

US DOE - East Tennessee Technology Park: A Model for Safe and Sustainable Cleanup

Albes Gaona

Environmental Scientist

Manager, Sustainability & Climate Resilience Program

Environmental Management Office, US DOE

EM Sites



- EM's mission is to safely and efficiently **address the environmental liability** resulting from decades of **nuclear weapons production** and government-sponsored **nuclear energy research**
- The **production and research work resulted in environmental contamination at 107 sites** throughout the United States, housing more than **5,000 contaminated facilities**
- **Remediation included** liquid radioactive waste, plutonium, depleted uranium, contaminated soil, and contaminated groundwater



DOE EM's Mission Progress



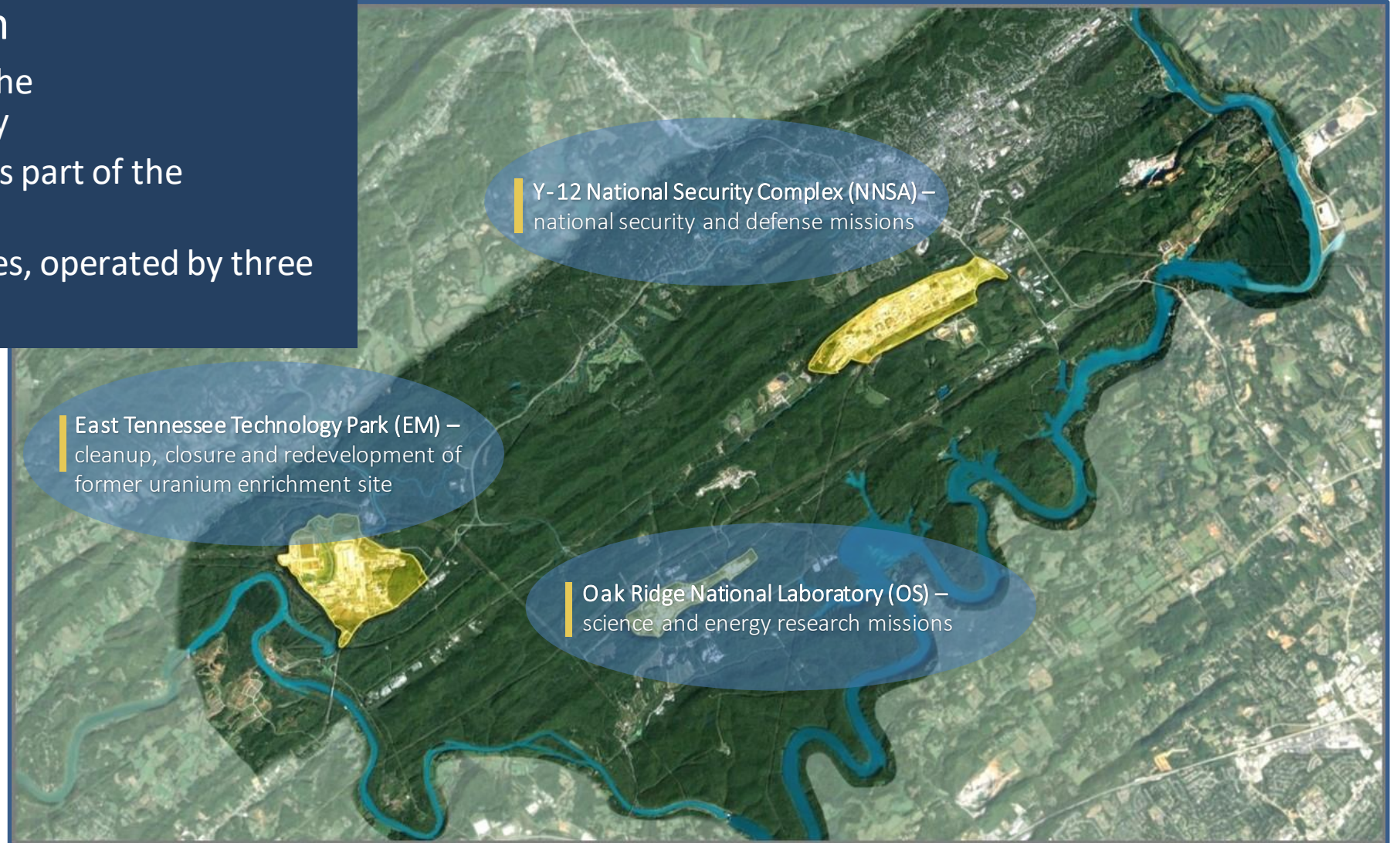
- Over the past **three decades**, EM achieved **significant** and lasting **progress** in tackling this environmental legacy
- EM **eliminated**, or mitigated, at most sites the **environmental, safety, and health risks** from the **most dangerous legacy wastes and contaminated facilities**
- **Contaminant** pathways have been effectively **controlled in groundwater and soils**
- The program's combined active **remediation footprint has been reduced by 90%**, from approximately 3,300 square miles to less than 300
- **Significant** legacy cleanup work remains at **15 sites**



Oak Ridge Reservation, TN

Oak Ridge Reservation

- 32,000+ acres owned by the U.S. Department of Energy
- Established in the 1940s as part of the Manhattan Project
- Home to three distinct sites, operated by three DOE programs



Y-12 National Security Complex (NNSA) – national security and defense missions

East Tennessee Technology Park (EM) – cleanup, closure and redevelopment of former uranium enrichment site

Oak Ridge National Laboratory (OS) – science and energy research missions

- EM's mission at ETTP was to turn a community liability into a safe and sustainable community asset
- After nearly two decades of work, EM completed Vision 2020 ahead of schedule and under budget by cleaning up all excess contaminated facilities
- Vision 2020 is DOE's largest completed environmental cleanup effort to date. Marked world's first removal of an enrichment complex
 - Over 500 buildings, in excess of 13M square feet, were demolished, including the K-25 gaseous diffusion building, the largest building in the world of its time
 - Millions of cubic yards of soil, slabs, and debris were remediated and disposed
- EM has transferred nearly 1,300 acres to the community for industrial development with another 650 acres slated for transfer by 2024



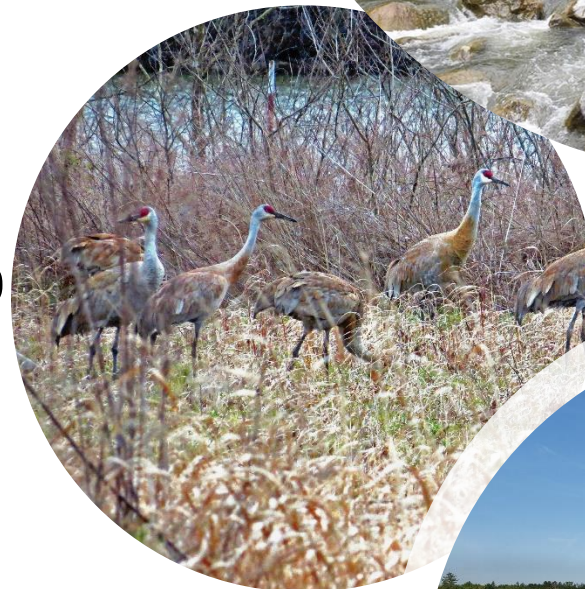
ETTP: From a Liability to an Asset

- ETTP has transitioned from a liability to the community into a marketable asset that is attracting new businesses and economic development
- ETTP is now home to more than 20 businesses and two solar farms producing more than 1.2 MWh of electricity annually
- Plans are underway to invest \$100 million to deploy a demonstration reactor where two massive enrichment buildings once stood. The technology will provide carbon-free, affordable energy to the U.S. electricity market and create 55 jobs
- Planning also continues for a proposed general aviation airport located on 250 acres that EM is scheduled to begin transferring to the City of Oak Ridge this year
- About 100 acres at ETTP support historic preservation efforts, including a Manhattan Project National Historical Park location and the newly constructed K-25 History Center

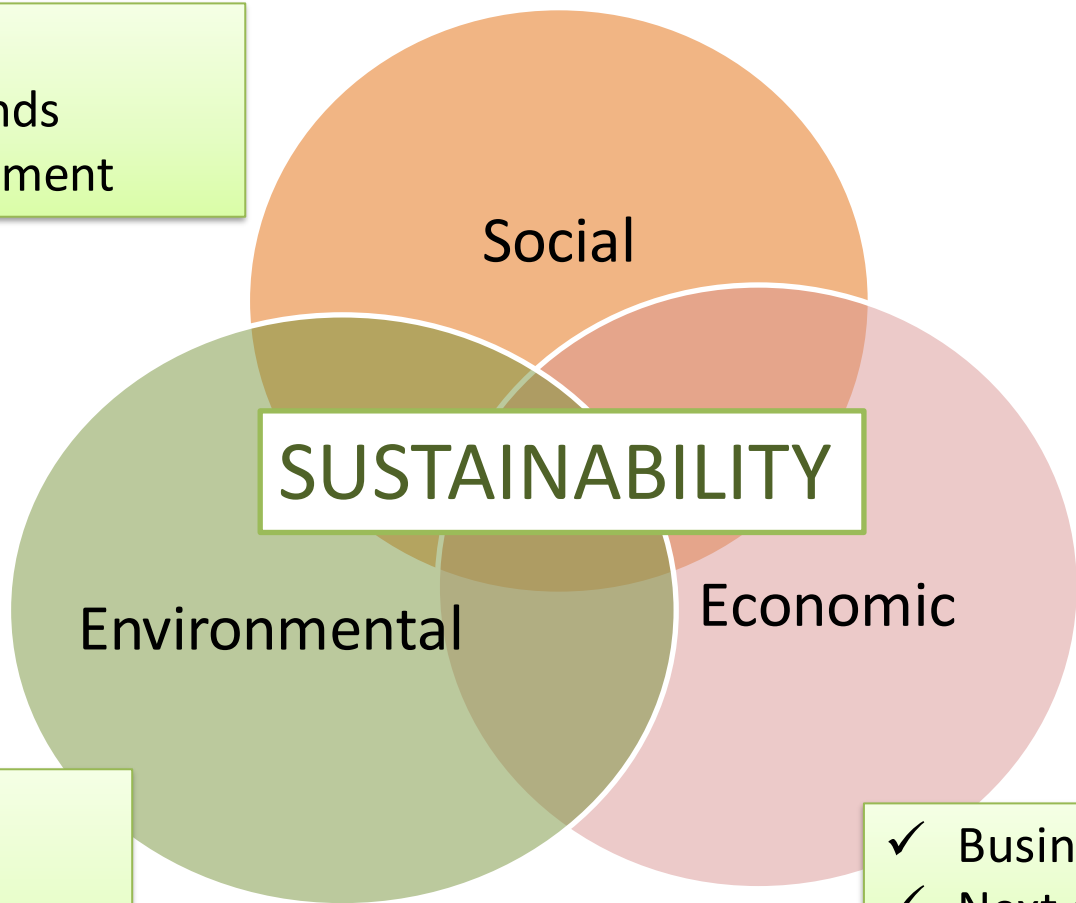


ETTP: From a Liability to an Asset

- As reported by the East Tennessee Economic Council, DOE now creates \$7.2 billion in economic benefits and high-quality jobs annually for the state's economy through research, national security, and environmental cleanup missions in Oak Ridge
- Comprehensive environmental stewardship practices played an important role, including innovative recycling and reuse initiatives, greenspace creation, and renewable energy generation and usage
- EM has partnered with the state of Tennessee to transfer 3,500 acres for conservation, providing habitat for wildlife, hiking trails, bike paths, canoe launches, and other activities for residents and tourists
- The completion of this first-of-a-kind cleanup project has reduced environmental risks, returned lands to the community for promotion of economic and recreational opportunities, and serves as a model for future sustainable environmental cleanup projects



- ✓ Good Jobs
- ✓ Returned lands
- ✓ Safe environment



- ✓ Cleanup and remediation
- ✓ Reduced risks
- ✓ Land conservation

- ✓ Business development
- ✓ Next gen jobs
- ✓ Tax base benefits



ETTP: Sustainability Accomplishments

Cleanup and Remediation

- ✓ More than 500 buildings in excess of 13 million square feet demolished
- ✓ Millions of cubic yards of soil, slabs, and debris remediated and disposed



Sustainable Acquisition & Procurement

- ✓ In 2020, over \$609K of biobased environmentally friendly products, and \$943K of recycled content products purchased
- ✓ More than \$27.5 million in subcontracts issued with environmental sustainability practices being a requirement

Renewable Energy

- ✓ 139K MWh of renewable energy purchased for use and sourced from wind farms
- ✓ Two solar power farms producing more than 1.2 MWh of electricity annually



ETTP: Sustainability Accomplishments

Waste Management

- ✓ 26.5M lbs. of demolition debris diverted
- ✓ 3M of scrap metal and 1.2M lbs of paper and cardboard recycled/reused over the last five years
- ✓ 133K lbs. of plastics, 95K lbs of electronics
- ✓ 235K lbs. of universal waste diverted from landfills to be reused or recycled



Land Management



Questions ?

EM's vision is a clean, modernized, and reindustrialized Oak Ridge that is capable of advancing the Department of Energy's vital missions.



Useful Links

[Oak Ridge Office of Environmental Management | Department of Energy](#)

[Journey to World's First: The K-25 Story – YouTube](#)

[Closure Plan Virtual Event - YouTube](#)