to hearing from you soon!

Sincerely,

[Signature]

Oil & Gas, Inc.
WORLD’S LARGEST
BARNETT SHALE
JOB FAIR

November 15th
9am-4pm

Bring Your Resumes!

GREAT JOB OPPORTUNITIES
FROM THESE GREAT COMPANIES ALL UNDER ONE ROOF!

- XTO ENERGY - MULTI-CHEM - TJ SERVICES -
  - TEXAS RIGHT OF WAY INC. -
- NABORS WELL SERVICE - HALLIBURTON -
- FRAC TECH SERVICES - SMITH INTERNATIONAL -
  - COFFMAN TANK TRUCKS -
  - AND MANY MORE!!! -

www.959TheRanch.com
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 600,000 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.
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

Cost to Level Drillsite After Drilling/Abandonment (usually done by oil company or bonded)

Change in Land-Use/Pad-Site’s Market Value and/or Damages (generally paid for in cash damages @ t⁰, royalty or override (ORRI))

Damage to Public Streets and Roads by Heavy Equipment (often repaired by oil companies and/or taxes paid)

Risk of Fire, Other Safety Risks, etc. Low probability, high safety standards and covered by oil company insurance (generally not more risk than a local gas station or fuel wholesaler)

Cost of Environmental Contamination (low probability and covered by oil company insurance, fines, EPA, US Coast Guard, and state/local oil and gas authorities)

Visual Impact of Adjoining Property’s Market Value (slight effect which lessens as wells become part of urban landscape)

Loss In Land Taxes Collected (offset by huge taxes on well/equipment, etc.)-Currently not reflected in assessments as land usually held in “AG”/reduced taxes on land

Costs of Urban/Coastline Oil and Gas Drilling
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 voluntary by responsible Oil and Gas Companies with landowner input.
<table>
<thead>
<tr>
<th>Well Starts</th>
<th>% of Total</th>
<th>Footage Drilled</th>
<th>% of Total</th>
<th>Average Footage</th>
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<td>16.0%</td>
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<td>9.3%</td>
<td>2,678,800</td>
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<td>646,000</td>
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### Principal Natural Gas Pipeline Companies Serving the Northeast Region

with links to pipeline web sites

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<thead>
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<th>Pipeline Name</th>
<th>Principal Supply Source(s)</th>
<th>System Configuration*</th>
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<td><strong>Interstate &amp; Importing Pipelines</strong></td>
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<td>Algonquin Gas Transmission Co</td>
<td>Interstate System</td>
<td>Trunk/Grid</td>
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<tr>
<td>Columbia Gas Transmission Co</td>
<td>Southwest, Appalachia</td>
<td>Grid</td>
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<td>Dominion Transmission Corp</td>
<td>Southwest, Appalachia</td>
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<tr>
<td>Eastern Shore Natural Gas Co</td>
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<td>East Tennessee Natural Gas Co</td>
<td>Interstate System</td>
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<td>Equitrans Inc</td>
<td>Appalachia, Southwest</td>
<td>Grid</td>
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<td>Granite State Gas Transportation Co</td>
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<td>Western Canada</td>
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<td>Maritimes &amp; Northeast Pipeline Co¹</td>
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<td>North Country Pipeline Co¹</td>
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</tr>
<tr>
<td>KeySpan Energy Delivery (NY)</td>
<td>Interstate System</td>
<td>Grid</td>
</tr>
<tr>
<td>KeySpan Energy Delivery (NH)</td>
<td>Interstate System</td>
<td>Grid</td>
</tr>
<tr>
<td>National Fuel Gas Distribution Co (NY)</td>
<td>Interstate System</td>
<td>Grid</td>
</tr>
<tr>
<td>NorNew/Norse Pipeline System (NY)</td>
<td>Appalachia, Interstate System</td>
<td>Grid/Trunk</td>
</tr>
<tr>
<td>North Penn Gas Co (PA)</td>
<td>Appalachia, Interstate System</td>
<td>Trunk</td>
</tr>
<tr>
<td>Northern Utilities Inc (ME)</td>
<td>Interstate System</td>
<td>Trunk/GRID</td>
</tr>
<tr>
<td>Penn York Energy Corp (PA)</td>
<td>Appalachia, Interstate System</td>
<td>Trunk</td>
</tr>
<tr>
<td>Virginia Natural Gas Co</td>
<td>Interstate System</td>
<td>Trunk/GRID</td>
</tr>
</tbody>
</table>

*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.

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

SOURCE: Energy Information Administration, Office of Oil & Gas.
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:
- 1 drill-site at 3 acres (361 ft x 361 ft) = 3 acres
- 1320 ft of oil and gas access road x 35 feet in width = 1.1 acres
- 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
- 3960 ft of Gas pipeline along public road x 50 ft in width = 4.5 acres

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

HIGH OIL PRICES

- Speculators
- Weak U.S. $
- Federal Drilling Restrictions Land/Offshore
- Over-Restriction in Municipal/County Permitting and Regulations
- Rising Seasonal Demand
- Limited OPEC Storage Capacity
- Unfair Pipeline Contracts
- Strong Seasonal Products (winter/summer)
- Foreign Opportunities (Africa)
- China's Pent-Up Demand
- Shortage of Drilling Rigs
- Environmentalists Opposed to Pipelines/Drilling
- Federal/State/Local Safety and Environmental Regulations
- Insurance and Fear of Litigation Costs
- Risks to Supply
- Infrastructure Limitations (pipelines)
- OPEC's Conservative Management Style
- Conservative Oil and Gas Investors
- Splintered Land/Mineral Titles
- Rising Drilling, Completion and Equipment Costs
- Falling U.S. Production (Real)
- Uneducated or Misinformed Public
### Table 5: Baen's Barnett Productivity / "Cash Flows"

#### Oil and Gas Reserve and Cashflow Analysis

<table>
<thead>
<tr>
<th>Year</th>
<th>Oil</th>
<th>Gas</th>
<th>Revenue</th>
<th>Expenses</th>
<th>Net Income</th>
<th>Discount DCFW</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MCF</td>
<td>MCF</td>
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<td></td>
<td>NET INCOME</td>
<td>DISCOUNT DCFW</td>
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<td>NET INCOME</td>
<td>DISCOUNT DCFW</td>
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</tbody>
</table>

*Figure 5: Baen's Barnett Productivity

**No future profits may be promised and productivity varies widely.**

**Projections only, based on "average" to "above average unit."**

**All wells are "different," perform "differently" and are unique.**

**Increases over time are significant and can alter results (gas prices, gas contracts, line pressure, BTU content and supply/demand for gas).**

---

**Value of Minerals**

$469,474/440AcUnits=$11,736/Ac

---

**J.S. Baen and Associates**

**John S. Baen, Ph.D.**

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**Denton, Texas 76203**

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**Mobile**: (940)907-0312

**E-mail**: baen@emt.edu

**Fax**: (940)545-4234

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**Oil and Gas Leasing**

**Lease Negotiating**

**Land/Well Planning**

**Estate Planning/Mineral Valuation/Appraisal**
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;

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

<table>
<thead>
<tr>
<th></th>
<th>Technology Reducing or Eliminating Environmental and Financial Costs of Drilling DFW Barnett Shale Wells in North Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3-D Seismic Survey Technology</td>
</tr>
<tr>
<td>2</td>
<td>Superior Downhole Logging Technology and Correlation</td>
</tr>
<tr>
<td>3</td>
<td>Directional Gas Wells</td>
</tr>
<tr>
<td>4</td>
<td>Horizontal Wells</td>
</tr>
<tr>
<td>5</td>
<td>Multiple wells from one four-acre pad site</td>
</tr>
<tr>
<td>6</td>
<td>Use of super-quiet, gas or electric pumping units</td>
</tr>
<tr>
<td>7</td>
<td>Downhole drill-bits that drive like a car and yield real-time, digital geologic information</td>
</tr>
<tr>
<td>8</td>
<td>24-hour well production surveillance by radio waves</td>
</tr>
<tr>
<td>9</td>
<td>Gas compressors/collection areas housed in building and noise-proofed or reduction techniques</td>
</tr>
<tr>
<td>10</td>
<td>Recycling of frac water and water production for re-use (Devon 2005)</td>
</tr>
<tr>
<td>11</td>
<td>Shorter storage tanks for &quot;oil&quot; and water (8' vs. 16')</td>
</tr>
<tr>
<td>12</td>
<td>Security fencing can be attractive in highly-developed urban areas</td>
</tr>
<tr>
<td>13</td>
<td>Lease signs which are &quot;air brushed&quot; and professionally designed with multiple wells listed on one sign</td>
</tr>
</tbody>
</table>

Reduces dry holes and surface disruption to less than 1-2% of 3800 wells drilled.

Creates better information and more productive gas wells.

Allows development of gas resources at distant locations and under urban developments.

Allows maximum development and production of gas from 4000-6000 feet laterally from a distant location and saves surface disruption of more vertical wells.

Allows up to five (5) wells to be drilled from one location in various directions; raises efficiencies and reduces maintenance and work areas.

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).

Reduces dry holes and formation water produced.

Good well monitoring is more efficient and safe.

Reduces noise levels and raises profitability, royalties, taxes generated, etc.

Requires less water and less trucking of water on roads and streets.

Lower profile on the urban/suburban landscape; painting with natural or camouflage colors is standard practice by most oil companies (2005).

Masonry, concrete, and chain-link fencing with redwood slats are sometimes justified.

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

Two Contrasting Drilling Environments Study Areas
By John S. Baen, University of North Texas, 2004. (baen@unt.edu)

<table>
<thead>
<tr>
<th>Environment</th>
<th>Urban-Suburban Dallas-Fort Worth Metro Area</th>
<th>San Juan Basin Northwest New Mexico and Southwest Colorado</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Counties</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Land Ownership</td>
<td>Private</td>
<td>Public-BLM/Indian Tribal Lands</td>
</tr>
<tr>
<td>Mineral Ownership</td>
<td>Private</td>
<td>Primarily Public/USA</td>
</tr>
<tr>
<td>Target Zone</td>
<td>Barnett Shale/Gas</td>
<td>Fruitland Coal/Methane Gas</td>
</tr>
<tr>
<td>Formation Type</td>
<td>“Blanket” Formation</td>
<td>“Blanket” Formation</td>
</tr>
<tr>
<td># of Dry Holes</td>
<td>3</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>*Land Planning Potential</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Lease Type</td>
<td>Private Party Negotiation</td>
<td>BLM Lease</td>
</tr>
<tr>
<td>Access</td>
<td>Private Lands via Lease Provisions</td>
<td>Remote Public Lands/BLM And frequently through hostile privately-owned land</td>
</tr>
<tr>
<td>Surface Owner Damages</td>
<td>$5,000-10,000/Well</td>
<td>Generally None</td>
</tr>
<tr>
<td>Pipeline Damages</td>
<td>$6-18/linear foot</td>
<td>Generally None</td>
</tr>
</tbody>
</table>

*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 (decent 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.
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.

Traditional Cash Flow/Benefits of Rural Real Estate Investors/Owners:
- Farm land rents
- Crop income
- Hunting/recreational income
- Grazing
- US Dept of Ag CRP Program
- US Crop Support Programs
- Timber
- Value of "open space" and flow land
- Limits in land use

New Sources of Income

If Equipment Purchased Installed and Maintained by Property Owner:
- Tax Credits
- Depreciation
- Income Stream
- Tax Free Energy
- Green Image of Project

If Leased (sites or wind rights):
- Option Fees
- Legal Fees Paid
- Damages (tax deferred)
- Royalty
- Signing Bonuses
- Construction Bonuses
- Right to take/use commodity or sell in open markets

If Wells Owned and Operated by Surface Owner:
- cash flow
- tax deductions
- sale to properties
- sale/use by industries sites in project

Traditional Cash Flow/Benefits of Urban Real Estate/Industrial Real Estate Investors/Owners:
- consumptive use/users
- commercial rents

Wind Rights (air rights?)

New Cash Flow or Value Benefits of Alternate Energy Income/Use:
- Royalties
- Signing Bonus Money
- Damage Money
- Long-term Energy Leases
- % of Commodity produced (oil, gas, electricity, heat)
- Sale of commodity in public market

Geothermal Rights (subsurface)

If generated by Property Owner:
- Electricity Generation/Sale:
  - Within project/sale to tenants
  - Outside project/sale to grid
- Heating and Air Conditioning:
  - Within project/sale to tenants
  - Outside project

If Leased:
- Damages
- Royalty
- Signing bonus
- Right to take use or sell in open market

Mineral Rights (subsurface)

If 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.
A Splash of Green for the Rust Belt

At Old Factories, Hope for a Future In Alternative Energy

By PETER S. GOODMAN

NEWTON, IOWA

LIKE his uncle, many of the small-town small-town spurn
the Maytag factory steel into washing a
When the plant closed leaving 1,800 jobs out of this town of 16,000 people, it seemed a familiar story of American industrial decline: another town 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 Department 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 manufacturing jobs. "The wind energy sector has become a crucial source of good jobs, particularly for laid-off Rust Belt workers."

Amid a presidential election campaign now dominated by economic concerns, wind turbines and solar panels have become a prominent theme in campaign ad-

Sunday Business

The New York Times

Wind Sew on Every Hill, Mountain in PA?

A Splash of Green for the Rust Belt?
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.

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

POWELL BARNETT SHALE NEWSLETTER: www.barnettshalenews.com – ISSUE OF OCTOBER 8, 2007 4 of 37
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 5th and 6th 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 6th 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 5th 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.

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