RDA
Responsible Drilling Alliance

Complaint being filed against Pennsylvania State University with the Middle States Commission on Higher Education by the Responsible Drilling Alliance

Additional information and supporting documents:

The Responsible Drilling Alliance, a nonprofit 501 (c) (3) organization in Williamsport, Pennsylvania, is filing a complaint against Pennsylvania State University. We are asking the Middle States Commission on Higher Education to consider this complaint in the context of the accreditation review of Penn State currently underway. Like the issue that caused Middle States to begin its investigation into the university's governance, this complaint also centers on the abuse of public trust by the university.

Penn State published three papers advocating for the shale gas industry which appeared to be independent research papers.

These papers contained greatly exaggerated projections of jobs, economic development, and tax revenues.

Coming from a highly regarded public research institution, the papers profoundly influenced the legislative debate in Pennsylvania on taxes and regulation in favor of the gas industry. They became the rational for policy decisions by the former and current state administrations.

The three Penn State papers are consistent with similar works in other regions that the shale gas industry has commissioned and uses as a strategy to gain concessions.

The two lead authors have produced a series of similar papers, using their position in higher education, to advocate for narrow interest of the fossil fuel industry.

Penn State never distancing itself from the original paper and allowed its research reputation to be associated with the two subsequent releases after it became known that the authors and their work directly served the interest of the shale gas industry.

RDA is charging that Penn State's actions were unethical and constitute an abuse of the public's trust

- Penn State published an advocacy for the shale gas industry under the guise of an independent research report. <u>Emerging Giant, Prospects and</u>

Economic Impacts of Developing the Marcellus Shale Natural Gas Play, was followed by Update, 2010, and Impacts and Future Potential, 2011. These papers were released under Penn State's name and authored by former Penn State professors but sponsored by the shale gas industry.

- The papers contained a host of highly exaggerated predictions on jobs, economic development, and tax revenues. The original printing of Emerging Giant did not carry a notice of sponsorship nor a disclaimer from the university. None of the three papers were peer reviewed or published in professional journals. Neither of the two lead authors have a background in the paper's primary subject: regional economics. One author being a petroleum engineer the other a fuel market analyst. Both lead authors had left Penn State employ before the release of the first paper.

- Emerging Giant and Update profoundly influenced the legislative debate on taxes and regulation in Pennsylvania in favor of the gas industry. The excessive predictions and claims have been used to pressure legislators into making concessions. The most successful one being the defeat of the severance tax. Emerging Giant had the most extensive roll-out of any academic paper in Penn State's history. Almost immediately, the gas industry's public relations machinery brought Emerging Giant into the limelight of the national and international media. Gas industry lobbyists took it around to the legislative offices in Harrisburg as well as to the governor's mansion. The copies the lobbyists dropped off had Penn State's name and shield on the cover but carried no acknowledgement that the work had been commissioned by the Marcellus Shale Gas Committee nor was there a university disclaimer inside.

- On August 5, 2009, a second printing containing an acknowledgement and disclaimer was issued without discernible fanfare. By then, however, the damage had been done. Emerging Giant, being from a prestigious research university and of apparent independent scholarship, overwhelmed the debate and validated all the shale gas industry's positions. From that moment on, critics of gas drilling and proponents alike would start their statements by agreeing that shale gas promised great economic benefits. Governor Rendell, even while proposing a severance tax, would quote Emerging Giant's pronouncements. Governor Corbett and Lt. Governor Cawley, head of the Marcellus Shale Commission, used the Penn State Report's projections as the basis for their policies. The final report from the Marcellus Shale Advisory Commission released in July 2011 cited projections from the Update. (p. 83)

http://files.dep.state.pa.us/PublicParticipation/MarcellusShaleAdvisoryCommission/MarcellusShaleAdvisoryPortalFiles/MSAC_Final_Report.pdf

- A memorandum from the prestigious Fels Institute of Government at the University of Pennsylvania advising Governor Corbett on how to handle his pro drilling agenda. They uncritically quoted statistics from the Penn State papers along with blatant misuse of L & I statistics taken from the Marcellus Shale Coalition web site.

  Policy Memorandum to Governor Corbett

  Happy Fracking Inc., Fels Institute of Government, April 23, 2011
  Recommendations on how to Maintain the Governor's Core Position on Regulating the Natural Gas Drilling of Pennsylvania's Marcellus Shale

http://www.fels.upenn.edu/sites/www.fels.upenn.edu/files/marcellus_shale_proposal.pdf

- Penn State is culpable because these documents were highly publicized and well known to the university's administration. Their credibility was publicly challenged by professionals in the field, and their predictions of jobs weren't validated by Labor and Industry statistical data. Department of Revenue data doesn't support the tax revenues reported in the study.

- The three Penn State Reports are part of a well worn shale gas industry strategy to gain favorable legislative and tax concessions. In the various shale regions around the country, the industry has commissioned a series of economic studies purporting to show the positive impact of shale drilling. They hire well known consulting firms or professors from the regional public university to produce these studies. The studies use IMPLAN or another input-output software and report their findings as projections based on the industry's capital expenditures (see listing of studies below).

- Listing on the Marcellus Shale Coalition website demonstrating the public relations benefit to the gas industry from the release of the 2010 Penn State Update.

http://marcelluscoalition.org/2010/05/what-theyre-saying-about-the-new-penn-state-study/

- With Emerging Giant, the gas shale industry hit the public relations jackpot. Its purpose, however, if judged by the other papers as a class, was to affect legislation. The conclusions of the study are always summarized at the beginning of the paper. This format yields powerful press releases and punch lines for reporters but more importantly it gives legislators the gas industry's message without requiring them to read and digest the report. Emerging Giant's executive summary promised a great bonanza but warned that Governor Rendell's proposed severance tax and environmental regulations would threaten it (see the executive summary below). These claims were refuted by other economists.

From Emerging Giant executive summary July 24, 2009

Governor Rendell recently proposed a severance tax on natural gas production. This study finds that this tax cannot be passed on to consumers and, therefore, drilling activity would decline by more than 30 percent and result in an estimated $880 million net loss in the present value of tax revenue between now and 2020. Severance tax revenue gains are more than offset by declining state and local income taxes resulting from lower drilling activity under the severance tax. The high level of drilling activity in Pennsylvania is a function of relatively lower taxes. This competitive advantage should be maintained as the Marcellus competes for capital and labor with other shale plays around the nation. Imposing a severance tax at this early stage of development could significantly inhibit the growth of the Marcellus gas industry in Pennsylvania. Proposals to regulate hydraulic fracturing under the federal Safe Drinking Water Act pose yet another serious threat to the development of the Marcellus Shale and other unconventional gas sources.

http://www.alleghenyconference.org/PDFs/PELMisc/SUStudyMarcellusShale072409.pdf

How Marcellus Shale gas came to be tax-exempt in Pa.

Excerpt from Philadelphia Inquirer article

The study. As the summer rolled on and the budget impasse deepened, the industry made its case in Harrisburg, spending more than $1 million to lobby legislators in the first half of the year alone, state reports showed.

Foes of the gas tax began citing a Pennsylvania State University study, "An Emerging Giant: Prospects and Economic Impacts of Developing the Marcellus Shale Natural Gas Play."

The study said the tax would backfire.

Marcellus Shale drilling in Pennsylvania was in "the takeoff phase," the study said. It concluded that a severance tax would decrease revenue by reducing drilling and slowing job growth.

Without the tax, the study said, the Marcellus reserve could become a bonanza for the state "if pro-growth policies are pursued that unleash the entrepreneurial spirit."

The study's primary author, Robert Watson, said Friday that the shale contains enough gas to make Pennsylvania "an OPEC nation."

Watson, an emeritus professor of petroleum and natural-gas engineering, also acknowledged that the industry had funded the study.

The Marcellus Shale Committee, a group of more than 50 natural-gas and drilling companies, commissioned the study and paid Penn State about $100,000 for it, he said.

http://mobile.philly.com/news/?wss=/philly/news/homepage/&id=65922647&viewAll=y#more

- The lost of severance tax revenues has been estimated at 500 million dollars. The gas industry's investment in the Penn State Reports has paid off handsomely.

- Because of anomalies in the structure of the gas industry, input-output methodology, such as IMPLAN, greatly exaggerate the shale industry's economic impact. The shale gas industry requires great amounts of capital but has very low staffing needs. They also have a number of ways of avoiding taxes. In Pennsylvania, for instance, local and county governments have no applicable taxes relating to drilling. Software algorithms based on capital expenditures grossly inflate predictions of jobs, taxes, and economic development.

- On June 4th, 2010, the Responsible Drilling Alliance issued an open letter to then President Graham Spanier asking him to publicly disavow Emerging Giant and the Update which had just been released. Dean Easterling of the College of Earth and Mineral Science responded. He candidly admitted that the authors had overstepped into the realm of advocacy on some issues but asserted the principle of academic freedom in defending the documents.

RDA's open letter to President Spanier June 4th 2010. openletter.pdf

Dean Easterling's reply on behalf of President Spanier. Easterling-RDAletter.pdf

RDA's response to Dean Easterling. DeanEasterling.pdf

- RDA fully supports academic freedom and even the university's right to publish poor and faulted research. We support the right of professors to express honest opinions and research whether we agree with them or not. The issue isn't poor methodology, but rather manipulating the analysis to serve a client's corporate interests.

Frackers follow tobacco's lead in funding research
Industry trying to buy prestige of universities, while ties go unreported
July 29, 2012 12:09 am

By Jim Efstathiou Jr. / Bloomberg News

Cary Nelson, president of the American Association of University Professors, who made the tobacco analogy, said companies and their trade associations are "buying the prestige" of universities that are sometimes not transparent about funding nor vigilant enough to prevent financial interests from shaping research findings.

The Penn State report is not the only example.

A professor at the University of Texas at Austin led a February study that found no evidence of groundwater contamination from fracking. He did not reveal that he is a member of the board of a gas producer. Company filings examined by Bloomberg indicate that in 2011, he received more than $400,000 in compensation from the company, which has fracking operations in Texas.

A May report on shale gas from the State University of New York at Buffalo contained errors and did not acknowledge "extensive ties" by its authors to the gas industry, according to a watchdog group. One of the authors was Mr. Considine, the same economist who wrote the Penn State study.

http://www.post-gazette.com/stories/news/us/frackers-follow-tobaccos-lead-in-funding-research-646688/#ixzz25KxeqUQu

- The gas industry and the authors the Penn State Reports have a pattern of using well regarded research institutions to front manipulated research. One of the authors, Considine has used his academic position to produce a series of papers supporting the gas, oil, and coal industries with the intent of affecting the outcome of legislation. Below is a list of Considine's papers from the University of Wyoming's website. Reading the executive summary of each will reveal what the sponsoring industry wants from the legislature in question.

Considine and Watson's papers listed on University of Wyoming's web site

http://www.uwyo.edu/cee/working-papers.html

2012

Considine, Timothy, Robert Watson, Nicholas Considine, and John Martin, "**Environmental Impacts During Marcellus Shale Gas Drilling: Causes, Impacts, and Remedies**"
"

2011

Considine, Timothy J. and Edward Manderson, "**Balancing Fiscal, Energy, and Environmental Concerns: Analyzing the Policy Options for California's Energy and Economic Future**."
Considine, T.J., "**Balancing Economic Benefits with the Environmental Impacts of the Shale Gas**."
Considine, T.J., "**Economic Impacts of the Pennsylvania Marcellus**."
Considine, T.J., R. Watson, S. Blumsack. "**The Pennsylvania Marcellus Natural Gas Industry: Status, Economic Impacts and Future Potential,**" The Pennsylvania State University, Department of Energy and Mineral Engineering.
Considine, T.J., R. Watson, N. Considine. "**The Economic Opportunities of Shale Energy Development**," Center for Energy Policy and the Environment at the Manhattan Institute.

2010

Considine, T.J. and D. Larson. "Substitution and Technological Change under Carbon Cap and Trade".
Considine, T.J. "**The Economic Impacts of the Pennsylvania Marcellus Shale Natural Gas Play: An Update**," The Pennsylvania State University, Department of Energy and Mineral Engineering.
Considine, T.J. "**The Economic Impacts of the Marcellus Shale: Implications for New York, Pennsylvania, and West Virginia**," American Petrolem Institute.
Considine, T.J. "The Economic Value of World Coal Production," Chapter in F. Clemente, ed., Hard Facts: the global value of coal" World Coal Institute and Coal Industry Advisory Board.

2009

Considine, T.J., R. Watson, J. Sparks, R. Entler. "An Emerging Giant: Prospects and Economic Impacts of Developing the Marcellus Natural Gas Play," The Pennsylvania State University, Department of Energy and Mineral Engineering.
van't Veld, Klaas, C.F. Mason, and A. Leach. "Economic Co-optimization of Enhanced Oil Recovery and Carbon Sequestration"

- Considine and Watson's most recent paper released by the University of Buffalo's Shale Resources and Society Institute (SRSI) was particularly sloppy and quickly brought a firestorm of criticism to the university.

http://www.srsi.buffalo.edu/wp-content/uploads/2012/05/UBSRSI-Environmental-Impacts-Single-Page.pdf

The UB Shale Play: Distorting the Facts about Fracking

A Review of the University at Buffalo Shale Resources and Society Institute's Report on "Environmental Impacts During Marcellus Shale Gas Drilling"

- Excerpt from Public Accountability Initiative report's executive summary,

> "The report's inaccurate and biased analysis and the authors' conflicts of interest suggest that the University at Buffalo is being used as an academic front for gas industry misinformation, rather than as a venue for independent, informative analysis," said Kevin Connor, director of the Public Accountability Initiative.
>
> "This is an unfortunate example of industry spin being given much greater weight than it is worth, and the University at Buffalo is implicated in this deception."
>
> http://public-accountability.org/2012/05/ub-shale-play/

Criticisms of Emerging Giant and the IMPLAN method.

- Given the power and prestige of Penn State, criticisms of Emerging Giant were slow to develop. First off the mark was the Pennsylvania Budget and Policy Center in October of 2009.

> **Natural Gas Industry Report Falsely Claims Sky Will Fall if Severance Tax Enacted**
>
> **Conclusion:** The "An Emerging Giant" report serves the narrow financial interests of its funder, the natural gas industry. Policymakers could best serve the interests of all Pennsylvanians by more closely scrutinizing the report and the interests behind its prescriptions. The decision for Pennsylvania policymakers should not be whether they

will entice drillers to come to the state, but rather whether they want to continue to subsidize the industry by not collecting a tax, which forces other taxpayers to foot the bill for cleanup, environmental damage, infrastructure repair, emergency services, and other social costs.

http://pennbpc.org/natural-gas-industry-report-falsely-claims-sky-will-fall-if-severance-tax-enacted

The Economic Impact of Shale Gas Extraction: A Review of Existing Studies
Thomas C. Kinnaman, Bucknell University 1/1/2010

"Several reports sponsored by the gas industry have estimated the economic impacts of shale gas extraction on income, employment and tax revenue....Due to questionable assumptions, the economic impacts estimated in these reports are very likely overstated."
Thomas C. Kinnaman. 2010. "The Economic Impact of Shale Gas Extraction: A Review of Existing Studies" The Selected Works of Thomas C. Kinnaman
Available at: http://works.bepress.com/thomas_kinnaman/9

Testimony prepared for NYS Assembly Committee on Environmental Conservation Hearing on Revised Draft SGEIS governing natural gas drilling
Re: Economic Assessment
Date: October 6, 2011
Submitted by: Jannette M. Barth, Ph.D., Economist, Pepacton Institute LLC

"The gas industry is seriously misleading the public and our politicians. They ignore costs and exaggerate benefits."

http://notohydrofracking.blogspot.com/2011/10/economic-assessment-of-hydrofracking-dr.html
March 27, 2010
http://catskillcitizens.org/learnmore/bartheco.PDF

Statement on Gas Industry-Financed Report on Marcellus Shale's Economic Impact
Pennsylvania Budget and Policy Center 7/20/2011

HARRISBURG, PA (July 20, 2011) — The Marcellus Shale Coalition released a new study today assessing the impact of natural gas drilling in Pennsylvania. Sharon Ward, Director of the Pennsylvania Budget and Policy Center, responded with the following statement: (excerpt)

"This is the third study conducted by Penn State faculty on behalf of the natural gas industry into the economic impact of the Marcellus Shale. We are pleased to see that Penn State has made it clear this time that the study is sponsored and funded by the natural gas industry, not the university.

“The study overstates the number of jobs supported by the industry. It states that 140,000 jobs (2.4% of the state workforce) are supported by the industry, but jobs data from the state Department of Labor and Industry show that less than 19,000 people were employed directly in core Marcellus Shale industries at the end of 2010.

“The study also inflates the amount of tax dollars generated by the industry. The study attributes $1.1 billion in state and local taxes to industry activity in 2010. This is much higher than a recent Department of Revenue report that attributed $219 million in 2010 state tax payments to the gas industry and its affiliates.

The Pennsylvania Budget and Policy Center is a non-partisan policy research project that provides independent, credible analysis on state tax, budget and related policy matters, with attention to the impact of current or proposed policies on working families.

http://pennbpc.org/sites/pennbpc.org/files/Statement-on-Industry-Financed-MS-Economic-Impact.pdf

- An extensive study by Ohio State University contains a critical analysis of IMPLAN methodology and the Penn State Papers.

The Economic Value of Shale Natural Gas in Ohio
Amanda Weinstein Mark Partridge
Department of Agriculture, Environmental, and Development Economics
Ohio State University 12/20/2011

http://aede.osu.edu/sites/drupal-aede.web/files/Economic%20Value%20of%20Shale%20Dec%202011.pdf

- Reports from other shale plays showing a consistent gas industry strategy of sponsoring reports like the three Penn State Reports.

The Economic Impact of the Natural Gas Industry in La Plata County, 2003-2004
11/ 2005

http://www2.fortlewis.edu/portals/157/docs/eis/EIS-oilgas.pdf

La Plata County benefits from oil and gas with good jobs, tax support and wealth creation.

By Deborah Walker, Ph.D. Assistant Professor of Economics
Director, Office of Economic Analysis and Business Research
School of Business Administration
Fort Lewis College
Durango, CO 81301

and Robert Sonora, Ph.D. Assistant Professor of Economics
November 2005

Acknowledgements
This study would not have been possible without the assistance of Christi Zeller, Executive Director of the La Plata County Energy Council, Natural Gas industry producers that operate in La Plata County, and Fort Lewis College student assistants, Meghan VanDeVeire and Megan Klocek.

Projecting the Economic Impact of the Fayetteville Shale Play for 2008-2012 (2008)

http://groundwork.iogcc.org/sites/default/files/FayettevilleShaleEconomicImpactStudy2008.pdf

University of Arkansas Center for Business and Economic Research, March 2008. This study, prepared by the University of Arkansas Center for Business and Economic Research and sponsored by Arkansas Land and Exploration LLC, Chesapeake Energy Corporation, Petrohawk Energy Corporation, and Southwestern Energy Company, quantifies the potential economic impact of the Fayetteville Shale Play for the years 2008 through 2012.

Over the next five year period, it is estimated that total economic activity of about $17.9 billion will be generated with annual direct employment of about 4,600 people.

About $1.8 billion total in state tax revenues are estimated to result from direct, indirect, and induced effects of Fayetteville Shale activities.

About $150 million total city and tax revenues are anticipated over the five-year period.

The study cautions that projections are subject to two risks -- a decline in natural gas pricing and a significant increase in severance taxes.

http://groundwork.iogcc.org/sites/default/files/loren-scott-impact2008.pdf

The Economic Impact of the Haynesville Shale on the Louisiana Economy in 2008 (2009)

Loren C. Scott & Associates, April 2009. Prepared for the Louisiana Department of Natural Resources, this study captures and measures the direct and indirect effects on the Louisiana economy from the activities of extracting firms operating in the Haynesville Shale in 2008.

During 2008, seven of seventeen firms generated approximately $2.4 billion in new business sales within the state of Louisiana.

As a result of these activities, nearly $3.9 billion in household earnings was created in 2008.

There was an increase of 32,742 new jobs within the state in 2008.

State and local tax revenues increased by at least $153.3 million in 2008.

An Enduring Resource: A Perspective on the Past, Present, and Future Contribution of the Barnett Shale to the Economy of Fort Worth and the Surrounding Area (2009)

The Perryman Group, March 2009. This recent study by The Perryman Group (TPG), a Texas-based economic research and analysis firm, provides an overview of the economic impact of the Barnett Shale in the Fort Worth-area. TPG has been measuring the impact of activity within the Barnett Shale for several years and presents the results of this year's research in an easy-to-read format.

Key findings of the report:

The Barnett Shale has continues to play a major role in the growth of the Fort Worth area economy. Although the pace has slowed in recent months, the field remains one of the most important deposits of natural gas in the US and a source of tens of thousands of jobs in the region.

Exploration, drilling, and production in the Barnett Shale continue to serve as a key economic generator for Fort Worth and the surrounding area;

The pace of activity in the Barnett Shale is expected to gain momentum with economic recovery efforts. Long-term energy needs will assure ongoing development of this important resource.

- Tax avoidance by the gas industry.

Marcellus Shale Frackers Utilize the "Delaware Loophole"

Desmogblog (http://s.tt/1jOu1

New York Times source document:

http://www.nytimes.com/2012/07/01/business/how-delaware-thrives-as-a-corporate-tax-haven.html?_r=1&pagewanted=all

> More than 400 corporate subsidiaries linked to Marcellus Shale gas exploration have been registered in Delaware, most within the last four years, according to the Pennsylvania Budget and Policy Center, a nonprofit group based in Harrisburg that studies the state's tax policy.
>
> In 2004, the center estimated that the Delaware loophole had cost the state $400 million annually in lost revenue — and that was before the energy boom.
>
> More than two-thirds of the companies in the Marcellus Shale Coalition, an industry alliance based in Pittsburgh, are registered to a single address: 1209 North Orange Street, according to the center.

- Honest research at Penn State.

Penn State is a large institution and departments within it serve different constituencies. The Penn State Extension serves the farmers and regions where drilling is rampant. Tim Kelsey, Ph.D., Professor of Agricultural Economics, Penn State Cooperative Extension, has participated in a number of studies detailing the economic effects of gas exploration on the region.

The studies that Kelsey has participated in can't be categorized as either pro or anti drilling but are, as they should be, an attempt to parse out its effect. Comparing Kelsey's work to Considine and Watson's is instructive of the difference between competent scholarship and advocacy. Kelsey's papers would provide a much more sober basis for policy decisions but they don't have the powerful public relations and lobbying machine of a multi billion dollar industry behind them.

Marcellus Shale: Land Ownership, Local Voice, and the Distribution of Lease and Royalty Dollars July, 2012
http://www.scribd.com/doc/100688155/Leases-Can-t-Vote

Local Business Impact of Marcellus Shale Development

http://pubs.cas.psu.edu/freepubs/pdfs/ee0005.pdf

Economic Impact of Marcellus Shale in Pennsylvania: / Employment and Income 2009

http://www.msetc.org/docs/EconomicImpactFINALAugust28_000.pdf

- Factors that help explain why the university's administration and the School of Earth and Mineral Sciences completely lost perspective in relationship to the gas industry. The only direct quid pro quo being asserted, however, is funding by the gas industry for Emerging Giant and its two successor publications.

Terry Engelder, a geology professor at Penn State, has long been a proponent of the potential of the Marcellus Shale. Working from the United States Geologic Service's estimates of 7% of the Marcellus shale, Engelder projected an enormous potential.

His estimates were released at a press conference in January, 2008 and Engelder quickly became the academic godfather of the Marcellus shale play. He became controversial for his strong advocacy of Marcellus drilling and gas industry positions and bumped up his original estimates of gas reserves by a factor of almost 10. USGS later revised them downward by 80%.

Shale gas reserve estimates are not just academic. They affect the valuation of leased land and the stock and credit worthiness of the gas companies who hold the leases.

- Pittsburgh Post Gazette article detailing the history of the opening of the Marcellus shale play.

The Marcellus Boom / Origins: the story of a professor, a gas driller and Wall Street

http://www.post-gazette.com/stories/local/marcellusshale/the-marcellus-boom-origins-the-story-of-a-professor-a-gas-driller-and-wall-street-288098/#ixzz24sK6jvBA

Excerpts from the article:

Penn State prides itself, he (Engelder) said, on broad collaborations on research with industry, which contributes roughly $100 million a year to the university.

A long line of other petroleum companies, including Chevron, ConocoPhillips, Dominion, Range Resources and Texaco -- would eventually help fund research at Penn State through Mr. Engelder's lab.

Mr. Engelder estimated that over his career his research has benefited from at least $6 million in grants from industry and $8 million from government.

"There is a symbiosis between academic research, and by that I mean big-time research of the type that Penn State does, and industry. Industry really does benefit from this. There is a reason that industry contributes very handsomely to the academic world."...

The result was the Penn State news release. That day, wire service United Press International quoted Mr. Engelder as saying, "The value of this science could increment the net worth of U.S. energy resources by a trillion dollars, plus or minus billions."...

Jonathan D. Silver:15 or 412-263-1962.
First Published March 20, 2011 12:00 am

- Terrance Pegula graduated from of the College of Earth and Mineral Sciences in 1973. He founded and was the owner of East Resources which held a large amount of leased Marcellus shale acreage in Pennsylvania. East Resources sold out to Royal Dutch Shell in May of 2010 for 4.7 billion dollars. In September of the same year, Pegula announced an 88 million dollar donation to Penn State to build a ice hockey rink and to fund a national ice hockey program.

WikiMarcellus

It was reported at the end of May, 2010 that East Resources had sold all of its business to Royal Dutch Shell for $4.7 billion. The sale included all of its net 650,000 acre Marcellus shale leasehold, but not its West Virginia assets.

http://waytogoto.com/wiki/index.php/East_Resources

Pegulas Commit Historic Gift to Penn State for New Arena and Hockey Program
Friday, September 17, 2010

http://giveto.psu.edu/s/1218/base-template.aspx?sid=1218&gid=1&pgid=252&cid=2494&ecid=2494&ciid=4061&crid=0