

**Proposed Oil and Gas Lease and Research Initiative for the UT AgResearch
Forestry Resources AgResearch and Education Center**

Statement

UT AgResearch operates 10 facilities across the state for the research and education programs of the faculty and students of the UT Institute of Agriculture. UT AgResearch has been and will continue to be an excellent steward of these lands, seeking always to enhance their productivity without sacrificing environmental standards and sustainable principles.

For all UT AgResearch facilities — which include agricultural lands, formal gardens, arboreta and forests — best management practices are studied and emphasized. Successful land management techniques are communicated to landowners across the region for the purpose of driving the state's collective resources to the highest possible levels of productivity and aesthetics while maintaining environmental quality for the benefit of humans and the natural environment.

The current proposal to allow an oil and gas lease and research project on some 8,000 acres of UT's Forest Resources AgResearch and Education Center is directly related to the land-grant mission of the university. With today's tremendous demand for natural resources associated with energy production, research involving development and utilization of such resources is socially prudent and potentially of benefit to all the citizens of Tennessee as well as the nation.

History of Forest Resources AgResearch and Education Center

The Forest Resources AgResearch and Education Center is an 11,600-acre field research laboratory. The center is a regionally recognized leader in developing new technologies applicable to modern forestry and wildlife resources management and environmental stewardship. It is one of 10 research and education centers in the UT Institute of Agriculture's AgResearch system. Headquartered in Oak Ridge, the Forestry Resources AgResearch and Education Center is composed of three forest units located in East and Middle Tennessee.

After acquiring the land in 1936, UT engaged in active land management programs to establish the property as a productive forest. Research, education and demonstration programs as well as large-scale ecological studies have been part of that effort.

In the 1990s, long before the current economic downturn and proposed reductions to higher education funding, Forest Resources AgResearch and Education Center administrators had sought ways to study and utilize the natural gas resources associated with the center property in Scott and Morgan counties known as the Cumberland Forest.

Q&A

1. Why is UT considering leasing these properties?

This is an area of investigation in which the state of Tennessee should be engaged. These are critical questions of concern to citizens, regulatory agencies, landowners, environmental groups and the industry. Further, attendees at Tennessee Department of Environment and Conservation public hearings have called for research in this area.

The scope of the initiative includes:

1. To conduct a fact-based, scientific investigation that will seek to answer critical research questions in the areas of groundwater, wildlife, soil disturbance, geological shale, and flora and fauna.
2. To obtain revenue to enhance development of the teaching, research and demonstration mission and to support ongoing research. The integration of the UT Cumberland Forest with teaching and instructional programs at the university is widely appreciated. Departments historically utilizing the forest for undergraduate and graduate studies include UT Knoxville's Botany, Ecology, and Geology departments and the UT Institute of Agriculture's Forestry, Wildlife and Fisheries; Entomology and Plant Pathology; Biosystems Engineering and Soil Sciences; and Plant Sciences departments. Expanding oil/gas development on the Cumberland Forest has the potential to broaden the dimensions of these teaching, demonstration and research programs.
3. To use the infrastructure associated with oil and gas development (roads) to improve access to the property for purposes of expanding research, teaching, demonstration and forest management programs.
4. To add equivalent landowner dimension to the management of land/forest resources as a subject for developing improved conservation strategies for forest stewardship. More than 14 million acres of land in the state are involved in some \$370 million of timber sales annually.

2. Do we have other lease agreements?

Yes, about 250 acres of the UT Cumberland Forest have been operating under an oil and gas lease with Vinland Energy since 1991. Approximately \$6,700 in annual revenue is generated and used by the Forest Resources AgResearch and Education Center for purposes of upkeep and protection of the property — for example for land surveys, forest fire protection equipment, construction/improvement of roads, etc.

3. Are we going to do this on any of our other properties?

The university has no plans to enter into oil and gas lease agreements on additional properties.

4. What are some examples of other universities that lease land for gas drilling?

University of Texas, University of Alabama, Morehead State University, University of Kentucky, Cornell, Ohio State University and Penn State University are among institutions of higher learning engaged in land leases for gas drilling.

5. How much revenue will the lease generate?

We anticipate a lease bonus, a minimum annual rental fee for the property, and royalties from gas and oil production.

6. Who gets the revenue?

The revenues will benefit the UT Institute of Agriculture Forest Resources AgResearch and Education Center to sustain ongoing research. This is not unlike revenues currently generated by the agroforestry operations of other AgResearch facilities.

7. Synopsis of the terms of the lease.

The lease will have terms that protect the university's interests in its research, teaching and unencumbered use of the property. It also calls for compliance with all environmental laws and for prudent operation to protect all natural resources. The lease governs the location of drilling sites so as not to jeopardize valuable ongoing research or sensitive environments. The lease also identifies standards for operations, including access road construction and revegetation of sites.

We have taken all precautions by specifying the type of drilling to reduce the number of drilling sites and by requiring that all environmental laws and prudent operation be followed to protect the natural resources.

8. How does leasing land/rights speak to the mission of UTIA?

- The mission of Forest Resources AgResearch and Education Center is: (1) to provide the land and supporting resources necessary for conducting modern and effective forestry, wildlife, and associated social, biological and ecological research programs; (2) to demonstrate the application of optimal forest and wildlife management technologies; and (3) to assist with transfer of new technology to forest landowners and industries. Utilization of the Cumberland Forest as a "research/teaching/demonstration resource" falls within the scope of managing natural resources in the real world of competing needs and opportunities.
- Graduate and undergraduate students will be involved in the research studies in an outdoor, real-life classroom; the data gathered will lead to comprehensive research in an area of knowledge where little is known today; and the findings will be shared through scientific publications and Extension outreach with landowners, concerned citizens, governmental officials and the industry.

9. How will it affect current research projects?

The lease provisions will ensure that research projects would not be impacted. Further, it will enforce the use of best management practices specific to revegetation/forestation, road construction and site remediation. The Forest Resources AgResearch and Education Center management staff will preapprove and oversee land disturbance activities. An appropriate performance bond is required as further assurance that best management practices will be implemented.

Stewardship and management of the UT Cumberland Forest's resources will continue to be the primary focus of the Forest Resources AgResearch and Education Center programs. Included within the scope of these programs is the creation of a research environment suitable for assessing social and economic factors that influence the practices of forestry, wildlife management, and oil and gas extraction. This holistic approach is ideal for developing and evaluating new technologies and practices that balance economic development with environmental and resource conservation.

10. What are the pros and cons of natural gas? (Is natural gas drilling better for the environment than other types of drilling, like for oil?)

Oil will likely be produced in varying quantities in the process of drilling for and producing natural gas. However, natural gas production is the primary long-term product that is being sought after in this area. Natural gas is a cleaner burning energy source than coal. A proposed stipulation in the university's model lease is the specification of the use of horizontal drilling techniques, which reduce the number of drilling sites (less land disturbance) and increase the underground area covered/accessed by one drilled hole. There are already numerous wells on private properties adjoining or close to the Forest Resources AgResearch and Education Center property.

11. What steps will the industry partner be required to take to protect the public and environment?

The successful proposer will have to demonstrate an understanding of and ability to adhere to emerging industry security standards for protection of people, equipment, real estate and natural resources in any way associated with its operations on the property. This would include best management practices acceptable to the university and federal, state and local standards, including:

- Maintain well sites and examine access roads.
- Patrol pipelines for signs of pipeline and equipment integrity.
- Utilize and upgrade existing roads when possible to minimize disturbance. Roadways will consist of ditches adequately sized to handle runoff of immediate areas and divert it to the drainage areas designated to eliminate sediment before it reaches the waters of the state.
- Hydroseed all exposed soil, including a bonded fiber matrix along with a seed mix.

The leasing company will assume all responsibilities and bear the burden of cleanup for any and all environmental consequences of its operations on UT property, in the event it became necessary.

12. What considerations have been given to the protection of groundwater and surface waters draining from the proposed sites?

Our research project request for proposal will require the selected industry partner to follow strict stewardship management guidelines in accordance with regulations governed by the Tennessee Department of Environment and Conservation in order to minimize the environmental impacts of the project to groundwater as well as to the Cowan Creek watershed and the Little Emory watershed and other biotic environments.

13. Will UT require the industry partner to provide detailed information on types and quantities of chemicals being used, and whether the amount injected underground returns to the surface or remains underground?

The new regulations recently adopted by TDEC require the permittee to disclose the amounts of chemical additives used and the concentrations of each as part of the well reporting requirements. The permittee also is required to report the amount of fluids used to fracture, how much wastewater is generated, and the manner of disposal of the wastewater. UT as well as the public would be able to access this information.

14. What will prevent the university from developing conflicts of interest associated with the successful proposer?

An established protocol is in place to report and monitor potential issues related to conflicts of interest. All faculty members are required to report relationships with outside entities that might result in a conflict of interest. Further, the UT Institute of Agriculture cross references all industry contracts with these conflict of interest reports to determine the level to which potential projects can move forward. In all industry-supported activities, all data are controlled by the UT faculty member and publication rights are maintained. All science developed as a result of this project will be submitted for publication in peer-reviewed literature.

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