Report to Trustees

Shale Gas Development and the Bousson Environmental Research Reserve

Bousson Advisory Group

November 2013
# Table of Contents

Executive Summary ........................................................................................................................... 1
Introduction ........................................................................................................................................ 3
Process ............................................................................................................................................... 4
Industry Activity in northwest Pennsylvania ..................................................................................... 6
What have we learned? .......................................................................................................................... 8
  Seismic Reflection Studies ............................................................................................................... 8
  Leasing ........................................................................................................................................... 9
  Drilling .......................................................................................................................................... 10
  Impacts ......................................................................................................................................... 10
    Water .......................................................................................................................................... 11
    Air Quality ................................................................................................................................. 12
    Land Use ................................................................................................................................... 13
    Earthquakes ............................................................................................................................... 13
    Economic .................................................................................................................................... 14
    Community ................................................................................................................................. 16
    Integrity of Reputation ............................................................................................................... 16
Other Colleges ................................................................................................................................... 17

Summary of Feedback ...................................................................................................................... 18
Website Feedback .............................................................................................................................. 18
Session Feedback ............................................................................................................................. 19
  Basic Information Session on Consideration of Deep Shale Gas Development at Allegheny’s Bousson Reserve ...... 19
  Technology, Leasing, Impacts and Regulation of Deep Shale Natural Gas Development ......................... 19
  The Institutional Debate: Ethical, Environmental, Social and Economic Issues ..................................... 20
Allegheny Student Government Feedback ....................................................................................... 20
Students for Environmental Action Petition ...................................................................................... 21

Next Steps ....................................................................................................................................... 22

Recommendations ............................................................................................................................ 23
References ......................................................................................................................................... 27
Appendix A: Environmental Guiding Principles ............................................................................... 28
Appendix B: Bousson Website Feedback ........................................................................................... 29
Appendix C: Allegheny Student Government (ASG) Student Life Survey ........................................... 47
Appendix D: Students for Environmental Action (SEA) Petition ....................................................... 49
Executive Summary

From the moment the first leasing company contacted the College about the potential Utica shale natural gas beneath the Bousson Environmental Research Reserve and the possibility of leasing and extracting that gas through hydraulic fracturing, we knew a contentious, impassioned conversation was ahead. But we expect no less from Allegheny, where independent thinking, civil debate, shared governance and transparent decision-making are not only encouraged but highly prized. The passionate debate on Allegheny’s campus reflects the national conversation about the risks and benefits of unconventional shale gas extraction through the use of hydraulic fracturing.

To navigate this discussion, President Mullen appointed the Bousson Advisory Group to facilitate fact-finding, educate the campus community and gather feedback to share with the Administrative Executive Committee and Board of Trustees. Allegheny approached this conversation in the same manner as other discourses: We examine the facts, we debate and discuss, we respectfully and carefully listen to others’ points of view and we make informed decisions.

At the time of this report’s release, no leasing consultants, seismic testers, or oil and gas companies are at our door with a specific proposal that begs a decision. Nor have administrators or trustees made any decisions about this issue except to refrain from any decision until more facts are available for consideration and to commit to making a final decision in accordance with our Environmental Guiding Principles and based on four factors: environmental impacts, institutional reputation, teaching and learning, and economics. The Bousson Advisory Group offers this report as a culmination of the first stage of our comprehensive process of education and discussion so that the institution may make a responsible and informed decision in anticipation of a resurgence of leasing and development activity in our region. The authors offer a collection of what we have learned, feedback from the campus community, and recommendations for how to proceed with the conversation.

The Bousson Advisory Group has worked methodically over the past year to gather facts that are essential for making an informed decision. While the advisory group originally focused their research specifically around the potential to lease at the Bousson Environmental Research Reserve, it is impossible to consider this institutional decision without putting it into the context of national oil and gas industry practices and records, state and federal regulations and global climate concerns. Members have researched the processes of seismic reflection studies; drafting, negotiating and signing a lease; and drilling and extraction of natural gas and oil condensates. Further research examines the many complex potential impacts of shale gas extraction including water quality and quantity, land use changes, earthquakes, economics for landowners and regional communities, as well as how an institution’s reputation is perceived. While many facts are presented, it is important to note that any decision will be made in the face of many unknowns. It is impossible to fully predict the potential economic gain or the possible risks.

In addition to gathering facts to educate the campus community, the Bousson Advisory Group also seeks to collect and share the feedback of Allegheny students, faculty, staff and alumni. As an institution of higher education, Allegheny College expects opposing views and civil debate from its community members. These concerns, questions and opinions are reflected in feedback from the Bousson Advisory Group website, results of an Allegheny Student Government survey, a petition circulated by students, and summaries of the sentiments expressed at three information and discussion sessions hosted by the advisory group.

The process of gathering facts, facilitating education and discussion and listening to feedback has led the Bousson Advisory Group to make a number of recommendations to Allegheny College’s Administrative Executive Committee and Board of Trustees. Primarily, the advisory group recommends the College take advantage of the lull in regional leasing and drilling activity to engage in careful consideration of facts and
feedback gathered so far and strive to reach a decision or statement of intent based not only on financial responsibility but also our core values including sustainability. Discussion and consideration before there is pressure and a potentially limiting time frame from industry activity will insure we make the best decision for Allegheny and will minimize community frustration resulting from a year of intense education and engagement without resolution.
Introduction

In the summer of 2012, Allegheny College was approached by several land leasing consultants who were interested in having the college join a landowner group with the purpose of considering a lease to allow natural gas exploration and extraction from the Bousson Environmental Research Reserve. The 283-acre Bousson Environmental Research Reserve, located several miles from campus, is a tract of woodlands, wetlands, diverse habitats and native wildlife that was purchased by the College in 1935, has been visited over many years by generations of Alleghenians, and is now reserved for research and limited recreational uses. Professors have engaged students in research at Bousson, including investigations into forestry, aquatic habitats, hydrogeology and soils. There is speculation that the Utica Shale, situated more than 5,000 feet under Crawford, Mercer and Venango counties, will be productive for natural gas and oil condensates. Similar to the more nationally discussed Marcellus Shale, gas extraction from the Utica Shale will involve horizontal drilling and hydraulic fracturing. Nationally, and on campus, there has been much debate and disagreement about the economic impact and the effects on the environment, human health and community from the process known as “fracking.”

After initial conversations with the leasing consultants, a seismic testing company, and Bousson neighbors, President James Mullen formed the Bousson Advisory Group. The charge of the advisory group was several-fold.

The Bousson Advisory Group is a non-decision-making body of students, faculty, administrators and alumni tasked with facilitating a transparent and inclusive process of communication on campus that will result in the community being better informed on all aspects of the subject of potential gas exploration at Bousson. The group will provide a set of opinions, a summary of campus viewpoints and survey data to inform the Administrative Executive Council’s recommendations to the Board of Trustees. The Board will ultimately make a final decision.
The Bousson Advisory Group is composed of eleven administrators, faculty, students and alumni of Allegheny College. The Group was appointed by President Mullen to represent stakeholder groups, such as faculty who research at Bousson and students from Allegheny Student Government and Students for Environmental Action, and to include administrators to coordinate the process and communicate with the trustees. The Advisory Group began meeting in November 2012 to fulfill the charges of:

- fact-finding
- communicating to the campus community
- facilitating education and discussion
- reporting findings and feedback to the executive committee and trustees

Some have questioned why Allegheny College, nationally recognized as a leader of campus sustainability, didn’t adopt an anti-drilling stance and refuse to entertain this conversation from the beginning, reasoning that drilling for oil and gas on or under campus property would be out of line with our values. Others have reasoned that Allegheny would be foolish not to explore the opportunity and the potential income. It is precisely because of these strong and opposing opinions that Allegheny’s administration and board of trustees believe it’s important first to gather as much available information as possible, offer education and discussion forums, and make sure the voice of every community member can be heard so ultimately the institution can make an informed decision that is best for Allegheny.

The group sought input to become better informed on seismic testing, leasing, drilling, laws and regulations, environmental and health concerns, community and economic impacts, and the experiences of other landowners and colleges who have faced the proposition of developing oil and gas resources. The advisory group has taken an objective approach in fact-gathering, attempting to collect information from various and unbiased sources, but paying attention to all sources available, including those recommended by members of the Allegheny community.

The Group created a website to communicate the process and findings with the entire campus. The website, at http://sites.allegheny.edu/boussonadvisorygroup, includes pages describing Bousson and its uses; detailing how seismic testing, the leasing process, and the drilling and hydrofracturing process work; exploring state and federal regulations as well as environmental, social and economic impacts; updating news, campus activities, and student research; and allowing individuals to submit questions and opinions to the Group through an online form. In addition to the website, the Bousson Advisory Group has communicated to the campus community using emails from President Mullen to introduce the subject and then follow-up regularly. Members of the advisory group presented to Allegheny Student Government (ASG), participated in a student-led discussion, presented at a Faculty Council meeting and a full faculty meeting. An article was included in the Allegheny Magazine in order to include all alumni in the conversation.

The Advisory Group organized and facilitated a series of education and discussion sessions to explore the complexity of this issue from many angles. These included:

- Consideration of Deep Shale Gas Development at Allegheny’s Bousson Reserve on January 31, 2013. This session presented an overview of the geology of regional shale formations, the process of seismic testing, the process of deep, horizontal drilling and hydrofracturing as well as potential impacts of these activities.
• **Technology, Leasing, Impacts and Regulation of Deep Shale Natural Gas Development** on February 13, 2013. A panel of experts was available for an open Q&A session. The panel included a leasing consultant, leasing attorney, DEP manager, local drilling company president, a Forest Service researcher, and a VP of the Pennsylvania Environmental Council.

• **Institutional Debate: Ethical, Environmental, Social and Economic Issues** on April 3, 2013. This session focused on why Allegheny should or should not allow leasing and what should happen to the revenue if we did choose to allow gas development. This moderated conversation was an opportunity to hear questions and opinions from the attendees.

• **Bousson Advisory Group Update and Q&A** on November 20, 2013. This session will be preceded by the release of this report and will present an abbreviated presentation of the report’s findings of what we’ve learned so far. The session will seek to update the campus, introduce freshmen and other new campus members to the process, but primarily provide a forum for questions and feedback from the campus community which will help guide the next steps of the Bousson Advisory Group.

In addition to gathering facts to share with the trustees, the Bousson Advisory Group also surveyed students about their opinions on the matter via the Allegheny Student Government Student Life Survey 2013 and gathered comments submitted through the website and to various campus offices (for example, Development received several letters of opinion). The Bousson Advisory Group reported on findings gradually by attending and presenting at multiple meetings, including two Facilities and Finance Committee meetings, two Executive Committee meetings, and two Board of Trustees meetings.

At the February 2013 trustee meeting, the board voted to base any decisions concerning seismic testing and/or leasing to allow shale gas extraction on or under Allegheny property based on four principles: environmental impacts, reputation, teaching and learning, and economic value. The board also acknowledged the need to uphold Allegheny’s Environmental Guiding Principles (Appendix A).
Industry Activity in northwest Pennsylvania

In the summer of 2012, there was a lot of communication and activity indicating oil and gas development was impending in our region. Allegheny was contacted by two landowner groups, CX Energy and Western Pennsylvania Gas Leasing Consultants, LLC, during the summer seeking to sign the college to their group of committed landowners. A third landowner group, Buckeye Mineral Development, contacted us late in 2012. Landowner groups seek to sign many landowners in one area to create a combined block of land which might be used to entice oil and gas companies to seek leases and development in the consolidated acreage as well as provide a united group of landowners more leverage for competitively bidding their oil and gas rights. Besides contacting campus administrators, landowner groups also held countless sessions in the community to reach out to local landowners and sign them to their respective groups. At the same time, Allegheny College was contacted by a seismic testing company seeking to have the institution sign an agreement to allow seismic testing to begin within 6 months. The seismic testing was contracted by an oil and gas company in order to determine the depth, range and thickness of fossil fuel resources. The activity and communication of the landowner groups and seismic testing company created a sense of urgency and inevitability of the College needing to make a decision in a short time-frame.

Seitel Data, the seismic mapping company, originally planned to begin seismic testing activity in March 2013 and sought Allegheny’s approval in the fall of 2012. By December 2012, Seitel informed the College that the contract for seismic testing had been cancelled by the oil and gas company which had commissioned it. Seitel speculated that cancelling the study could mean either the oil and gas company was slowing activity in the region for now or was delaying the study until the beginning of the next fiscal year when budgets would be replenished. A year later, we still have yet to hear from Seitel or any other seismic mapping company about resuming the process of testing. Similarly, communication from landowner groups quieted in late fall 2012. Initially, landowner groups had informed us they hoped to identify an oil and gas company with which to negotiate leases by late 2012 or early 2013. When no oil and gas company committed to any landowner groups, the sense of urgency and inevitability waned.

In June 2013, CX Energy, a landowner group, asked if Allegheny College had made a decision to sign with them or any other landowner group. The College declined to sign, since the institution had made no decision yet and committing to a landowner group could wrongly indicate that a decision had been made.

In July 2013, Western Pennsylvania Gas Leasing Consultants, LLC, another landowner group, released a letter on the status of oil and gas development in the region, and provided details on the slowing of leasing activity in our region. They described current drilling activity as an exploratory well program. Due to a steep learning curve within the industry, and the need to use new technology to extract hydrocarbons while keeping them under pressure and therefore in liquid form, many companies are sitting on the sidelines while only a few developers move forward with exploration and attempts. Therefore there is no active leasing at this time until results of the exploratory well program become clear to the industry. The Lippert well, an exploratory Utica shale well in Cochranton, has produced a disappointing 1.2 mcf/day and another, the Phillips well in West Salem Township, isn’t much better at 2.2 mcf/day. The Allam well in Polk, on the other hand, has had favorable results with 6.6 mcf of wet gas/day. The Stabb well in Linesville, currently in open flow testing, will provide another source of productivity data as well as an indication of how far north the Point Pleasant/Utica formation is productive. The letter from WPGLC states, “Leasing will proceed north, should there be favorable exploratory well results. How far north is still a moving target. Companies guard their information and it can be challenging to discover well results. Landowners have always been at a disadvantage to learn what is happening in the industry.” While it currently appears the industry is looking for a yield closer to the 6.6
mcf/day of the successful Allam well in Polk, only time will tell what the threshold value is and whether the geology of the region or the current technology proves to be a limiting agent.
What have we learned?

Seismic Reflection Studies
Seismic reflection is a standard, well-established method for imaging deep bedrock layers, in this case to determine the depth, range and thickness of fossil fuel resources. The basic principle of seismic reflection is to generate a source of seismic waves at the ground surface (e.g., by small explosive charges) and then to measure the time that it takes for these waves to reflect back to the surface from bedrock layers in the subsurface (analogous to sonar). The resulting image contains the depth and shape of bedrock layers which provides baseline data for drilling companies to target specific hydrocarbon zones.

In western Crawford County, including the Bousson area, seismic testing would entail drilling a grid of shallow holes for small 3 pound TNT charges (30 feet deep, 3” diameter), spaced several hundred feet apart across the region. The drilling rig is 5 x 8 feet and 5000 pounds. In addition, rows (300’ apart) of small detectors (geophones) (220’ apart) would be placed across the area to record the reflected seismic waves. The impacts of seismic reflection are minimal and include:

<table>
<thead>
<tr>
<th>Seismic Reflection Activity</th>
<th>Potential Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shallow drill holes across an area</td>
<td>Provide direct paths for any surface contaminants to reach shallow groundwater; BERR is not known to contain any surface contaminants, although neighboring properties could</td>
</tr>
<tr>
<td>Surface disturbance by vehicles (e.g., drilling rigs)</td>
<td>Clearing of trees, compacting plants, soil erosion unless limited by Allegheny’s stipulations</td>
</tr>
<tr>
<td>Small explosive charges (2-3 lb. TNT)</td>
<td>Localized fracturing of materials around drill hole; could cause changes in groundwater; small radius of influence (&lt;150’); impacts to ground-dwelling organisms is not known.</td>
</tr>
</tbody>
</table>

Table 1: Seismic Reflection Activities and Potential Impacts

Seitel offered to pay $5/acre to perform seismic testing and was willing to work with Allegheny, should the institution approve seismic testing on Bousson, to identify drill hole locations that minimize disturbance and protect educational and research sites. Seitel initially proposed about 35 drill-holes across Bousson, but was willing to limit activity as directed by Allegheny. If seismic testing were to be approved for the Bousson property, then the Advisory Group, in consultation with Allegheny faculty who use Bousson for teaching and research, recommends the following guidelines when negotiating with the seismic testing company; these guidelines are based upon the above potential impacts and research on seismic testing in other regions:

- Specify areas for no motorized vehicle activity
- Use only designated access points to the property
- Specify whether or not vegetation can be cut
- Provide guidelines on what vegetation could be cut, and how cut material is handled
- All materials (flagging, stakes) will be removed immediately after seismic work is completed
- Shot holes should be backfilled immediately
- Maintain >150’ distance to water supplies (wells, springs, pipes), underground utilities, and building foundations
● Allegheny should test water supply (quantity/quality) at representative well/spring locations near potential test sites before and after seismic work is done

Results of seismic testing may be positive or negative as far as furthering the exploration for shale gas in the region. If shale gas exploration does proceed, then seismic reflection will most likely be done across western Crawford County; any seismic data points on the Bousson property will be a small part of the regional data set. Data points on Bousson could add to the clarity of imaging of deep bedrock layers; limiting the number of data points or opting not to allow seismic testing on Bousson would not prevent the regional seismic imaging. Data from points around Bousson could be used to extrapolate and understand the geology under Bousson.

**Leasing**

Landowner groups have asked Allegheny to sign with one of them in order to participate in a block of landowners who would all negotiate leases with one identified oil and gas company at once. Signing with a landowner group does not require ultimately signing a lease. Working with a landowner group does provide the opportunity to partner with neighbors in the same group to site a drill pad on an adjacent property in order to limit surface activity but allow horizontal drilling and extraction under another property, such as Bousson. Landowner groups have leasing attorneys working with them in order to assist landowners through the lease drafting and negotiation process to help navigate what terms companies offer, what the leasing market is like, what landowners require or desire, and what different restrictions and terms may be negotiated. A leasing attorney from CX Energy recommends 4 categories of lease negotiation: 1) control of surface, 2) production incentives and restrictions, 3) compensation: signing bonus, royalty calculations, and 4) unforeseen miscellaneous liabilities. Not signing with a landowner group does not prevent an eventual collaboration when an oil and gas company begins to sign leases. CX Energy describes that oil and gas company tactics and offers tend to change for the worse when dealing with individual properties that are not represented within the framework of a large group. Group lease offers can be limited by the oil and gas producer to only those committed acres in the group at the time the offer is accepted, however often there will be a time window (perhaps 3-14 days after an offer) when the landowner group is encouraged or permitted by the oil and gas company to add property to the group. Landowner groups charge a premium (usually 8% of the bonus payment instead of the standard 6%) for those properties that enroll belatedly during the window.

The process of drafting a lease entails considering and identifying a lease that allows drilling while still safeguarding the property with various stipulations and protections to a landowner’s comfort. A lease with many protective stipulations is referred to as a “sophisticated lease”. A sophisticated lease might limit surface activity on the property, a “non-surface” stipulation, such as new roads, drill pads, pipelines, and transition stations. Or a lease could include a “non-drilling” stipulation to prevent a well pad from being sited on the property, but allowing certain surface activities such as a pipeline or access road. Both a “non-surface” and “non-drilling” lease could still allow extraction of fossil fuels from under a property through the horizontally drilled arms of a well on an adjacent property. Sophisticated leases might also include various other environmental protections, financial details, and legal protections. Depending on stipulations in a sophisticated lease, production and drilling companies may feel a property is no longer attractive for drilling while adhering to the limitations. A “non-surface” stipulation on 200+ acres may impose limitations that preclude effective gas extraction. A “non-drilling” stipulation may be more acceptable to the oil and gas company but may not adequately protect a property in its current state and uses. The Pennsylvania Environmental Council offers a very helpful leasing guide for conservation-minded landowners at [http://www.pagreenlease.org/wp-content/uploads/2011/06/PEC-Marcellus-Shale-Lease-Guide.pdf](http://www.pagreenlease.org/wp-content/uploads/2011/06/PEC-Marcellus-Shale-Lease-Guide.pdf).

Once the leasing company identifies an oil and gas producer looking to sign leases with landowners, the company reviews all the leases in the landowner group, makes a financial offer for signing bonuses and production royalty percentages, and identifies those draft leases they’d like to sign, negotiate or reject. If the
drilling company accepts a landowner’s leasing contract, a landowner can then make the final decision whether to sign or not. A landowner can proceed with the entire leasing process but still decline to drill any time before a contract is signed. If a landowner chooses to sign a contract, it would receive a signing bonus of potentially $2000-4000/acre (or about $500K to $1 million for Bousson’s 283 acres) and the term of the lease would commence. Normally leasing contracts with a drilling company are for a term of 5 years with a 5 year extension option. However terms are negotiable. If the drilling company does not drill within the term, a landowner can decide whether to terminate the contract (keeping the signing bonus paid at the beginning of the term, but with no chance of eventual production royalties) or to extend the term (with another round of signing bonuses and the potential for eventual production royalties in the event of drilling). If the company drills, a landowner would receive production royalties based on the volume and quality of the gas produced and current market values.

Drilling
The target shale beneath western Crawford County is the Utica Shale which is about 250 feet thick and is over 5000’ beneath the ground surface. Installing a gas well into the Utica Shale involves drilling vertically to near the top of the shale and then turning the drill to continue horizontally through the shale. The drill hole is lined with several layers of steel and cement casing. Multiple casings are used in the vertical part of the well, especially at shallow depths where there are freshwater aquifers. State regulations (chapter 78.83 under the Oil and Gas Act) stipulate that surface casings need to extend approximately 50 feet below the deepest fresh groundwater or at least 50 feet into consolidated bedrock, whichever is deeper. The hydrofracturing process is done along the deep horizontal section of the well. Charges are detonated within a perforating gun at intervals along the horizontal section to create small holes into the shale formation. A fluid and sand mixture is then injected at high pressure, causing the surrounding shale bedrock to fracture, freeing the trapped gas. The sand in the fluid mix keeps the fractures propped open and gas then flows from the shale along the fractures and into the well for extraction. The proprietary blends of fluid mixture used by each company for hydrofracturing contains chemicals used for corrosion resistance, friction reduction, improved flow viscosity, and biocides. The resultant fractures can extend upward for hundreds to as far as about 2000’ from the horizontal well. One study published in 2012 showed a <1% probability for hydrofractures to extend vertically more than 1,150’ from the horizontal well (Davies et al., 2012). In western Crawford County, hydrofractures in the Utica Shale would be 3000-4000’ below the base of the freshwater zone. Note that while the induced fractures will be far below any known aquifers, this does not account for potential connections between hydrofractures and pre-existing natural fractures in the bedrock system. These connections are not too likely given the fracture mechanics of the natural bedrock system, but the possibility is worth noting.

Impacts
Potential impacts from oil and gas development are contentiously debated and include physical, economic, social and philosophical concerns. The range and scope of impacts are also partially dependent on the types of protections included in leases by a landowner, if it chooses to sign, but also by a landowner’s neighbors since impacts don’t stop at the property line. Oil and gas exploration in Pennsylvania is regulated by the Department of Environmental Protection’s Office of Oil and Gas Management and multiple environmental protection laws. The most significant legislation pertaining to deep shale drilling and hydraulic fracturing is Act 13 of 2012. Signed into law by Governor Corbett, Act 13 updated and recodified the Oil and Gas Act into 58 Pa.C.S. (Oil and Gas) and created six chapters (Unconventional Gas Well Fee, Oil and Gas Lease Fund, Natural Gas Energy Development Program, Development, Local Ordinances Relating to Oil and Gas Operation, and Responsibility for Fee). Most significantly, Act 13 includes new provisions specifically targeting unconventional (i.e., shale) natural gas development using hydraulic fracturing. Act 13 has both been lauded as legislation that bolsters environmental and safety provisions as well as criticized for limiting local municipalities’ ability to regulate drilling operations through zoning, requiring physicians to sign non-disclosure
agreements when treating patients affected by a trade-secret chemical used by the industry, and potentially still falling short on environmental protection measures. Besides the state regulatory role, the federal government also contributes regulation. However, there is considerable complexity surrounding the details of the federal regulations which apply to hydraulic fracturing operations and those from which the industry is exempt. Federal legislation such as the Safe Water Drinking Act, Clean Water Act, Water Pollution Control Act, Resource Conservation and Recovery Act, National Environmental Policy Act, and the Toxic Release Inventory would be expected to provide oversight of the oil and gas industry. However, the Energy Policy Act of 2005, often referred to as the “Halliburton Loophole”, provides many exemptions to hydraulic fracturing operations. For a detailed discussion of the state and federal regulations of shale gas development, refer to the “Laws and Regulations” page of the Bousson Advisory Group website.

**Water**

Impacts to water resources pose the greatest risk of shale gas drilling in northwestern Pennsylvania. Two aspects of water resources that could be impacted are water supply and water quality (i.e., potential pollution of water supplies by drilling activities).

Hydrofracturing a deep shale gas well can require 1 to 4 million gallons of water. As such, with increased deep shale gas exploration there is increased demand on surface and groundwater supplies. Northwestern Pennsylvania has a rich supply of freshwater resources (largely due to thick glacial deposit aquifers); for example the City of Meadville water supply wells in the French Creek Valley glacial aquifer have an average daily draw of 2,000,000 gallons per day just a fraction of the permitted capacity of 9,648,000 gallons per day. To avoid potential short or long-term depletion of surface and groundwater resources, water withdrawals for gas development are regulated and approved by the Pennsylvania Department of Environmental Protection (PA DEP). The average low flow of a stream along with existing withdrawals and uses are evaluated during the PA DEP review process to ensure a proposed withdrawal which might cause a detrimental impact would not be approved. For example, in southwest PA, where drilling for Marcellus Shale gas is taking place, there are 29 energy companies (including Atlas, Chesapeake, EQT, Range Resources) that have been approved by the PA DEP for total potential water use of 48,502,341 gallons per day, approximately 0.22% of the Ohio River’s average flow. Deliberate planning, based on knowledge of available water supplies is vitally important for any shale gas industry growth in northwestern Pennsylvania.

There are two main sources of pollutants during the shale gas drilling process: the drilling fluids used in hydrofracturing that contain chemical additives and the naturally-occurring liquids and gases, called formation fluids, found in the shale geologic formations. During the hydrofracturing process, a portion of the drilling and formation fluids remain in the deep subsurface and the rest returns through the well to the surface (referred to as flowback or produced fluids). Potential release of these fluids can occur by:

- subsurface contamination along hydrofractures,
- leaks in the subsurface through faulty well casing,
- surface spills and leaks from storage ponds, and
- deliberate release of drilling fluids to surface water.

Subsurface contamination along hydrofractures is a minimal risk given the 1000’s of feet of separation in northwestern Pennsylvania between the induced hydrofractures and freshwater zones. As far as integrity of water resources in and around Bousson property, greater attention should be given to the fate of produced fluids at the surface and with any upgradient gas well casing integrity.

Leaks in the subsurface through faulty well casing are known from shale gas drilling as well as from more traditional oil and gas exploration. For example, in Pennsylvania, approximately 6 to 7% of Marcellus shale wells have reported violations from the PA DEP related to casing leaks:
## Table 2: Pennsylvania Marcellus shale well failures 2010-2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Marcellus Wells Drilled</th>
<th>Number of Well Failures Based on Violations Issued</th>
<th>Percent of Well Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>1454</td>
<td>90</td>
<td>6.2</td>
</tr>
<tr>
<td>2011</td>
<td>1937</td>
<td>121</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Improved technology, monitoring, and regulatory enforcement may be ways in which well casing leaks can be reduced. Monitoring of any gas wells and water quality sampling (surface and groundwater) upgradient of Bousson is highly recommended.

Surface spills and leaks from storage ponds are tied to the use of impoundments lined with thick vinyl sheeting to store millions of gallons of freshwater for hydrofracturing and, when emptied, are used to hold flowback or produced fluids. Known occurrences of leaks from these impoundments are documented by the PA DEP (records of violations); leaks occur by overflowing of overfilled impoundments and by seeping through seams or tears in the vinyl sheeting.Leaks are a concern for surface water and for domestic water wells since according to PA legislation they can be located 300 feet from homes. Monitoring of water quality (surface and groundwater) downgradient of any impoundments in the Bousson area is highly recommended.

Deliberate release of drilling fluids to surface water has been documented in cases of energy companies directly discharging produced waters into streams. For example, in 2010 the PA DEP cited Rex Energy for stream discharge of drilling waste and for failure to properly store, transport, or dispose of waste related to Marcellus shale gas drilling in southwestern PA. Close monitoring and enforcement of drilling activities is highly recommended for any drilling sites located upgradient of the Bousson property.

### Air Quality

A variety of air quality issues associated with drilling operations also have the potential to negatively impact human health, particularly for those who live near a drilling site. High levels of benzene, ground level ozone and non-methane hydrocarbons have been found in the air around hydraulically fractured sites. During the lifetime of a typical shale well, considerable amounts of natural gas are leaked straight into the atmosphere from venting and leaks. The amount and significance of methane leaked has been debated and inconclusively studied. It is an important component of the shale gas debate because while some argue natural gas is better than coal from a global warming standpoint based on combustion emissions, others point to methane leakage as a source of greenhouse gas emissions that makes natural gas no better than coal or oil. A recent NOAA study, published in *Geophysical Research Letters*, of methane emissions in an entire basin in Utah found the natural gas field leaked 6-12% of the methane produced (Karion, A. et al, 2013). This finding conflicts with a previous study published in *Proceedings of the National Academy of Sciences* which sampled specific well sites volunteered by the industry and found emission to be less than a tenth of the NOAA study, 0.42% of gross gas production (Allen et al, 2013). Both these studies are preceded by a study published in *Climate Change Letters* which found that methane leakage emissions of 2-3% make the greenhouse gas footprint of natural gas worse than coal or oil since methane emissions have a more serious global warming potential than carbon dioxide emissions (Howarth, R et al., 2011). In addition, emissions from truck traffic and diesel powered compressors and generators at well pads also impact local air quality. Regional air quality can also be affected if drilling intensity is high. Finally, the practice of spraying flowback water on roads to limit dust can cause the chemicals to become airborne and therefore be harmful to respiratory tracts of residents.
**Land Use**

There is concern about habitat destruction and fragmentation associated with oil and gas development as well. Landowners can stipulate measures in their leasing contracts that would help to minimize these impacts, but drilling companies also need to consider their operations in a region from a holistic standpoint if the unique forests, wetlands, and wildlife populations of Pennsylvania and elsewhere are to be preserved. Landscape and habitat impacts can originate from the creation of well pads, roads, pipelines and compression stations, as well as the noise, light, activity and pollution associated with the drilling operation once underway. Siting well pads and other activity on forested acreage, areas valuable for wildlife populations, or near wetlands or water resources has a different and greater impact than siting the same activity on cleared agricultural land or other less sensitive acreage. Particularly when development occurs in wildlife habitat and natural areas, many conservation and sportsmen organizations have concerns about deep shale drilling operations and the effectiveness of regulations. The Nature Conservancy of Pennsylvania has concerns about wildlife fragmentation. Trout Unlimited is concerned about stream quality that could impact fish populations and health. The Sportsmen Alliance for Marcellus Conservation is concerned about impacts on hunting, fishing and trapping and advocates for additional regulation to protect fish and wildlife and therefore the sporting traditions of Pennsylvania. The Bousson Advisory Group website includes more details on drilling land uses that can cause habitat destruction and fragmentation such as well pads, roads, pipelines and compressor stations, noise, light, activity, and pollution.

**Earthquakes**

Earthquakes are caused by movement or slip along faults. Earthquakes that are caused by human activity are called induced earthquakes or induced seismic events. Large volumes of fluid injection or withdrawal several hundreds to thousands of feet beneath ground surface can induce earthquakes because of an increase in fluid pressure along particular faults that are at a critical stress condition (i.e., close to the point of failure). A comprehensive study on induced seismicity by the National Academy of Sciences (2013), found:

- the process of hydraulic fracturing at the well-site as presently implemented for shale gas recovery does not pose a high risk for inducing felt seismic events and
- the injection for disposal of fracking wastewater into the subsurface at deep well injection sites does pose some risk for induced seismicity, but very few events have been documented over the past several decades relative to the large number of disposal wells in operation.

Davies et al. (2013) summarize the 198 published examples of induced earthquakes that have occurred since 1929 with magnitude of 1.0 or greater (FIG A). Of these, there are only three known examples of earthquakes induced by hydraulic fracturing that were felt by the public (magnitudes between 1.0 and 3.8). Activities that involve larger volumes of fluid injection or a greater imbalance between the amount of fluid injected and removed (such as deep waste injection) are more likely to induce seismic events (Davies et al., 2013; National Academy of Sciences, 2013). Although rare, the link between fracking wastewater injection and earthquakes has been much discussed in our region. In 2011 a series of earthquakes in nearby Youngstown, Ohio were caused by a deep injection well where production fluid from hydraulically fractured wells in Pennsylvania was pumped into geological storage deep underground. The Youngstown event was unique in that the deep injection well was drilled over 200’ past the sedimentary rock target zone for injection, into crystalline ‘basement’ where there was a pre-existing fault. This fault was not known to be seismically active, but the injection fluids reduced friction along the fault, allowing it to slip under the present-day stress field (whereas without the fluids, the fault would not have slipped). The particular injection well was shut down and the earthquakes ceased. Of hundreds of thousands of drilling sites related to waste injection and energy development in the United States, only a very small number have had earthquakes that have been noticeable to the public (National Academy of Sciences, 2013). While rare, it is important that landowners and oil and gas developers be aware of the know faults within the depths of shale gas units beneath western Pennsylvania before development occurs.
**Economic**

Revenues depend on the signing bonus and production royalty percentage negotiated in the lease as well as the quantity and quality of gas extracted from the property and the price of natural gas at the time it goes to market. Therefore it is impossible to predict or quantify a realistic estimate of the lifetime economic incomes for a particular lease and this complicates fact-based decision-making. It is worth noting that the monetary values in this section are estimates from conversations with landowner groups. They are not exact and are included here simply to demonstrate the possible range and scale of potential monetary income from signing a lease.

The signing bonus is a one-time payment based on a per acre value and paid to the landowner at the time the lease is signed. The leasing companies working in our region have quoted different potential signing bonus amounts. Western Pennsylvania Gas Leasing Company has set a target based on comparable sales in surrounding markets of $2000-3750/acre. CX Energy estimates signing bonuses would be around $3-4000/acre. Susquehanna County recently signed a lease on 12 acres for a total of about $43,000 or $3580/acre. If Allegheny College were to lease the 283 acre Bousson Environmental Research Reserve these estimates would predict our signing bonus total would range from $566,000 to $1,132,000. The final figure for the signing bonus depends entirely on what the drilling company offers at the time of the contract negotiations so these figures may not hold true. Signing bonus figures do also depend on the number of stipulations in your contract - more stipulations typically mean a lower negotiated signing bonus. Landowner groups collect a portion of the signing bonus to pay for their services. WPGLC takes 10% of the signing bonus, while CX Energy’s fee is 6% for those who have signed with the landowner group and 8% if you join the group after an oil and gas company has been identified. It is possible to sign directly with the oil and gas company to avoid paying a landowner group fee, however it’s also possible the oil and gas company would refuse to negotiate individual contracts since the ease and scale of the landowner group is more conducive to their process.

After a lease is signed and the signing bonus is paid, future income depends on production royalties. If the oil and gas company chooses to not develop the property within the lease term, no further income would be realized. If drilling did actually occur within the lease term, then a landowner is entitled to production royalties, a percentage of the total market value of the produced oil and gas at current market prices, as negotiated in the lease. Royalty payments have been estimated, based on past data, to be as high as 20% paid to the landowner of the total revenues accruing to the drilling company from a given well. CX Energy shared a boilerplate lease with a 17% royalty figure which has been used in leasing in southwestern Pennsylvania. Susquehanna County’s recent lease on 12 acres included a 19% production royalty. Royalty figures depend partially on what an oil and gas company is willing to offer and possibly on the negotiation skills, within limits, of a landowner or landowner group. While seismic testing and other technical analyses can help the oil and gas company forecast the extent of fossil fuel resources trapped in geologic formations, it’s still impossible to predict how productive and therefore valuable any given well will actually be. Further, the landowner is not privy to the results of the seismic testing and productivity forecasts making a financial analysis of potential income impossible. The total production royalty payments, in addition to being dependent on the quantity and quality of the gas produced, are also dependent on the market prices for the natural gas and oil condensates, which can fluctuate significantly over time. Natural gas prices are nationally at a current low, but it’s difficult to predict their future value. Recognizing all these uncertainties, WPGLC suggested 100 acres of land could yield $1 million in production royalties over an average 20 year lifespan of a well. Kiplinger.com estimates a landowner with 100 acres of Marcellus shale rights could possibly expect $2 million in production royalties in 20 years. Using the Kiplinger.com estimate and assuming all 283 acres of Bousson were produced, Allegheny College might expect to earn $5.7 million in production royalties over 20 years. Once again, this figure is highly speculative and would be influenced by natural gas prices, the productivity of the well, the number of acres actually produced by the oil and gas company, protective stipulations and the production royalty percentage negotiated in the lease.
If Allegheny College were to sign a lease, the institution must also consider how the income should be allocated for use. Some Alleghenians have suggested revenue from drilling should be used to fund projects that are consistent with Allegheny’s reputation as a leader in sustainability, such as projects which would help progress us towards our 2020 climate neutrality goal. Others have suggested the funds should be reinvested in research infrastructure at Bousson or reinvested in the endowment to help lower future tuition rates.

Economic concerns extend beyond what income might be realized by individual landowners through the development of oil and gas resources. Shale gas drilling in the region would have multiple impacts on the local economy from job creation to housing needs to demand for services and goods. Oil and gas drilling industries have been touted nationally and state-wide as a boon for job creation, employment of local residents, new revenues and sales tax earnings to drilling communities, and ultimately a stronger local economy. There is some evidence that these claims have been exaggerated as many of the jobs created by the oil and gas companies are taken up by non-residents, however there is positive impact to those who do gain employment with the industry. Others argue that workers in the Meadville community might be attracted by the high wages paid by gas companies, thus increasing competition for workers and driving up wages in other industries. Whether this will be an issue for Meadville is a matter of speculation at this time. Crawford County’s manufacturing sector has historically been a major foundation for the region’s economy and accounts for 22% of its total employment. Plastic injection molding is a large part of the Crawford County manufacturing. The lower costs for natural gas are expected to help this industry expand and add jobs.

Gas-producing communities tend to experience a period of economic boom, manifested in high hotel occupancy rates, increasing demand for housing and goods and services, generation of increased tax revenues, and the creation of more jobs in both the drilling and the service sectors. While this boom can have positive impacts on a regional economy, it is worth noting that many communities have also experienced drawbacks as well. The intensity of drilling activity in a region influences the intensity of both the positive and negative impacts. For example, a study by Lycoming College’s Center for the Study of Community and the Economy analyzed the impact of Marcellus shale gas industry on the housing markets of six counties in Pennsylvania. Their work revealed several broad themes including that the shale gas industry causes a broad-based increase in housing demand, causing prices for rental housing as well as owned housing across the spectrum to increase significantly. The impacts of this housing boom are felt most acutely by those existing residents already most vulnerable and economically marginal, including seniors, the disabled, and the working and non-working poor alike as their incomes are no longer able to meet rising housing costs (Williamson, J. and Kolb, B., 2011). Gas drilling activity may generate jobs and revenue for several years or potentially decades if deeper shale resources are also drilled, however, it does not guarantee a long-term economic change to the region. Once the wells are established, the drilling, pipeline construction, and trucking jobs dwindle. As activity slows, the local economy can experience a slump equal in proportion to the boom, resulting in increased unemployment, a flood of empty housing stock, and service industries (hotels, restaurants, etc.) that no longer have an adequate audience for their services. Abrupt cessation of drilling activities can have serious negative impacts on communities that have come to depend on the oil and gas industry.

At a broader level, some believe a natural gas boom in the area would help the manufacturing sector by providing cheap energy sources. This would lower the production costs of area manufacturers and enable them to become more competitive. The more competitive they become, the more they are able to employ local residents. The end result would be higher profits for owners, higher income for workers, and higher tax revenue for the local government. However, whether shale gas drilling would enable local manufacturers to be competitive depends on whether locally produced gas will be consumed within the local community or sold elsewhere. Currently, there are plans to include western Pennsylvania in the more competitive east coast market which could cause regional natural gas prices to increase. Further, the approval of export terminals to...
sell natural gas internationally will also drive up prices to meet those of the global market. Natural gas prices are at historic lows in the U.S. due to the increased domestic supply realized from shale drilling and the lack of export facilities. These low prices also prevent natural gas from serving as the “bridge fuel” from coal to renewables for which it has long been touted. As long as natural gas prices remain low, there is no incentive to invest in more costly renewable technologies like wind and solar.

Community
It is difficult to quantify the effect of the drilling industry on the quality of life of the community as a whole. In struggling farm communities, gas well revenues may help farmers pay off debts, stabilize their finances, focus on farm improvements, and even retire comfortably. These benefits to individuals are matched by potential negative impacts, such as infrastructure degradation, detrimental health effects, and a shifting of the character of the community. Drilling increases road traffic, causing local roads and bridges to degrade, and brings new light and noise pollution to once quiet farmland. Increasingly, many companies improve roads when industry comes to the region, but this is negotiated on a township by township basis and is not guaranteed. The increased traffic and the use of generators at drilling sites negatively impacts air quality and can have detrimental health impacts to residents. The primary concern for negative human health has centered upon the contamination of drinking water. The EPA is currently working on a study of potential human impacts of natural gas drilling with a focus on water quality impacts, expected to be released in 2014. Many residents are leery of drilling operations due to significant, although relatively isolated, incidents in earlier Marcellus Shale operations. Images of flaming tap water and stories of families and farm animals falling ill after drilling began persist, despite claims that state regulations and drilling practices have improved. There is hope the EPA’s assessment of drilling impacts will both clarify specific risks and dispel lingering myths so the decision of whether to drill can be made with more certain information and confidence. Besides human health impacts, clearing land for well pads and constructing pipelines physically alter the landscape of a community and some argue could have negative impacts on rural tourism revenues. Some new gas communities have also experienced high rates of prostitution, drug addiction, alcoholism, rape and assault when the drilling industry emerged and new workers moved to the community. It’s impossible to predict if any of these impacts of concern might be experienced in Crawford County, but it’s important to recognize potential indirect impacts on community quality of life.

Integrity of Reputation
As a charter signatory of the American College & University Presidents’ Climate Commitment, Allegheny has acknowledged the need for global reduction of greenhouse gas emissions and has developed a comprehensive climate action plan to achieve climate neutrality by the year 2020. In January 2011, the College committed to purchasing 100% of its electricity from wind generated sources, a change that immediately eliminated over 50 percent of the institution’s carbon footprint.

The next major source of campus emissions is our use of natural gas for space and water heating in 1.4 million square feet of building space. While there are long-term hopes of adding more geo-exchange heating and cooling, solar thermal water heating and potentially exploring other renewable heating solutions, the reality is that at this time Allegheny College is reliant on the natural gas industry for heating purposes. There is some debate on whether this should sway Allegheny to sign a lease since to prohibit gas development at Bousson out of concern for potential environmental damage, would invoke the NIMBY “not in my backyard” principle since we would still rely upon the development of gas resources on others’ properties for our heating needs.

While some argue that natural gas has a much lower greenhouse gas impact (based on combustion emissions) than dirtier fossil fuels such as coal, other studies show methane migration associated with drilling for natural gas makes it no better than coal or oil from an emissions per unit of energy standpoint, as discussed previously in this report. Nationally, natural gas has been touted as a cleaner energy “bridge to renewables”,
meaning natural gas should be extracted and used in place of coal and oil while the nation simultaneously develops and increasingly relies upon renewably generated energy such as solar and wind. However there is valid contention that on a national level, it is not being treated as a “bridge” and rather is used as a cheap, plentiful energy source that provides no leverage to transition to a cleaner future.

Allegheny is nationally recognized as a leader in the campus sustainability movement. Many have questioned why Allegheny, as a green leader, would even entertain a conversation about oil and gas development on campus property. For many, there is a perception that considering seismic testing or a lease is in direct contradiction of our Environmental Guiding Principles and our sustainability reputation. Others have wondered if using income from shale gas might help fund our Climate Action Plan and therefore outweigh the negatives of drilling by actually demonstrating how natural gas can be used as a bridge fuel to a renewable energy campus through the use of solar photovoltaics, solar thermal water heating, wind turbines, geo-exchange heating and cooling, biomass incineration among other renewable energy generators. Most of the conversations on campus have centered on this question of whether the decision should be made on principle or based on numbers. Some argue if we decide not to lease, we lose out on money we never had in the first place, however if we do drill, we risk damaging our reputation which is difficult to quantify.

Campus conversations have speculated about how any decision regarding oil and gas development may have impacts on the institution, particularly from the perspectives of admissions and development. It is unclear how prospective students will perceive a campus sustainability leader which also participates in hydrofracturing. Conversely, development has heard from alumni on both sides of the issue who say they will suspend gifts to the college based on our decision.

**Other Colleges**

Allegheny is not the only school that has been approached about oil and gas development on campus property, although we believe our campus discussions have been more extensive, inclusive, and transparent than at other institutions. In the spring of 2011, PA governor, Tom Corbett, announced his intention to approve shale gas development at state campuses, a potential solution to the state budget deficits. Mansfield, Lock Haven, Indiana University of Pennsylvania, and California University of Pennsylvania are situated atop Marcellus shale while Clarion and Slippery Rock, are on the edges of the reserve. Westminster College located in western Pennsylvania also has been approached about potential development of more than 300 acres of college-owned woodland and farmland. Westminster officials held a town hall style meeting on campus where many spoke against drilling. The Westminster board of trustees hasn’t yet made a decision for two reasons: No oil and gas companies currently are approaching the college for a lease and, there is hope that the federal Environmental Protection Agency assessment of drilling impacts, due out in 2014, will shed new light on the issue. The University of Tennessee has approved a plan to drill for natural gas and research the impact of fracking on their 8,600-acre publicly owned research forest. As of September 2013, though, had not so far received any bids from an interested oil and gas company. Bethany College in West Virginia has allowed development of both Marcellus and Utica Shale on 1300 acres of college-owned property that is adjacent to the campus.
Summary of Feedback

One of the charges given to the Bousson Advisory Group was to gather campus viewpoints and survey data to inform the Administrative Executive Council’s recommendations to the Board of Trustees. To do so, the Bousson Advisory Group first sought to gather and then share information on all aspects of leasing, drilling and potential impacts and benefits, mostly in the form of the website and three information and discussion sessions held throughout the 2012/2013 academic year. The website and the sessions also provided an opportunity for the advisory group to hear and record feedback from the campus community. The Bousson Advisory Group acknowledges that quantifying the scale of support and opposition to leasing or developing oil and gas resources at Bousson is difficult to do. The majority of comments through the website and at the information sessions have been in opposition to leasing and developing. However, in contrast, when a group of 30 Economics majors and minors, who may or may not have been well-informed on the issue, were surveyed, over 90 percent thought the potential economic benefits outweighed the risks. While capturing a clear sense of a quantifiable reflection of campus opinion has been difficult, two things are clear: 1) there are many opinions ranging from unquestioned support to undecided reflection to staunch opposition to leasing and drilling, and 2) the most passionate and consistently engaged voice has been from those opposed to any oil and gas development at Bousson. Feedback gathered through an Allegheny Student Government Survey and a Students for Environmental Action petition may help us put the many opinions on campus into a bit more of a context.

Website feedback
Immediately after the Bousson Advisory Group was formed, a website was created with the intention of serving as a forum for education, event updates, and a method for collecting feedback from the campus community. As of November 11, 2013, 70 comments had been submitted through the website by current students, professors, professors emeriti, alumni, parents, and a neighbor of Bousson. Of these comments, five expressed an explicit pro-drilling sentiment, while thirty-two expressed an explicit anti-drilling sentiment. Other comments expressed opinions and reservations without stating a specific stance on the issue. Those in support of extracting natural gas from Bousson primarily pointed to reasons of economics and energy independence. Those expressing an explicit anti-drilling sentiment most often cited the integrity of Allegheny’s sustainability reputation, environmental and health concerns, and the lack of complete knowledge about the safety and impacts of hydraulic fracturing processes. Twelve comments offered suggestions for how the Bousson Advisory Group should enhance or change its process or website, with the request to make comments public in a website forum the most repeated suggestion. Eleven comments asked a specific question about the process or the logistics of potential drilling activity. Three comments were from a neighbor or party interested in contributing their expertise or experience to our discussion of this issue. Nine comments also examine the decision-making process, particularly expressing concern that Allegheny would even talk about development at Bousson for moral reasons and concern that trustees will make a decision based on economics rather than on principle and listening to the opinions of Alleghenians. A compilation of all website feedback can be found in Appendix B. Kelly Boulton, sustainability coordinator, responded to each of these website submissions to express appreciation for voiced opinions, to answer any questions, and to assure individuals that the comments were being passed along to administrators and trustees.

In response to the numerous suggestions that we add a public comment section to the Bousson Advisory Group website in order to improve transparency and provide a public record of opinion, we have taken steps to create this forum. In collaboration with Allegheny’s communications team, we will add a public comment page:

- Visitors can fill out a form, asking for their name, a valid email address, and their comment. Comments will be posted along with the poster’s name. Anonymous comments will not be included in the public forum.
All comments submitted with the poster’s name and adhering to Allegheny College’s Statement of Community will be included regardless of the opinion expressed. The posts will be “approved” by the Bousson Advisory Group before they are publicly posted only to ensure we uphold a civil and respectful discourse and to filter spam responses. The posts will not be censored or edited in any other manner. The forum will post one-off comments, but not offer a space for follow-up comments in response to a particular comment.

**Session feedback**

*Basic Information Session on Consideration of Deep Shale Gas Development at Allegheny’s Bousson Reserve, January 21, 2013*

Advisory group members offered an overview of the conversation up to that date with a focus on seismic testing since, at that time, this decision was looming before the testing was canceled. Ron Cole presented an overview of the basic geology of shale gas resources and the details of the process of seismic testing, including a discussion of potential impacts to Bousson. Kelly Boulton presented the details of what Seitel was proposing to do at Bousson and the subsequent conversation about what might be allowed and what would be limited to protect Bousson as guided by the users of Bousson and a desire to minimize surface impacts. After the twenty minutes of presentations, the session was opened up for questions from the audience. The ensuing conversation focused on a discussion of the details of seismic testing and its impacts as well as the logistics of potential leasing and drilling processes and activities, with an emphasis on the safety of activity at Bousson. Additional discussion centered on student desire to discuss social, community, ethical, and reputation concerns surrounding drilling in addition to the logistical and process details addressed in this first session. There was also some discussion of the complexity of the many angles of this issue and the need to express all this to the trustees. The opinion was expressed that some would be more proud of Allegheny if the prospect of drilling was rejected outright without further discussion, while another individual acknowledged the polarizing nature of this issue by suggesting we should drill as a means of investing financially in the college. This session was recorded and can be made available by contacting the Bousson Advisory Group.

*Technology, Leasing, Impacts and Regulation of Deep Shale Natural Gas Development, February 13, 2013*

The Advisory Group invited a panel of experts to answer questions from the campus members. Panelists included:

- Jake Polochak, leasing attorney and managing partner at Morasyczk & Polochak, a law firm working with CX Energy land group
- Richard Vickroy landowner group consultant
- Susan Stout, Forest Service researcher exploring impacts of drilling on Allegheny National Forest
- Roger Willis, local drilling company representative
- Richard Neville, DEP oil and gas compliance chief

Panelists introduced themselves briefly and described their role and knowledge in the issue. The session was then opened up to the audience to ask questions of the panelists. The ensuing conversation explored:

- details of the leasing process, such as potential financial gain, surface activity restrictions, liability, and the lease as a vehicle to push drillers to a higher standard;
- regulation of drilling activities, such as restoration and remediation requirements, permitting, enforcement of standards, abandoned wells, emphasis on fixing rather than preventing problems, presumption of guilt for water quality issues, and the credibility of DEP after allegations of withholding negative water quality data;
- impacts, including a discussion of truck traffic, erosion and sedimentation, spills, road creation, wildlife fragmentation, methane leaks, underground fractures, abandoned wells, air quality, water quality, radiation concerns, land subsidence, and negative human health;
elements of the context in which Allegheny will make a decision, including the College’s use of natural
gas as a heating source and the perceived inevitability of drilling coming to our area; and
a forecast of what developments may occur in leasing activity and subsequent drilling activity in the
coming year. CX Energy stated that the previous year’s rush of action was reactive and now the lull in
activity is caused by waiting to see the productivity of several test wells in the region, a determinant of
whether oil and gas companies will seek to actively lease in the region.

The Institutional Debate: Ethical, Environmental, Social and Economic Issues, April 3, 2013
The third session, “The Institutional Debate: Ethical, Environmental, Social and Economic Issues”, focused on
two questions: 1) why Allegheny should or should not allow drilling and 2) how the College might use the
additional revenue if we did choose to allow gas development. The subsequent discussion was moderated by
Jack Ubinger of the Pennsylvania Environmental Council to center around these two questions, but also
covered many issues raised by campus members. One attendee summed up the sentiments echoed by many
others when she said her head understands the need to investigate all revenue streams but her heart says “no
amount of money can buy the integrity of the school”. Other discussion included:

- debate of whether working to improve regulation can make drilling an acceptable proposition,
- discussion of potential negative economic and social impacts on the community,
- expression of concern that Allegheny is facilitating these community discussions without campus
  community trust that the content of the discussions will really have any impact on the decision
  ultimately made by trustees, and
- the belief shared by many on campus that even considering and talking about potentially leasing
  Bousson has negatively impacted the College’s image both as an institution of principle and as a leader
  in national campus sustainability, and
- the argument that drilling would cause an irreversible damage to Allegheny’s reputation, and that no
  amount of investment in “green projects” would ameliorate that damage.
- A student offered a summation of the common sentiments he heard expressed:
  - There is a lot of frustration about the discussion because he and others have yet to hear a
    strong argument for why Allegheny should drill.
  - The institution has instilled ethics in students that argue against fracking, and students would
    therefore feel the institution turned its back on students if drilling was pursued for no other
    benefit than money.
  - He asked opposed individuals to stand (more than ⅔ -⅜ of attendees stood).

Students have organized and hosted a number of other information and discussion sessions including:
- Frack University hosted by Students for Environmental Action on November 16, 2012
- Student-led Fracking Discussion on December 3, 2012
- Pennsylvania Independent Oil and Gas Association “No Green Slime” panel question and answer
  session hosted by College Republicans on February 27, 2013

Allegheny Student Government Feedback
Allegheny Student Government included a series of questions relating to the discussion of drilling at Bousson
on their annual Student Life survey, which is distributed to the entire student population. The responses reflect
a general divide in opinion with a strong leaning towards caution. The entire survey can be found in Appendix
C. The following questions reflect some summaries of student opinion.

Based on what you know thus far, how do you view the development of Utica shale gas (hydraulic
fracturing/hydrofracking) on Allegheny’s Bousson property?
- 38% - I don’t want it to happen (181 respondents)
• 24% - I want to learn more before I decide (112 respondents)
• 19% - if we do it right, I support it (91 respondents)
• 10% - I do not care, it does not affect me (45 respondents)
• 5% - let’s go ahead and do it (23 respondents)
• 4% - other (21 respondents)

What considerations impact your opinion? (Select all that apply)
• 79% - Environmental Impacts (328 respondents)
• 76% - Human Health Impacts (316 respondents)
• 58% - Allegheny’s sustainability reputation - Environmental Guiding Principles, climate neutrality goals (242 respondents)
• 46% - Mistrust in state and federal regulations and drilling practices (189 respondents)
• 40% - Potential financial gain and job creation for community (168 respondents)
• 39% - Potential financial gain for college (163 respondents)
• 22% - Decisions that the surrounding areas have made/are making (90 respondents)
• 12% - Trust in state and federal regulations and drilling practices (51 respondents)
• 4% - Other (16 respondents)

How should the college make a decision about gas exploration at Bousson?
• 8% - As a practical business (36 respondents)
• 28% - As an institution of ideal (134 respondents)
• 55% - As a mix of the two (260 respondents)

Later, on April 23, 2013, ASG resolved to oppose hydraulic fracturing on Allegheny’s campus. After much discussion about impacts, principles, and climate change, the motion passed with an overwhelming, close to unanimous, majority.

**Students for Environmental Action Petition**

Students for Environmental Action created and circulated a petition throughout the 2012/13 academic year. The petition cites Allegheny’s sustainability commitments and values as well as environmental and health concerns linked to hydraulic fracturing and natural gas before asking individuals to sign the following statement:

“To: Allegheny College Board of Trustees
We demand that Allegheny College refuse any further consideration of leasing property for deep shale natural gas extraction as the environmental and health risks would compromise Allegheny’s commitment to a sustainable future.

Over 800 signatures of students, faculty, staff and administrators were collected both digitally through an online survey and physically through circulation of printed petitions. The full text of the petition can be found in Appendix D. The petition, digital signatories and their comments can be found at [http://www.change.org/petitions/allegheny-college-board-of-trustees-refuse-to-lease-property-for-deep-shale-natural-gas-extraction](http://www.change.org/petitions/allegheny-college-board-of-trustees-refuse-to-lease-property-for-deep-shale-natural-gas-extraction).
Next Steps

While industry activity has slowed in our region, the Bousson Advisory Group continues to meet monthly at a minimum. For the 2013/2014 academic year, the group intends to:

- release this report of findings and feedback to date by posting to the Bousson Advisory Group website and sharing with the Administrative Executive Committee and the Board of Trustees.
- host an evening session on Wednesday, November 20, 2013 to present a summary of findings, field questions, and ask attendees what next steps they'd like to see the advisory group take to facilitate the education of the community and the collection of feedback,
- continue to seek information and report findings. One potential source for regionally based research is a joint effort among several faculty at Allegheny College, the Western PA Conservancy, The Nature Conservancy, the French Creek Conservancy, Audubon NW Pennsylvania, and a variety of other local and state agencies (Crawford Conservation District, PA DEP, PA Fish and Boat Commission) to 1) identify ecologically sensitive areas that should be avoided when siting well pads and roads, 2) compiling existing baseline data on terrestrial and aquatic resources, and 3) prioritizing baseline data collection sites to fill in “holes” in thebaseline information we have for the region. Sharing this wealth of information with local landowners either through a landowner group or other means has the potential to reduce the impacts in and around Bousson, and provide a role model for those lessees who are truly interested in best management practices for deep shale gas drilling.
- continue to facilitate civil and productive discussions on campus and gather feedback from the Allegheny community.
Recommendations

After a year of fact-finding and gathering feedback from the Allegheny community, the complexities of this issue are very clear. The College must consider not only logistical details and potential economic benefits, but also impacts to the environment, community, human health and integrity of the reputation of Allegheny. In an attempt to compile a number of the many considerations in an organized manner, the Bousson Advisory Group created Table 3, a chart of debatable Pros and Cons in the four categories adopted by the Board of Trustees as the basis for a decision:

- Environmental Impact,
- Reputation,
- Teaching and Learning, and
- Economic.

While this chart is not a complete summary of the issue, it is a useful way to weigh many aspects of the issue at once. The Bousson Advisory Group also created Figure 1, a decision tree summarizing the steps along the process of considering whether to develop oil and gas resources at Bousson and highlighting the decision points where the College could choose to end discussions or continue to pursue the possibility.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental Impact</strong></td>
<td><strong>Environmental Impact</strong></td>
</tr>
<tr>
<td>Natural gas has fewer emissions than coal when combusted</td>
<td>Methane release during drilling process has not yet been definitively quantified and may exceed emission potential of coal</td>
</tr>
<tr>
<td>We could protect the surface of Bousson by disallowing surface activity while allowing drilling under the surface by placing pad on neighbor’s property</td>
<td>Water, air and wildlife could still be impacted due to activity on neighboring properties.</td>
</tr>
<tr>
<td>Regional drilling will have the potential for these impacts regardless of Allegheny’s decision</td>
<td>Water and soil contamination due to spills and/or faulty casings. Natural gas industry exempt from drinking water standards. (Clean Water Act)</td>
</tr>
<tr>
<td>Natural gas could serve as a bridge fuel to renewables</td>
<td>Methane Migration</td>
</tr>
<tr>
<td></td>
<td>Air, noise, and light pollution from drill pad operations and truck traffic</td>
</tr>
<tr>
<td></td>
<td>Habitat destruction and fragmentation from drill pads, pipelines, roads, transition stations</td>
</tr>
<tr>
<td></td>
<td>Negative impact on French Creek watershed if there is any water contamination around Little Sugar at Bousson</td>
</tr>
<tr>
<td></td>
<td>Negative impact on human health</td>
</tr>
<tr>
<td></td>
<td>New supply of natural gas may drive down prices therefore slowing the transition to renewables or causing increased usage due to cheap fossil fuels</td>
</tr>
</tbody>
</table>

Figure 3a: Environmental Impact Considerations
<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reputation</strong></td>
<td></td>
</tr>
<tr>
<td>Additional financial resources could help the college with attractive programs, potentially climate neutrality efforts</td>
<td>Allowing development could be seen as valuing money over environment</td>
</tr>
<tr>
<td>Some donors might appreciate college efforts to take advantage of income</td>
<td>Some donors might disapprove of college approving unconventional gas development</td>
</tr>
<tr>
<td>Shale gas drilling on campus property would not impact our annual campus greenhouse gas inventories (emission responsibility falls to the energy user not producer)</td>
<td>Would extraction make students (current and prospective) skeptical of the sincerity of our climate neutrality commitment and influence their enrollment decision?</td>
</tr>
<tr>
<td>Would deciding not to drill be seen as a NIMBY hypocrisy since we heat campus with natural gas?</td>
<td>Allegheny is every year increasingly recognized as a leader in the field of campus sustainability. Would shale gas extraction on campus property taint that positive image through perception of hypocrisy?</td>
</tr>
<tr>
<td>Allegheny could be national leader on leasing contract and oversight of drilling</td>
<td>Allegheny could be example of drilling problems and severe impacts</td>
</tr>
</tbody>
</table>

Figure 3b: Reputation Considerations

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teaching and Learning</strong></td>
<td></td>
</tr>
<tr>
<td>Allowing extraction while limiting surface activity would have little direct effect on the current research plots and uses of Bousson</td>
<td>Indirect impacts of regional drilling may still have an impact on current research efforts both at Bousson and in the French Creek watershed.</td>
</tr>
<tr>
<td>Allowing development would create scenario in which Allegheny could study what are best practices for leasing and drilling</td>
<td>This could be done by working with other regional landowners even if Bousson was not leased.</td>
</tr>
<tr>
<td>Allowing development would create scenario in which Allegheny could do baseline and post-drilling comparisons to assess impact</td>
<td>This could be done by working with other regional landowners even if Bousson was not leased. In addition, Bousson could serve as a control property if it is not leased/developed.</td>
</tr>
<tr>
<td></td>
<td>Would extraction affect Allegheny’s ability to attract students and faculty particularly those interested in sustainability or Bousson’s research opportunities?</td>
</tr>
</tbody>
</table>

Figure 3c: Teaching and Learning Considerations
<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signing bonus whether drilling occurs or not</td>
<td>Allegheny, through collusion, supports fossil fuel industry that has fought environmental regulation</td>
</tr>
<tr>
<td>Potential production royalties</td>
<td>No way of knowing how much money could be realized by drilling</td>
</tr>
<tr>
<td>Regional job creation</td>
<td>Not all jobs are filled by locals and many are not long-term jobs</td>
</tr>
<tr>
<td>New revenue in community</td>
<td>Landscape aesthetics and tourism can be negatively affected (ex. Trout fishing)</td>
</tr>
<tr>
<td>Potential income could be used to advance climate neutrality efforts</td>
<td>Allegheny could make the statement that environmental and community health is more important than financial gain</td>
</tr>
<tr>
<td>Potential income could be used to advance research efforts and infrastructure at Bousson</td>
<td>New costs to community such as road repairs due to heavy truck traffic, inflated housing markets, crime, health costs</td>
</tr>
<tr>
<td>Natural gas is a locally produced energy source that could reduce international dependence</td>
<td>Will natural gas produced in Pennsylvania remain in Pennsylvania for consumption or go to a national or international market?</td>
</tr>
</tbody>
</table>

**Figure 3d: Economic Considerations**

**Figure 1: Decision tree of Allegheny’s process and options**
The Bousson Advisory Group recommends the Administrative Executive Committee and the Board of Trustees take advantage of this lull in leasing and potential drilling activity to entertain some meaningful conversation and consideration of this issue. While many have commended the College for making an effort to gather facts, educate the campus population, raise awareness, and engage in a civil discourse, there is also a sense that moving through this process in the 2012/2013 academic year should have prepared us to make an institutional decision about our intents at this time rather than waiting until the oil and gas industry becomes active in the region. The Bousson Advisory Group recommends the College administration and trustees consider the frustration associated with a lack of a decision and consider scheduling some careful evaluation, consideration and discussion of this issue. Reaching an institutional decision or statement of intent independent of the activity of the oil and gas industry would be valued by Alleghenians.

At this time, the Bousson Advisory Group primarily intends to share findings and feedback to date rather than make a final recommendation on whether the trustees should proceed with seismic testing, lease drafting and/or signing a contract. As the administration and trustees weigh the findings and consider a decision, the advisory group recommends these initial best practices:

- Make careful consideration of feedback from Allegheny faculty, staff, students and alumni before making any decisions.
- If seismic testing is approved, limit to sites approved by Bousson research faculty and students. It is suggested that surface activities such as clearing trees and brush be avoided and seismic testing be permitted, if at all, only in areas that are already disturbed, such as along the drive and the electric utility right of way.
- If a lease is drafted, stipulate no surface activity (drill pads, pipelines, compressor stations, roads, etc.) in order to protect the environmental research purposes and wildlife habitat of Bousson. This position is consistent with a long term agreement between the faculty who use Bousson as a teaching and research outdoor laboratory and many previous administrations
- If a lease is drafted, construct a sophisticated lease with many protections for the environmental integrity of the property and the legal security of the college using the Pennsylvania Environmental Council’s Marcellus Shale Lease Guide: Principles for the Conservation-Minded Landowner as a guide.
- If the contract is signed and if the property is developed, treat the natural gas at Bousson as a bridge fuel away from fossil fuel reliance by using the funds as an investment in Allegheny College’s Climate Action Plan in order to spur Allegheny’s transition to more efficient operations, use of renewable energy, and achievement of climate neutrality.
References


Appendix A: Environmental Guiding Principles

Allegheny College strives to be a community in which the earth’s natural resources are used and sustained in manners that safeguard the health and survival of present and future generations. We acknowledge that as a learning community, we have an obligation to demonstrate our commitment to environmental stewardship. We affirm our commitment to protect and enhance the environment through our teaching, research, service, and operations. We seek to foster a community that educates itself on environmental awareness, local action, and global thinking. Environmentally sound practices are core values of the College.

We seek to be a campus community:

- In which the College is an environmental leader in all aspects of institutional functions, including planning, operations, purchasing, and maintenance;
- In which environmental leadership is seen as a continuous, participatory process of learning;
- In which environmental efforts encourage interdisciplinary ties and collaboration in teaching;
- In which we acknowledge our obligation to live responsibly as part of a forested ecosystem rich with aquatic and terrestrial resources; and
- In which College leadership and expertise contribute to local and regional environmental efforts.

To advance our goals, we will:

- Incorporate environmental concerns as a priority in College decision making;
- Consider social and economic impacts of Allegheny’s environmental policies and practices;
- Use participatory processes in developing Allegheny’s policies and practices; and
- Seek practices and procedures that protect the environment.

Our decisions and actions will be guided by the Allegheny College mission statement, reflective of the College’s resources and informed by the Campus Master Plan. As a learning institution, we recognize that achieving environmental sustainability will be an evolving practice.
Appendix B: Bousson Website Feedback

1. **faculty**

   Hello,
   I think it's great that you've set this up. On the assumption that this site is going to get a whole lot of traffic, I wanted to flag the following sentence on the splash page:

   "The Bousson Advisory Group offers this website as a forum to not only present evolving information, news articles, and event announcements, but also gather feedback, suggested resources, and questions from the campus community."

   Sounds to me that you've got a word or two missing, and some grammar challenges as well. If you read it aloud, you'll see what I mean. I'm worried that this might reflect poorly on the good work of the Group.

   Perhaps something like the following might be more effective?

   The Bousson Advisory Group offers this website as a source for evolving information, news articles and event announcements, and as a place where the campus community can offer feedback, raise questions, and share additional resources.

   Thanks!

2. **current student**

   Please share these articles in the 'Drilling in the News' section:
   
   http://www.nature.com/news/air-sampling-reveals-high-emissions-from-gas-field-1.9982
   http://www.nytimes.com/2013/01/03/nyregion/hydrofracking-safe-says-ny-health-dept-analysis.html?_r=4&

   Thanks!

3. **Emeritus Professor of English**

   I urge caution at its most intense and vigilant. I would certainly be pleased to see the College enriched by leasing the Bousson property. But I would be more pleased yet and all the more proud of this great institution where I served with pride on the faculty for thirty years if it were to forego such enrichment to maintain the environmental integrity of this beautiful piece of land and the land surrounding it

4. **current student**

   How do you plan on making the issue more aware for the campus as a whole instead of just the science professors and environmental students? How would you make the people that are less aware more aware? Presentations and emails are great, but do you plan on doing beyond that or do their opinions not matter because they do not have insight on this topic?

5. **current student**
Is there a goal towards reaching out towards neighboring counties other than Crawford county? Are we going to let them figure out their own land while we focus on our own or do we plan on bringing ourselves together to gather more insight about the situation? We know that if the company does not choose Bousson as their testing then they will of course migrate to neighboring land, so should we make them aware or leave them be with their own actions?

6. **current student**

What are the main reasons of why the trustees have not said no to this event so quickly? What is making them hold onto this situation for so long and put ourselves through the drama and stress of figuring it out? Do we just want to be on the timeline of history or do we actually want to put our school to the test by figuring out the situation and coming out of it in a positive way so we have something to look back on?

7. **current student**

I don't think Shultz is at all an ideal place to have the fracking information sessions. It is so out of the way from the central part of campus that any student that does not already know about or have a vested interest in the fracking issue will not bother to attend. I think it would be far more effective to have the information sessions in the campus center to attract the attention of students passing through or doing homework. If the CC is not available, even Quigley is more central to campus than Schultz is and might attract more students just by virtue of the location.

8. **Meadville native and bounding property owner**

I own the 100-acre parcel (also known as "Camp Chickasaw") that is adjacent to the Bousson Reserve in East Mead Township. I just came across your site and am dealing with many of the same issues as you are. My wife and I both work in the conservation field and have been researching current issues related shale development. We too have been contacted by the drilling companies and consultants. Although my wife and I reside in Pittsburgh, we are at Camp Chickasaw frequently. Please feel free to contact me if there is any way I can help or be involved.

9. **current student**

Thank you for the first public discussion regarding hydrofracking at Bousson.

The environmental impact from seismic testing was raised. I would like to request that any known possible environmental impacts from seismic testing and explosives use is shared, and whether it is significant or significant. I mean, are the consequences simply that some earthworms will die, or can sending fractures every 30 feet (not sure of exact number here) possibly change the groundwater hydrology, stream discharge, bedrock stability, etc. I am requesting baseline information from you as stream and forest ecologists, geologists, and limnologists on your knowledge and sound judgement to draft a list of possible environmental impacts from seismic testing as proposed at the Bousson Environmental Research Reserve. Thank you.

10. **current student**

I am deeply disturbed by the possibility of seismic testing and hydraulic fracturing in the Bousson Environmental Research Reserve. As a member of the Allegheny community, I feel it is my responsibility to voice my opinion of strong disagreement for any decision to pursue action related to seismic testing and hydraulic fracturing on college property.
One reason for my opposition to seismic testing, and in particular hydraulic fracturing, in the Bousson Reserve is the lack of complete knowledge regarding both environmental and human effects. From my own research it seems that there are many accounts of unanticipated environmental repercussions as well as adverse health effects in areas where such activities have occurred, and limited if any long-term economic benefit. It seems unwise to pursue actions that have already raised cause for serious concern and where so little understanding is present.

Another reason for concern is the ethical and moral implications of allowing such actions to occur with the permission of the College. As an institution which claims to be "green" and an institution which strives to be an example of sustainability, allowing seismic testing and hydraulic fracturing is a hypocrisy of the highest sort. Such actions could only be motivated by monetary concerns, which is no excuse for violating the duty we have towards the planet, ourselves, and future generations. Such actions would be morally reprehensible.

I generally consider my attendance at this College and my membership in its wider community a place of pride. I hope this institution remains true to its vision of environmental leadership and efforts to promote sustainability. I for one will be incredibly disappointed in the College if it pursues actions clearly against its proposed vision and professed guiding principles, and consider my membership in its community far less meaningful. We can either be leaders in the movement to save the planet or contribute to an ongoing system causing its demise. I hope that reason and moral and ethical responsibility will carry the day with those for whom responsibility rests to make a decision regarding this matter.

11. parent

I can't believe that this is even being considered as a possibility. Your credibility as a leading environmental institution will certainly be jeopardized. My daughter will graduate this year, but if we were to start the college search over again, fracking on campus owned property would certainly deter us from looking further. Are you that desperate for money?

Pave paradise...

12. current student

Question: is the goal of this group to educate the campus community so that we can make an informed decision? What power will this decision of an informed college community (students, faculty, staff, alumni) have on the ultimate decision of the Board of Trustees? If there is indeed no room for the college's opinion, what is the point of investing energy into a facade of space for influence?

Second: The events hosted by the group are belatedly publicized and held in an inconvenient location for students, so that only those who are already passionate make the effort to attend. I would like to ask that the third forum be held in the campus center.

Third: All commentary and dialogue should be as accessible as possible. If there was another tab on this website that offered others letters, comments, and concern, I think that would help facilitate a dialogue rather than a debate.

Fourth: The format of the current discussion feels as the confused Bousson Advisory Group is seeking to be persuaded by either the environmentally concerned or the economically-looking that one side is better. However, I think a more productive dialogue format would be where the complexity of the situation can be discussed honestly, with people not feeling as if they have to be defensive and persuasive, but rather reflective on their own opinions and knowledge. Ways to address this would be to have spaces run in more circularly spaced formats (without elevating gas drillers as experts and the only ones knowledgeable of the issue), including members of the Meadville community unaffiliated with the college (as I understand it, the college should seek to help the community around it), and asking people to address the various issues and recognize the complexity, including environmental, health, economic, social, and justice issues.
13. current student

While many have asked me to staunch my "immediate visceral reaction," I think that this statement in itself implies a knowledge that the immediate and very emotional feeling is one of negativity and dissent. This is because it is a wildly popular agreement among those who are sustainably minded that we are in a precarious state - globally - in which our futures and lives are at stake and the fossil fuel industry is a huge contributor to this state. We may be using natural gas at this school right now, but we should be moving as far away from it as possible, and taking more gas out of the land with the argument that we are using it already is incredibly pointless, like saying that we are in need of blood so we might as well cut ourselves and bleed some more. We are supposed to be carbon neutral by 2020, so at least the emissions that the school creates will be offset - the emissions created by fracking on our land will not. I do not want there to be fracking under Allegheny land. I want to graduate and pursue a career that coincides with my hard-earned BA in environmental studies: over 50% of college graduates are working jobs that do not require a college degree, and more than that are making minimum wage, and I don't think it will help my cause to have a degree in sustainability from a college that is a known hypocrite in the field. I do not want to be embarrassed to say that I got my degree at Allegheny College. I do not want us to add on to our already overwhelming support for the industry that has led to cancer and sickness in my family and friends, mental disease in my generation, and an increasingly bleak future. Allegheny College is meant to support the youth, not use them. Please take us seriously.

14. current student

I am sort of confused as to why the decision to frack at Allegheny is made by the board of trustees? I understand that as a non-profit, all financial decisions legally have to be made by the board. But why does Allegheny fit itself into this tyrannic and hierarchical structure? Shouldn't students, staff, and the administration have at least some democratic control over their own school? As a student, I feel like I'm being ruled by a small group of rich people who I not only never met, but I never elected.

15. current student

While I think the Bousson Advisory Group and it's page are useful, I still find myself unaware of the going ons. I think there should be weekly updates as well as more transparency in the meetings and goings on. Furthermore, we would like to have more direct dialogue with the group as well as a more effective means of communication.

16. current student

I stand against fracking at Bousson Reserve.

17. current student

I stand against fracking at Bousson Reserve.

18. current student

In what ways will natural gas drilling at Bousson benefit Allegheny College students?

19. current student
My main concern is us as a college is practicing what we preach. We talk about our sustainability goals and initiatives, which is one of the main reasons I ended up coming to Allegheny. Our decision to Frack or not to Frack should be solely based on what we stand for - not on what other land owners surrounding Bousson are doing. There is no price for what we stand for. Or for our research forest!

20. current student

I stand against hydrofracking at the Bousson Reserve, a plot available for campus research and exploration. Permitting fracking at Bousson is a contradiction to Allegheny’s dedication to sustainability and limits academic progress which Allegheny so readily inspires.

21. current student

I do not support Hydraulic Fracturing at Bousson. I lieu of environmental and human health concerns associated with hydrofracking, I do not see Allegheny’s educational ideals and environmental commitments to be consistent with this type of resource extraction.

If Bousson Forest is indeed intended and valued as an educational resource for research as stated on the Departmental of Environmental Sciences Facilities page: "Allegheny’s Bousson Environmental Research Reserve for environmental and ecological research by faculty and students" and on the Bousson page of the Bousson Advisory Group: "...Allegheny has maintained the tract as an unmanaged recovering forest, reserved for research and limited recreation uses. Professors have engaged students in research at Bousson including investigations into soil organic matter, aquatic habitats, hydrology, and soil types" then hydraulic fracturing via a drilling lease, even with "non-drilling" or "non-surface" stipulations, is inconsistent with the the forest's value as a platform for research and productive learning.

22. current student

As a student of Allegheny, I feel like the college is not considering the environmental impacts of fracking at Bousson enough. As a green college, I feel like the focus should really be put on the environmental impacts of this decision.

23. current student

There is an overwhelming body of scientific evidence showing that fracking has negative effects on water quality, human health, environmental health, and even the social environment of small towns that adopt the industry. I agree that Allegheny shouldn’t just blatantly dismiss fracking without doing the research. But if we have done our research correctly, and read concrete data about the possible negative effects of fracking (which we obviously have after six months of this protracted dialogue), it seems incredibly stupid to even be putting so much time and effort into discussing it. We are already invested in wind and solar energy. Sure, we could potentially gain a few million dollars with the “our neighbors will do it, so why not jump on the bandwagon” approach; how much are morals worth, anyway? If the “green image” that we have worked so hard to create is anything more than an admissions ploy, this fracking farce should be put to rest.

24. current student

I find it unnecessary to explore for gas on our campus and that as a college we should be focused on divestment. We as people have obligations to take care of our planet and those occupying it. Continued
use of fossil fuels will destroy our planet. Our climate can not handle the approval of fossil fuels and I will take direct action to stop the continuation of fossil fuel use.

25. alumni

One of the major factors in my decision to attend Allegheny was the college's commitment to sustainability. If I were applying to colleges now and knew about Allegheny's consideration of gas exploration, I would not have even considered applying here. If Allegheny decides to allow gas exploration, I, and many of my classmates, will not support Allegheny in their decision or support financially as alumni.

Additionally, I urge you all to consider what gas exploration on Allegheny land would mean in terms of the Climate Action Plan (specifically, climate neutrality by 2020). Allegheny would need to make even greater strides to account for the greenhouse gasses associated with the natural gas extracted from beneath Bousson.

26. current student

My biggest concern for Allegheny students for or against hydraulic fracturing is that they are educated about what they are advocating. There have been too many times that I have talked to people who are anti-fracking that simply spit out buzzwords, not actually utilizing any sort of information or knowledge. For example, the simple fact that there was never a plan to put a well pad onto Bousson Proper, the idea is absurd but people still believed it. How can anyone be effective in fighting something if they are inherently wrong about so many aspects of the process. There are too many people who simply do not even know how the process works, and in their minds environmental degradation is an absolute given. On the flip side, people for fracking simply shout out the word jobs over and over again, not giving any thought to the amount of jobs present in outfitting the nation's infrastructure for more sustainable energy, a costly and very necessary task if we as a country are ever going to consider using alternative forms of non-fossil fuel energy. It is very unfortunate that there are not as many moderate middle ground people, these discussions remind me of congress, everyone is willing to shout loudly for their cause but no one is willing to bridge that gap and make ACTUAL progress. What I have been advocating for a long time now is the targeting and reforming of specific aspects of the industry. Why are activists wasting their time trying to topple the industry of natural gas, it makes no sense. Instead, focus your energy on the reformation of how used fracking water is treated and handled. For a long time, used frack water was simply stored in open pit pools lined with what are essentially very expensive trash bags. Today, there are specific groups that are working to put water treatment facilities on site, so that water being dredged up from wells is not stored in open pits, is not stored in compression tanks, but actually funneled directly into a treatment apparatus. Why are these things not being discussed, but rather people running around trying to topple an entire industry. In closing, I am not for the drilling of natural gas because if we settle for anything we will lose the energy game. That being said, I do not see natural gas as a step in the wrong direction. Would it not be beautiful to prevent a war because we no longer need our energy from an area of the world that is very hostile to us? If the United States began becoming more energy self sufficient, just imagine all of the more sustainable practices that could arise within our country. These problems are just not as simple as either side would like to believe.

27. current student

I have attended the 2 recent discussions, and I feel that they went very well. I was worried that they wouldn't be able to present relevant or useful information because they would be too "open," and nothing would move forward. However, they turned out to work well, and I think this is especially because they have each had a theme, so we knew what questions to prepare. I am looking forward to further discussions and info sessions, especially one on the social impacts of the decision-- how it will
make the college "look," as this is a huge factor in colleges these days. (If a college isn't attractive, how will it get students to enroll? Unfortunately, academics are only one of many criteria in choosing colleges these days... but that's a discussion for a different day)

One thing I have yet to see in this discussion, though they have been mentioned time and time again, are the Trustees. It is evident that the ultimate decision is up to them, as it should be, and we are just here to voice our opinions and hope that they may listen to our ideas. But where are they? Who are they? Have they been to any of these meetings? If they have, I wish they would have made their presence known, and if they haven't been to any of these events, I think it is of great importance that they do join in the conversation. If they aren't there to listen, then how are they going to hear our ideas? Whether the college and the Trustees choose to go through with signing leases, or if they decide to veto this thing altogether, what is most important to me is that if they say that they want to listen to our ideas, they at least show us that they are listening. If they don't really care about our ideas, then that stinks for us, but please let us know so that we don't look silly trying to convince an invisible group of people.

28. current student

I will be posting my opinions on the decisions to be made, but first, would it be possible to view the campus feedback that others are posting? As this is a central website to the hydrofracking issue, I think it would be valuable to use this "feedback" space as an open online forum to view others' thoughts.

29. alumni

For Allegheny to take part in fracking would be a huge contradiction and would badly damage the school's image, I believe. However, it is very neat that the college took this opportunity to raise awareness, educate people, and engage in a discourse, rather than just shutting the idea down.

30. faculty

We need to be aware of the economic impact of fracking. Please see:


In addition the state regulations need to be investigated. Please look in to the proposed: Senate Bill 411 would limit the treatment liability of entities that choose to utilize acid mine water (AMD) for hydraulic fracturing of oil/gas wells, or other industrial uses. This liability protection was a policy recommendation that was acknowledged in the report issued by the Governor's Marcellus Shale Advisory Commission.

31. faculty

I have a question regarding seismic testing. I was at the public meeting where we heard that seismic testing has a limited localized impact. Has there been any research about that localized impact on wildlife? Specifically, what is the impact on ground burrowing animals (groundhogs, etc) and ground nesting birds? Have there been any studies on these impacts? Are these elements taken into consideration when deciding where and when to do seismic testing?

32. faculty

Hi,

I am very interested in attending your community forums about fracking, and I'm grateful that you've
offered them. However, it is virtually impossible for me (and others, if my informal conversations are any indication) to attend meetings at 7pm. Would the committee please consider offering meetings at other times (perhaps the lunch hour)? I believe that you would see attendance from a different population should you choose to do this. Many thanks.

33. current student

Often in conversations about "doing it right" someone brings up the idea of creating an ideal lease as an example for the neighbors, as a way of responsible citizenship to our local community. However, this does not seem to necessitate that we lease Bousson, to create a guide to responsible leases. There are already several of these created, such as: [http://pubs.cas.psu.edu/FreePubs/pdfs/ua448.pdf](http://pubs.cas.psu.edu/FreePubs/pdfs/ua448.pdf) (although it is arguably from a pro-leasing point of view). Others, such as

The Crawford County Oil and Gas force may indeed appreciate some help with this, and I understand while the idea of working with the community is discussed, no one from the Bousson Group has offered to reach out to them, and I would like to suggest this, at least to offer them resources we have found through this process.

34. current student

Hello. I would like to suggest that this forum be made public, so we can each see and read the comments that community members post on this blog. This will further enhance our goal of transparency and accountability.

35. sustainable, organic farmer in PA

Perhaps my feedback as an organic farmer from Jefferson County with no specific connection to the College does not matter, but I write with an offer to inform the discussion. I have spoken extensively about shale gas extraction. In fact I will be speaking again in Providence, RI at the Annual Forum of the Sustainable Agriculture and Food Systems Funders on the topic of "Protecting Farmland and the Rural Landscape from Oil and Gas Development." I have an online PowerPoint on my farm’s website at [www.paradisegardensandfarm.com](http://www.paradisegardensandfarm.com) that makes the case for a moratorium on drilling in Pennsylvania. I have a 45-minute presentation from that PPT that I would be happy to come up and share with the Advisory Group and the students. I can be reached by email or at 814-932-6761.

36. alumni

Dear Bousson Advisory Group,

As an Alumn, and someone who works in the Oil and Gas Industry, I thought it was important for me to get in touch with you. I am currently a District Land Manager with an oil and gas company operating in Pennsylvania. I have leased oil and gas rights for both Marcellus and Utica Shale drilling in Western, PA and Eastern, OH. I have a great depth of knowledge about hurdles of the leasing process and issues within the leases. I feel that my industry knowledge and experience as well as my connection to Allegheny College could be of great benefit to the group. I am very interested in being involved with the Bousson Advisory Group. Please contact me with any opportunity to be involved in the Bousson Advisory Group.

Thank you,
37. alumni

First let me say that appreciate Allegheny examining this issue in some detail. I believe that there are numerous issues that spin off from this discussion. First, do people trust state and EPA regulators to watch out for their best interest on fracking solutions? Second, do people understand the geology? The fracking solution is injected into the rock strata which is thousands of feet underground and targeted to a very specific zone. Third, everything we do comes with a price and we have to look at what are the least invasive strategies. Are hundreds of thousands of wind bird kills okay? Are the environmental impacts of rare earth mining okay? Then we have to look at the scale of the issue. At TVA we can generate around 35,000 MWs and that is just our region. Solar and wind can not provide that level of reliable power here or across the country. Finally, the fact that we burned cheap natural gas in a big way last year reduced air pollution (CO2 and heavy metals such as mercury) across the entire region in a big way. No one can change the entire US economy on short notice, but natural gas certainly gives us the opportunity to make major strides in cleaning up the environment and getting off foreign oil.

38. alumni

I recently heard via an article in Public Source that Allegheny College was considering allowing fracking in the Bousson Environmental Research Reserve, which is owned by the College. As a proud alumnus, I felt the need to comment on this issue. I think allowing fracking on Allegheny campus would be a major step backward for the College, especially one that prides itself on being green and environmentally conscious.

First, I am not convinced anyone fully understands the risks of fracking. I am sure the energy companies will claim that they can do it safely, but no one knows at this point. The potential for hazardous chemicals to disrupt the natural ecosystem of the Bousson Reserve and contaminate ground water is still possible. I would think a campus that prides itself on being green would find this risk unacceptable.

Also, I cannot understand what goals fracking would achieve for the College, other than monetarily. This is especially true when you take a step back and see what extraordinary steps Allegheny has taken to be a green college. How does a college that serves its food on edible plates (I ate them frequently!) also allow a practice that prolongs our nation’s dependence on fossil fuels? It doesn’t make sense, unless the money is too much to pass up. If that is the case, allowing fracking would be a blow to integrity and honor of the school.

Finally, I am not the type of alumnus that will threaten any future donations to Allegheny. However, if the College allows fracking, my opinion of Allegheny will be affected very negatively. It might be hard to brag and promote the school as much as I do now.

Thus, I wanted to commend Allegheny for being very public and open about this issue. I am pleased the College is allowing for this discussion. However, I sincerely hope that you and our Trustees do take our comments seriously in this matter. I hope this “public discussion” is just not theatre and is legitimate. I am very proud to be an Allegheny alumnus, please do not take that away from me.

Thank you very much and Go Gators!

39. alumni and former Allegheny College professor

As an Allegheny grad (’63), former professor of geology and environmental science, and hydrogeologic consultant who worked on cases of contamination of fresh-water aquifers by a few early 1980’s Medina gas wells in this region, I am completely comfortable with the idea of extraction of natural gas from the Utica Shale which underlies the Bousson property as long as the actual well head is located off the property.
40. alumni and Meadville physician

There is no long term evidence of the safety of fluids remaining in the ground after fracking? Do they migrate after so many years to the aquifers? Human error in the drilling can have terrible consequences. The fracking industry aggressively talks about purification of back water but is generally silent on contaminated fluids left in the ground. What about road damage, air pollution, etc. Numerous media accounts detail water and air contamination. To agree to fracking at Bousson would be incompatible with the "green college" characterization of Allegheny and may impact negatively on Allegheny through it's alumni base.

41. alumni

It is wonderful the amount of study, conversation and discussion going into this subject. I would really like to know about these public forums before the next one happens. I suggest an email to all alums be sent prior to the next one.

My opinion is somewhat already made up, although I am open for bending. I think it is important to know if lands adjacent to Bousson are leased? If so, this argument is moot, and Allegheny will miss out on income, and still possibly be subject to any localsite issues caused by the fracking.... Nevertheless, this process and discussion is critical to educating not only students, alumni, staff, faculty, but the community. I commend all that are keeping it moving.

Finally, the timing of this strikes me rather odd. Drilling, fracking, pipeline clearing, and all the associated work has been going on in Crawford County for decades. There are wells and pipelines all over the place in this county and these wells have been fracked for years. What is even more confusing is the older wells, and the fracking that was done on them, was done at much shallower depths. Much closer to the water table and our drinking water. Why is this discussion arising just now? The horse left the barn years ago. These new Marcellus and Utica wells are thousands of feet below the water table, and separated by thousands of feet of rock, etc from the water we drink. Unfortunately, I get the sense that a lot of the outcry is emotionally based, and frankly, done before one learns the Pros and cons. It feels like the people are pushing these buttons because there is money to be had from the drillers, etc. When they were little wells, close to the surface, the money was small potatoes, so the activists ignored them. With these bigger wells, the activists think they can wave their flag, and get some reactions. I hope that the education of the community allows for some debate, some practical solutions, some common sense regulations, and a well defined timeline along with the regulations so all can follow/monitor the progress of each well or pipeline.

42. alumni

I just read the article "The Bousson Question" In Allegheny Magazine, and am writing this to give my feedback. I am unalterably opposed to drilling, fracking, or seismic studies at Bousson. If Allegheny pursues such a course, it can kiss its reputation for sustainability goodbye. What revenue Allegheny might gain from drilling at Bousson would not be worth the environmental cost, and I suspect would likely be offset by a drop in alumni giving. It's all fine & well for Allegheny to pat itself on the back for taking a "even-handed" approach to the issue - I personally find it rather disgusting that the idea wasn't dismissed immediately. The "reserve" in Bousson Environmental Research Reserve should mean it is safe from any possibility of fracking, not that it is reserved only until greed gets the better of the college. Allegheny did itself a good deal of damage when it made the choice not to divest its South African investments for the sake of expediency. Choosing to allow fracking in an environmental reserve for the sake of expediency would by no less damaging. I hope that Allegheny has learned from having been on the wrong side of history on the divestment issue not to make the same mistake again.

Subsequent response:
With all due respect, there is no complexity to this decision at all. There is either a commitment to sustainability or there isn't. Only recently have my husband and I started donating to Allegheny again
after the board's idiotic and unprincipled decision not to divest the South African investments. The college should have made a "quick and principled decision" to send oil & gas companies to the right-about, just as they should have made the "quick & principled decision" not to condone apartheid. Allegheny disgraced itself by refusing to get out of bed with the apartheid regime in South Africa. The board's decision to consider fracking is no less disgraceful. It puts the lie to everything Allegheny has tried to convince the public that it believes about sustainability and the environment. You can try to dress it up by calling it "inclusion", but the board's willingness to consider trading Bousson for bucks shows the same lack of moral integrity that allowed them to condone state-sponsored, institutionalized racism, murder and oppression. That is not a quality I look for when deciding where to send my hard-earned dollars. Feel free to share that with the board.

43. alumni

Does the College see any conflict between its stated aspiration as an environmentally "sustainable institution" and its acceptance of donations and corporate matching contributions from Alumni employed in the energy sector?

Subsequent Response:

Kelly,

Thank you for your quick response to my question. Best of luck integrating the various viewpoints and formulating a set of recommendations for the college to move forward on should the need arise. I am confident that the outcome will be in the best interest of the institution. Two follow up questions:

1). Is 100% of the college’s energy consumption generated from renewable sources, or it the energy from the “grid” and the college purchases “green” energy credits to offset the usage?

2). I would be interested in the Office of Development’s opinions on gifts/revenue generated from fossil fuels (both directly and indirectly). From a financial, moral, and philosophical stance, does the college draw a distinction between donations (to an endowed fund) & revenue generated from physical assets? Please pass on this question to the appropriate individual(s) within that office.

Give my regards to Rachel, Ron, and Bob!

Regards,

44. alumni

In a time of economic slow growth, millions out of work, and the College needing to continually rely on fund raising, the question is "Why wouldn’t you drill?? I have read research from my Firm that says the Utica region has an estimated 95 drillable years. Drilling would do a few things for the school. Provide immeasurable royalties. Provide needed jobs in an area that needs more of them. Show that Allegheny leads the way into the 21st century by trying to take the USA off foreign energy. And most importantly, don’t forget the upfront money and ongoing royalties...that can enhance the College’s endowment. I vote to drill.

45. alumni

I applaud the open and transparent communication process on this sensitive issue but strongly oppose any drilling, fracking or other interventions into the Bousson area. Thank you.

46. other
Please don’t frack, ruining the environment is not worth any amount of money.

47. alumni

I’m proud to be associated with a college that is implementing this process. I strongly suggest that before contemplating signing a lease to obtain funds - for any purpose - the college should investigate what funds might be raised by NOT doing so. I doubt that I’m the only alum who would consider donating to a fund contingent on no lease. I suspect that Allegheny could raise as much money that way as they could from a lease!

48. alumni

I believe the repercussions for publicity, and both long/short term environmental dangers dictate that Bousson should not be used for drilling. Allegheny has made great measured strides in environmental education and this puts the theory to the test.

49. parent of current student

Given the overwhelming evidence of environmental damage from hydraulic fracturing, I am not pleased that Allegheny College is still debating this issue. I can only conclude that someone who is highly influential at Allegheny College has a personal interest, including the possibility of financial benefit, in Allegheny’s continued pursuit of this issue. Kudos to the students at Allegheny, who have clearly taken a principled stand against any further consideration of natural gas development. My family’s current and future financial support of Allegheny is suspended until I the college makes it clear that it will no longer entertain any such development.

50. faculty

Please read the document posted on: www.ucsusa.org/scienceanddemocracyforum

There is good information on the current situation and how dangerous fracking is because the affects are not yet known.

51. alumni

I would like to suggest "no" to drilling under Bousson but "yes" to keeping the discussion open regarding fracking in general. Along with the risks of drilling we must balance the geopolitical risks of continued financing of Middle Eastern terrorists. Until we control our thirst for oil and become energy independent we had better add this to the other four factors that the board is considering in their decision.
Let’s make sure the risks are evaluated thoroughly, then apply common sense in setting our school’s and nation’s energy policy. Sometimes the politically correct answer is not the wisest.

52. alumni

Strongly oppose Allegheny granting access for either seismic testing or fracking activity on any of its properties. Fracking has been linked to earthquakes in Ohio and is extremely destructive to the environment.
Subsequent response:
Thanks, Kelly! I’m very pleased but not surprised to see that the Allegheny Community – as always – is proceeding with care and civility. No doubt you have your work cut out for you, given the often intractable rush to do anything and everything that will bring in $$$$.

On the Lower Columbia, we are constantly fighting the big money push to build liquefied natural gas terminals in populated and environmentally sensitive areas. The battles never cease, do they?

Best regards,

53. alumni

Bousson is both a treasure and an opportunity. I’m not advocating a pro-drilling stance as much as I’m advocating a pro-research stance. Energy companies have tremendous marketing budgets claiming drilling is safe, and research to show that fracking fluids aren’t ending up in well water. Conversely, a fair amount of troubling empirical evidence demonstrates that fracking may have significant effects, causing the movement of gasses into aquifers used for human consumption. Some new data from Texas might show that fracking is a cause of tremors and ground settling.

Fracking has been an economic boom to this area, but at what cost? I live in Butler, and “Marcellus money” has been very good to us. A national energy policy is somewhat stymied by the lure of big money and the lack of solid environmental data one way or the other.

I’m proposing Allegheny agrees to a limited amount of drilling under Bousson, and dedicates the revenues toward research into the effects and practices of fracking. Research of this sort wouldn’t be cheap, but what’s left over should be placed into a trust to preserve Bousson for generations of future Alleghenians. Being an environmentalist isn’t just trying to stymie progress; it’s finding ways progress can continue in a sustainable and responsible manner. A large portion of the Allegheny community would consider the proceeds “blood money” anyway, and anything built on campus would always carry the taint of such. The knowledge gained over several years of research would hopefully demonstrate fracking is as bad as its detractors say, or is as safe as its proponents say. Knowledge which could be used to craft a well reasoned policy around the world, and ensure safe practices if that is possible. This is the type of opportunity a decade or more of comps and published papers are made of.

54. alumni

Opposed to any “fracking” at Bousson

55. alumni

Just voting against fracking.

56. alumni

I just read about the current debate re whether fracking at Bousson is warranted or not. I appreciate that the college is being open-minded about this. I, for one, am horrified at the thought that Allegheny would get involved in this. All of my lay reading suggests that there are too many unknowns and too many anecdotal cases of negative effects on drinking water, human health and the environment to risk fracking at Bousson - despite the college’s need/desire for the income. Respectfully submitted,
The seismic survey that is being considered for Bousson opens the door for demonstrable and immediate benefits for Allegheny. The seismic survey presents an opportunity to manage and direct learning experiences for Allegheny students in the Environmental Studies and Geology programs, including the use of aspects of the study to support senior projects or as a basis for internships. Students should have the opportunity to learn about the process of conducting a seismic survey, interpreting the data, and mapping subsurface strata. Opposition to investigation of petroleum resources by some should not deprive students of the opportunity to participate in learning opportunities alongside qualified professionals in the field of petroleum exploration. Energy development is a field of endeavor that will continue to be important for generations to come, and we should welcome the prospect of Alleghenians becoming leaders in that field.

It is important to understand also that subsurface gas and oil can be fugitive resources. It is entirely possible that activities off the Bousson reserve by other landowners will result in extraction by other parties of gas or oil resources owned by the college, even without any activities being directed at the Bousson reserve. It would be irresponsible to allow this without payment to Allegheny of appropriate royalties. If there are recoverable petroleum resources underneath the Bousson reserve, the trustees of the college have a fiduciary duty to preserve those resources for the benefit of Allegheny, rather than allow those resources to be appropriated by others without compensation.

The opposition to the conduct of a seismic survey, as distinguished from opposition to drilling and extraction, seems contrary to the spirit of reason and free inquiry that is an integral part of the Allegheny College tradition. The seismic survey will do no harm and the survey may reveal the presence of petroleum resources, which it may or may not be economically feasible to extract. The survey presents the possibility for confirmation of resources that could ensure the financial security of Allegheny College for future generations of students. It also present the opportunity for opponents of petroleum to obtain a scientific and rational basis that may strengthen their arguments against further exploration, in the event that survey results suggest the unavailability of economically recoverable petroleum. In either case, the knowledge gained from the survey will provide the basis for a very legitimate debate over whether, when and how the College should make use of any resources revealed. It would be contrary to reason to view as dangerous the acquisition of knowledge that would fuel informed debate.

I am a 1980 Environmental Science graduate from Allegheny with a 34 year career in natural resource management and planning. It seems incongruous to designate a place an environmental research reserve and limited recreation site and then to even consider a proposal to do something which would have negative environmental consequences. Unless the college is about to close due to economic problems, I would not even consider this proposal. It is a good thing to study, to evaluate the social, economic and environmental effects, and have students learn about the resources and political process. But I hope that is where it should end. I think the larger responsibility is teach students the value of our natural resources and to protect French Creek and this property. As stewards, it should be managed to be restored to natural habitat as fiscal resources allow. Thanks for considering this opinion.

I believe that Allegheny College, as an institution dedicated to environmental sustainability, would contradict its sustainability commitments if it were to pursue hydrofracking at Bousson. Also, I believe that the ripple effects of Allegheny fracking would have consequential effects on the legitimacy of my degree as a student of Environmental Studies at this institution. Many, if not most students are opposed to this idea- it is imperative that the Board of Trustees listen to student interest!
60. current student

Due to Allegheny's Environmentally friendly history, I believe that it would not be a good decision to pursue hydrofracking on our campus. I believe that investing in other forms of energy would be in the best interest of our school for a long-run solution, while maintaining our environmentally friendly history.

61. current student

I believe that Allegheny should not pursue Hydrofracking in the Bousson area.

62. current student

How would fracking at Bousson benefit me as an Allegheny College student?

63. current student

What would Allegheny do with the money that it receives by allowing fracking on our lands?

64. current student

Seperate from the ethical concerns of the fracking process, I am skeptical of the effects that may occur near the property. Even distant effects may alter the integrity of the research that attracts students. Many institutions are not fortunate to have a vast research preserve, that documents historical changes. There are other parcels that can provide insight in the local geological features of the area.

65. current student

What are the safety precautions that will be taken to ensure that research and environmental quality will not be effected at Bousson?

66. current student

Bousson is an important research location at Allegheny and fracking could possibly ruin the research. Allegheny is for sustainability and allowing fracking would go against the motto Allegheny stands for.

67. current student

Are alumni aware of the possibility that Allegheny will pursue fracking at Bousson? If so, how do they feel about it?

68. current student

Why is fracking the default method of collecting natural resources from a beautiful land preservation when Allegheny is known for being environmentally friendly and conscious?

69. current student
Does fracking fit into Allegheny College's climate neutrality goals? If Allegheny does pursue fracking, will this be included in our carbon emissions?

70. current student

I believe that Allegheny College, as an institution that proudly presents its Environmental Science & Studies programs as some of the best in the nation, has a duty to promote sustainability as a model for other higher education schools, which includes a polarized, opposed stance against fracking. If we do not promote what our education aims to instill in us, how are we able to legitimize the value of an Allegheny education at all?

71. current student

Allegheny should not pursue hydrofracking at Bousson. The college is an institution that is known for and devotes itself to environmental sustainability. Therefore, allowing for Bousson to be fracked would be quite hypocritical. Beyond that, fracking this area has a high potential of harming not just the Earth itself, but the people living around Bousson as well whose water may become contaminated among other health risks associated with fracking. There are many people who feel the same way I do. Please do not pursue fracking at Bousson.

72. current student

As a current student in the Environmental field, I feel that it would be directly contradict our sustainability efforts for our campus to hydraulically fracture in Bousson. In order to continually practice in this field, environmental science involves a responsibility towards the earth and finding alternatives to fracking. The integrity of the campus relies on practicing what we preach and finding the best route to take for a sustainable and clean future.

73. current student

To frack in Meadville one must consider the adverse health and ecological effects that will accompany a decision such as this. How can a group of people blatantly put the safety of the American people and our earth in despair just for a small economic success? How can money be worth more than the our only source of life?

74. current student

Will Allegheny make its decision about fracking public? If so, when will this decision be made?

75. current student

As an environmentally friendly institution, I believe the act of fracking on Bousson does not support the message we as a college want to send to our students and society. It is important to remain consistent in our stance on environmental health in order to instill the same message to the Allegheny community. Bousson specifically should not be fracked because it is currently used as a research forest for important experiments which could potentially be compromised if fracking is executed.

76. current student

Would fracking around the area affect our physical health directly?

77. current student

How does fracking fit in with Allegheny’s overall divestment campaign? I feel that along with withdrawing funds from fossil fuels companies, we should not allow drilling for fossil fuels on our land. Allegheny’s overall aim for a greener campus does not embody allowing fracking on our campus.
78. current student

Are there other outlets for student participation in the decision making process other than this comment box?

79. alumni

I recently read the excellent article on the Bousson question in the Allegheny Magazine and commend the Advisory Group and the College for their efforts. However, I believe I can guess the outcome of the study. This is because the Group lacks one vital constituency—the people that pay the bills i.e. the parents of the students. Just as the U.S. health care system is a mess because the clients don't pay the bills, so to is this study flawed by the absence of input by those who fund the institution.

80. alumni

Having read through the entire report, I commend you for your thorough discussion of the issues involved in opening Bousson to fracking. At this point, knowing that the environmental impact of such development can only be negative and given Allegheny’s ongoing commitment to environmental improvement, it seems clear that unless fracking undergoes a complete transformation, this is not something that Allegheny can pursue with a "clean" conscience. I understand that some alumni may feel that turning down a potential money source is not financially sound, but the overwhelmingly negative impact of fracking upon a reserve intentionally set aside to promote positive environmental practices is completely insupportable. We must explore other sources of financial management rather than damaging a finite resource.

81. current student

I am an environmental science student at Allegheny and I am opposed to the fracking process in general, as I don't believe we yet have the necessary knowledge or regulatory framework in place to frack in a responsible manner, should such a thing even be possible. But above and beyond my environmental concerns, I do not want to see my school sacrifice my educational opportunities (the research forest) to a temporary economic gain. And it's undoubtedly the case that fracking under Bousson would affect research there, even if it were not immediately apparent. Moreover, fracking would risk alienating many important groups, from prospective students to donors, to other educational institutions who are all very aware of and attracted to Allegheny's commitment to sustainability. While, ironically enough, it has been suggested that Allegheny could honor this commitment by using the money from fracking to advance our climate neutrality goals, this is exactly the sort of lip services to environmental causes that we, as a society must move beyond if we wish to overcome the environmental challenges we face. I would not like to see Allegheny demean its commitment to sustainability by playing this sort of zero sum game. Therefore, I strongly urge that Allegheny refuse the fracking proposal.
Bousson Advisory Group comments – received through alternatives to the website

82. alumni via Development Office communication

I am a 1966 graduate of Allegheny College and I have worked in the oil and gas industry most of my adult life. I believe you have overstudied the issue regarding drilling in the BUSSON. I was born and raised in Meadville and lived there until 1966 when I entered the military and I never heard of the BUSSON.

It is obvious that none of you experienced the downturn of the oil and gas industries in the 1980's when over 250,000 jobs were lost in Houston. After 20 years the industry is finally having a comeback and a lot of good well paying jobs are being created. If wells were found on land owned by the college, it could be a windfall economically. Just look what it has done for Texas colleges and universities.

You do not have to allow drilling on college land, but don't come crawling to Texas and other states for your oil and gas needs. As we say down here let them freeze in the dark.

I am not a big contributor to the college, but I do not intend to contribute in the future if seismic and potential drilling opportunities are not pursued.

Remember the first well was drilled by Colonel Drake in your backyard.

Let's move forward for our goal is to become energy independent and not be held hostage by middle east producers.
Thank you for your response. May be I am too passionate about this issue, but my family and I were greatly impacted by the downturn in the 80's.

I am sure you will make the right decision that is best for everyone.

83. alumni via postal mail to Kelly Boulton

Dear Ms. Boulton:

I was greatly saddened by the article entitled The Bousson Question that appeared in the last Allegheny Magazine. Even though I graduated way back in 1962, my professors were talking about the importance of sustainability and the importance of finding renewable fuels to preserve our planet. Every time I have been asked about Allegheny College, I have emphasized the regard for our planet and its habitat that I learned at Allegheny. I was saddened to read that the need for money may change what Allegheny has stood for in my mind all these years.

I sincerely hope that Allegheny will use the Bousson to help lead the way to the development of renewable and sustainable fuels. Once our clean water and clean air are gone, they are gone. If fracking is so clean and safe, why did the oil and gas companies make sure they were exempt from the Clean Water and Air Acts before starting to buy drilling rights?

However, before the “powers that be” at Allegheny begin counting the money they believe they will receive from permitting fracking in the Bousson, I suggest that they read the enclosed transcript of a story that aired on New York’s NPR program, Living on Earth, two weeks ago.

Sincerely,
Appendix C: Allegheny Student Government (ASG) Student Life Survey

Shale Gas Extraction

Allegheny College was approached by two drillers in 2012 to consider pursuing the development of natural gas under existing Beseen Experimental Farm. A 203-acre tract of land located on the Beseen property, which is a completely different geologic zone from shale gas extraction, whole being a prospect for potential oil and gas exploration company for the next gas withdrawals, the College is considering exploring this land area for a potential gas extraction project. To share the gas extraction benefits (to use a driller’s term), the project is called the Beseen Drilling Area.

To ensure that all students are aware of the potential impact of horizontal drilling and fracking on their campus, the ASG Student Life Survey was conducted to gather student opinions on the subject. The survey was distributed to all students and included questions on their awareness of the topic and their opinions on the process.

1. Based on what you know thus far, how do you view the development of shale gas extraction (horizontal drilling and fracking) on Allegheny’s Beseen Property?

- Yes, it does matter to me.
- I don’t want to hear about it.
- I don’t care.
- Other

2. Please identify your interest in this topic:

- 1 - Not interested
- 2
- 3
- 4
- 5 - Extremely interested
- Other

3. What topics related to deep shale exploration would you like to receive more information about?

- Environmental Concerns
- Allegheny’s Reputation
- Potential Teaching and Learning Effects
- Economic Questions
- Other

4. Most information I got on the topic came from:

- Word of mouth
- Allegheny Student Life Survey
- Student government meetings
- Beseen Advisory Group website
- Student newspaper
- Other

5. People may select more than one checkbox, so percentages may add up to more than 100%.
Allegheny College Board of Trustees: Refuse to lease property for deep shale natural gas extraction

Allegheny College has been approached by a leasing company to consider deep shale gas extraction, also known as hydraulic fracturing or “fracking” on or under our Bousson Research Forest.

Allegheny’s Commitments and Values
The college has received national recognition for its commitment to sustainability and carbon neutrality through the creation of the Environmental Guiding Principles, the signage of the American College & University Presidents Climate Commitment, and the development of a Climate Action Plan. The consideration of leasing land for hydraulic fracturing threatens the college’s reputation as an environmental leader in higher education, affecting the students, alumni, future students, and faculty. Therefore, Allegheny should not consider hydraulic fracturing on the basis that the college cannot become a net producer of natural gas without compromising its core values of environmental stability and climate neutrality.

Openness of Conversation and Decision-Making
The college’s current tactic of using The Bousson Advisory Group, a closed and selected group of individuals, to communicate suggestions to the board of trustees does not represent an openness of conversation or a commitment to honoring student and faculty opinion, as it claims to. In order to make this a more inclusive conversation, we demand that the trustees and college administration share all open letters, industry proposals and communications with the entire campus community and provide truly democratic forums as well as respect the voice of the whole college community on the future of the school.

Environmental and Health Concerns
Hydraulic fracturing involves injecting water and harmful chemicals in deep bedrock at high pressure in order to fracture the layers of shale and extract natural gas. This process has been linked to a number of environmental hazards and even earthquakes. Hydraulic fracturing uses millions of gallons per well, which is pumped back out as toxic wastewater. Disposal of this wastewater can contaminate drinking water and other water sources. Air pollution comes from condensate tanks, gas flaring, venting, dehydration, and increased truck traffic. About 10% of the natural gas is leaked into the atmosphere from this process, and last year Chesapeake Gas noted that 45% of wells had containment problems. These natural gas emissions are comprised of 90% methane, a powerful greenhouse gas, 26 times more effective at trapping heat than carbon dioxide. Natural gas, like all fossil fuels, has a negative impact on the environment and we believe it is not currently being used as a bridge fuel toward renewable alternative energy.

To:
Allegheny College Board of Trustees
We demand that Allegheny College refuse any further consideration of leasing property for deep shale natural gas extraction as the environmental and health risks would compromise Allegheny’s commitment to a sustainable future.

Sincerely,
[Your name]