

The Oak Ridge Corridor (an idea by Senator Lamar Alexander that is NOW taking action)

(As published in The Oak Ridger's Historically Speaking column the week of December 16, 2024)

The first time I heard the term “**Oak Ridge Corridor**” was in September 2015, when Senator Lamar Alexander suggested the brand for the East Tennessee areas of portions of Anderson, Roane, Knox, and Blount Counties. This was published in Historically Speaking on October 26, 2015.

Since that time the Oak Ridge Corridor idea has grown to a suggested name for an East Tennessee region! Three different names have been recommended over the years for portions of the region that was first suggested by Lamar Alexander.

Most recently, after decades of quiet but continuous thought and idea development, the Oak Ridge Corridor is firmly taking shape with a focus on the new nuclear industry aimed at reshaping the nation's energy landscape in a similar magnitude as Oak Ridge helped shape the World War II and Cold War efforts. This initiative began as a series of Economic Alignment meetings held in the Oak Ridge Chamber of Commerce that included Anderson County Mayor, Terry Frank; Roane County Executive, Wade Creswell; and Oak Ridge City Council member Sean Gleason, as well as others from the region.

That reshaping was boosted on October 28, 2024, when a new organization, the Oak Ridge Corridor Development Corporation had its inaugural meeting. The new 501 (c) 3 Development Corporation is the embodiment of the regional approach to development, having members from Roane County, Anderson County, the City of Oak Ridge, DOE and others.

The group is focused on assisting with the implementation of recommendations from Governor Lee's Nuclear Energy Advisory Council that need to be carried out in Oak Ridge. The new organization is chaired by Gerald Boyd, a former site manager of combined DOE facilities and a longtime proponent of the nuclear industry. The organization's Vice Chairman, Dave Beck is with Y-12 operator Consolidated Nuclear Security.

The group combines many voices in industrial development into one organization that will focus on making Oak Ridge the center of the new nuclear renaissance. Oak Ridge City Council Member and Oak Ridge Corridor Development Corporation Board member Sean Gleason said “This body will act as a point of strategic confluence and focus to ensure our regional alignment and capitalization on the emerging next-generational nuclear market. For the first time, we have stalwart concurrence of intent from exactly the diverse stakeholders necessary to achieve our goals. The magnitude of the opportunity has overcome legacy division and grievance, and the tone is one of excitement, partnership, and gratitude.”

The Oak Ridge Corridor Development Corporation is still forming membership on its board of directors. The board welcomes others in the East Tennessee Region to join the initiative first conceived by Lamar Alexander and now a reality starting small but seeking growth to encompass the entire region of Knox and Blount counties as well as other areas where nuclear related industries might emerge over the coming months and years of the nuclear renaissance.

A bit of history:

Evolving from the Oak Ridge Corridor concept, first there was the Tennessee Technology Corridor in 1983 when the state legislation created the Tennessee Technology Corridor Development Authority. Then the Tennessee Valley Corridor organized in 1995 based on ideas from Lamar Alexander and Zach Wamp, which not only includes the East Tennessee region but extends to Virginia, Kentucky, Tennessee, and Alabama and grew out of a summit conference in Oak Ridge. And finally, Tennessee's Innovation Corridor was created in 2014.

According to Darrell Akins, a long-time friend of the former Governor and Senator, Lamar Alexander came up with the idea in the early 1980's. Darrell explains, “I was serving as the Deputy Commissioner of Transportation when the Governor decided building a four-lane highway from the airport in Blount County to Oak Ridge was a top priority. He knew immediately it could be more than a just a slab of concrete and that it would create a science and technology corridor to show linkage of Oak Ridge to the entire region.”

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"This would be happening just at the time a new contractor was taking over the Department of Energy operations with the promise of more aggressive technology transfer and economic development partnerships. He went further to say the entire region needed to leverage the global brand of Oak Ridge in promoting the advantages not only of Oak Ridge, but also the main campus of the University of Tennessee and the headquarters of the Tennessee Valley Authority. And the best way to do that was to call it the Oak Ridge Corridor.

"So, the Senator's recent comments just didn't pop into his head or come from a staffer. It's truly the 35-year vision of one of our state's most important leaders and statesmen, as well as one of Oak Ridge's most important advocates," concludes Akins.

A look at the present:

Now, nearly 10 years later, the brand **Oak Ridge Corridor** is even more appropriate and timely. Let's take a look at an updated view of just why the term is so well on target for this area now:

Great Things Happen in Oak Ridge EVERY DAY – Mayor Warren Gooch

"Born of War, Living for Peace, Growing Through Science." Oak Ridge Community Foundation in 1990-1993 on the 50th Anniversary of Oak Ridge

Lamar Alexander has said, "The Knoxville-Oak Ridge Innovation Valley is crossed by three Interstate highways (I-40, 24, and 75) and is at the center of two-thirds of the U.S. population. Beginning with the Manhattan Project to build the atomic bomb during World War II the region has become one of the United States' most prominent centers for advanced research, development, and manufacturing.

"When we say Oak Ridge Corridor, we express our region's greatest asset – the brainpower grown and attracted here by our colleges and universities, major federal investments, and an increasing list of corporate headquarters and major businesses.

"As we market the Innovation Valley to the world, we can proudly tout a name that is synonymous with the brainpower required to meet great science and technology challenges – the **Oak Ridge Corridor.**"

Here are some specifics:

1. Frontier is the world's most powerful supercomputer (operating at a speed of one quintillion calculations per second) which is producing phenomenal results in energy, climate, medicine, and economics. The next supercomputer, Discovery, will utilize artificial intelligence algorithms and model real-world situations at new levels of detail for studying natural phenomena, strengthening nuclear security, exploring energy solutions, and even accelerating product design to market while reducing costs.
2. Oak Ridge National Laboratory is stewarding an artificial intelligence initiative that is focused on ensuring secure, trustworthy, and energy efficient AI in the service of scientific research and national security. As part of this effort, ORNL established the Center for Artificial Intelligence Security Research, or CAISER, to analyze vulnerabilities, threats, and risks related to the security and misuse of AI tools in national security domains.

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3. The lab's Quantum Science Center is accelerating innovation in new quantum technologies, delivering secure, energy-efficient computing and helping maintain the nation's leadership in fundamental and applied science.
4. Oak Ridge National Laboratory has designed and built 13 nuclear reactors over the years, including the High Flux Isotope Reactor, which has been in operation for nearly 60 years and is the strongest reactor-based neutron source in the United States. HFIR is probably the most important research tool in Oak Ridge, and the isotopes it provides may be the most important post war contribution Oak Ridge has provided the world. In addition, the Molten Salt Reactor favored by Alvin Weinberg is now among the top designs being considered worldwide for the coming nuclear renaissance. Even environmentalists are fast becoming pro-nuclear. Oliver Stone's "Nuclear NOW!" movie is amazingly effective explaining the benefits of nuclear energy.
5. The lab's Spallation Neutron Source is the world's most powerful pulsed neutron source. A second target building is being constructed now. As part of preparing for the second target, the Proton Power Upgrade project is doubling the power capability of the Spallation Neutron Source from 1.4 to 2.8 megawatts.
6. The International Thermonuclear Experimental Reactor project is seeking to demonstrate the feasibility of fusion energy by building the world's largest fusion experiment in southern France. As one of 35 nations collaborating to build ITER, the nation's contributions are overseen by the US ITER Project, which is managed by Oak Ridge National Laboratory.
7. Oak Ridge National Laboratory is building the Material Plasma Exposure Experiment, a next-generation facility that will support the advancement of fusion energy.
8. The Center for Bioenergy Innovation is based at Oak Ridge National Laboratory and is pursuing advancements for a sustainable bioeconomy.
9. The Mobile Uranium Facility, a partnership of ORNL and the neighboring Y-12 National Security Complex, is the national resource for characterizing, processing, packaging, and transporting uranium materials anywhere in the world.
10. Oak Ridge National Laboratory is overseeing LEGEND-1000, an international project to gain insights that could revise our understanding of physics and the cosmos.
11. The element Tennessine was named after Tennessee to honor the contributions of American researchers at Oak Ridge National Laboratory. Tennessine is one of nine elements Oak Ridge National Laboratory has helped discover.
12. The Nuclear Navy got its start in Oak Ridge in 1946 when then-Captain Hyman Rickover attended the first Reactor Training School at the Clinton Laboratories taught by Eugene Wigner and became acquainted with Alvin Weinberg. Rickover realized that by using weapons-grade uranium, a nuclear reactor could be built small enough to go inside a submarine. The fuel for all U.S. Navy ships and submarines has always been provided by Oak Ridge. A commitment for continuing for the next 50 years is in place with Y-12.
13. Nuclear medicine advanced significantly using radioactive isotopes produced in the Graphite Reactor in Oak Ridge from the then Clinton Laboratories when carbon-14 was sent to the Barnard Free Skin and Cancer Hospital in St. Louis. Within a year, over 1,000 shipments had been made and by 1950 over 20,000. The Oak Ridge National Laboratory (so named in March 1948) has continued to provide radionuclides ever since as the world's leading producer of radioisotopes and with capabilities to produce 290 different isotopes. A new Radioisotope Processing Facility is planned to be completed by 2034. Already electromagnetic separation units are separating stable isotopes using mass spectrometer technology similar in design to the

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Manhattan Project calutrons of Y-12 that were used for that purpose after World War II until 1998. A new facility—the U.S. Stable Isotope Production and Research Center—will open at the lab in 2032 and serve as the permanent home of this technology as the nation expands its capability to enrich stable isotopes.

14. Innovation Crossroads, which started in 2017, is a two-year program for fellows working to establish advanced manufacturing and energy technology companies. The program at Oak Ridge National Laboratory has supported 45 startups since its inception with 65 percent of those companies staying East Tennessee.
15. SkyNano, whose founder Anna Douglas is an Innovation Crossroads alumnus, opened a production facility in Louisville, Tennessee, in 2024. The company captures carbon dioxide from the atmosphere and converts it into valuable carbon-bases materials such as carbon nanotubes.
16. Oak Ridge National Laboratory has more than 1,000 patents since 2010, the most from any Department of Energy national laboratory.
17. Based on carbon-capture technology licensed from Oak Ridge National Laboratory, Holocene opened a pilot facility in Knoxville in 2024, and Google recently committed \$10M to help the company expand its operations in the coming years.
18. The University of Tennessee-Oak Ridge Innovation Institute is strategically aligning both institutions to expand interdisciplinary research, education, and innovation that is important to the United States and Tennessee.
19. Oak Ridge National Laboratory is home to eight Department of Energy user facilities that allow scientists to perform experiments that can't be done anywhere else. These world-leading facilities include experimental tools for research in biology, materials, physics, and more. Collectively, they have hosted more than 16,000 total users in the past five years.
20. The lab's Carbon Fiber Technology Facility, which was established in 2013, pursues high potential, low-cost raw materials, including textile, lignin, polymer, and hydrocarbon-based precursors. The facility has more than 90 industrial partners.
21. Governor Lee appointed a Nuclear Energy Advisory Council and designated \$60 million focused, in part, on Oak Ridge playing a lead role for the nation and the world as the next generation of nuclear reactors are designed and built. The Tennessee Valley Authority (the world's largest public utility) is in the planning stage for a small modular reactor to be built on the Clinch River site. Kairos Power has broken ground for a demonstration next-generation reactor using the molten salt design preferred by Weinberg. Called Hermes, this reactor will be cooled by a molten fluoride salt which eliminates the robust pressurized vessel that is required in all water-cooled reactors, to keep the water from vaporizing. Hermes will use kernels of enriched uranium enclosed in TRISO pebbles coated by graphite and ceramic layers impossible to melt in the reactor environment.
22. The Oak Ridge company TRISO-X LLC, a subsidiary of X-energy, will manufacture the ceramic TRISO particles required for the new generation of pebble-bed reactors such as Hermes.
23. Ultra Safe Nuclear Corporation is building a manufacturing facility in Oak Ridge to fabricate Fully Ceramic Microencapsulated nuclear fuel for use in their Micro Modular Reactor and other advanced reactors.
24. Orano USA plans to build a large uranium-enrichment facility in Oak Ridge, targeted on using centrifuges to provide uranium for an anticipated increase in the number of nuclear power reactors in the U.S.

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25. Centrus Energy Corporation, founded in 1998, uses American Centrifuge Technology centrifuges to produce nuclear fuel for nuclear reactors around the world. Their centrifuges are manufactured in Oak Ridge.
26. Type One Energy Group plans to build Infinity One, a prototype of its fusion device, and locate it in the Bull Run Steam Plant, a large coal-burning power facility shut down by TVA on December 1, 2023. This fusion device would be a stellarator, a more compact but more complicated fusion confinement device than the large tokomaks countries have used for decades to try to approach nuclear fusion as an energy source. It is possible that fusion energy could be a major source of electricity by mid-century or slightly beyond.
27. The Y-12 National Security Complex is working on multiple nuclear weapons programs helping to sustain the nation's nuclear deterrent and support nonproliferation as well as provide storage for the nation's enriched uranium.
28. Y-12 National Security Complex is the largest employer in Oak Ridge. More than 8,000 employees support the National Nuclear Security Administration's missions on site.
29. Y-12's Oak Ridge Enhanced Technology and Training Center (ORETTC) is a training campus for radiation response, nuclear processing, and emerging technology arenas. Security, safety, and emergency response personnel from around the country and allied nations regularly visit the joint state- and federal-funded ORETTC campus to train and learn from world-class expertise available at Y-12.
30. As a part of NNSA's Nuclear Nonproliferation Program, Y-12 helps to secure vulnerable nuclear materials around the world. Activities encompass detection, removal, and security of nuclear material, and ultimately making weapons material available for peaceful uses, such as fueling research reactors and producing medical isotopes.
31. Y-12, through its Down-Blending Offering for Tritium program, supports the production of tritium in a process involving down-blending of highly enriched uranium to ensure future tritium inventory for the nation.
32. The Uranium Processing Facility and Lithium Processing Facility construction projects are underway at Y-12 to modernize production facilities and ensure long-term mission delivery for the nation.
33. The lab's Hardin Valley Campus sits just off Pellissippi Parkway between Oak Ridge and the University of Tennessee. On this campus, you will find three unique capabilities in the Manufacturing Demonstration Facility (MDF), National Transportation Research Center (NTRC), and the Grid Research Integration and Deployment Center (GRID-C). At MDF, researchers are working with industry to deploy cost-effective and reliable additive manufacturing technology for the nation's security, economy, and energy portfolio. NTRC is home to the nation's early-stage research into transportation technology, including wireless charging and advanced combustion engines. GRID-C brings together expertise and capabilities to pursue advancements in power and energy systems, vehicle and buildings science, and cybersecurity.
34. ORNL and UT are working on various research strategies leading to more robust electric vehicle scenarios and better batteries for EVs and for storing electricity generated by fluctuating renewable energy plants. Volkswagen of America has located at the UT Research Park at Cherokee Farm an innovation hub focused on further development of electric vehicles.

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35. Oak Ridge has supported the National Aeronautics and Space Administration since the 1960s. NASA has relied on Y-12 and ORNL from Blood in Gemini and the Moon Boxes in Apollo to Plutonium-238 to power deep space missions, design compact nuclear reactors for Mars, 3-D printed materials, computer simulations, and even power and materials to explore Jupiter's moon Europa.
36. Finally, environmental cleanup of the K-25 sites, now East Tennessee Technology Park – Heritage Center, has provided substantial reindustrialization opportunities and the cleanup continues at both the Y-12 and ORNL sites providing potential reuse areas for such new facilities as the Lithium Processing Facility at Y-12.

Over the years, Senator Alexander emphasized the unique capabilities of the **Oak Ridge Corridor**. "The area is home to the world's largest public utility (the Tennessee Valley Authority), a major research university (the University of Tennessee), and other colleges and universities. In Anderson, Blount, Knox, and Roane Counties live more than 40,000 persons with graduate and professional degrees. This includes 1,600 scientists and engineers at the Oak Ridge National Laboratory, more than 1,000 engineers at the University of Tennessee, and hundreds more engineers at TVA and the Y-12 National Security Complex. Its elementary and secondary public schools are among the highest achieving in the state."

Updated numbers for 2024: 40,000 persons with graduate and professional degrees in Anderson, Blount, Knox, and Roane counties in 2017, in 2024 there are 102,027; 1,000 Scientists and Engineers at Oak Ridge National Laboratory in 2017, in 2022 there were over 2,800; more than 1,000 Engineers at the University of Tennessee in 2017, in 2023 there were 5,263 enrolled in engineering at UT.

After decades of quiet but continuous thought and idea development, the **Oak Ridge Corridor** is firmly taking shape with a focus on the new nuclear industry aimed at reshaping the nation's energy landscape in a similar magnitude as Oak Ridge helped shape the World War II and Cold War efforts. Some 40 years after Governor Alexander's vision, the **Oak Ridge Corridor** continues to grow strong, rising to meet new challenges and to lead the way forward.



The bridge on Pine Ridge that crosses over South Illinois Ave would be an ideal location to recognize the **Oak Ridge Corridor** (Courtesy of Ray Smith)

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Senator Lamar Alexander speaking to the Rotary Club of Oak Ridge in September 2015 and Darrell Akins looking on (Courtesy of Ray Smith)