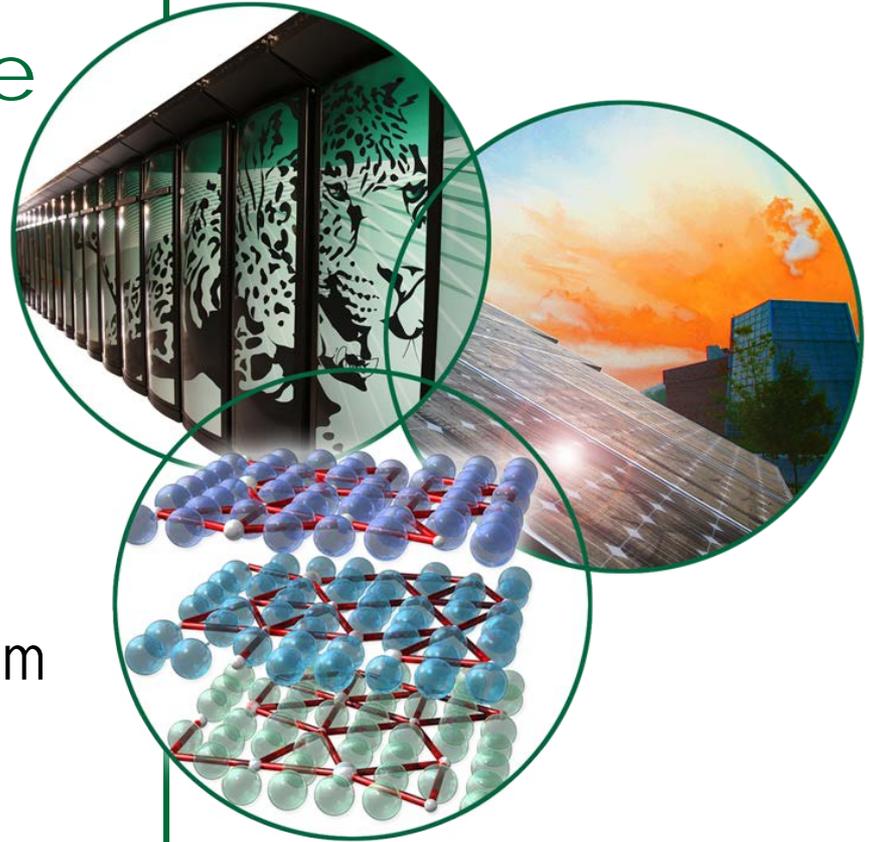


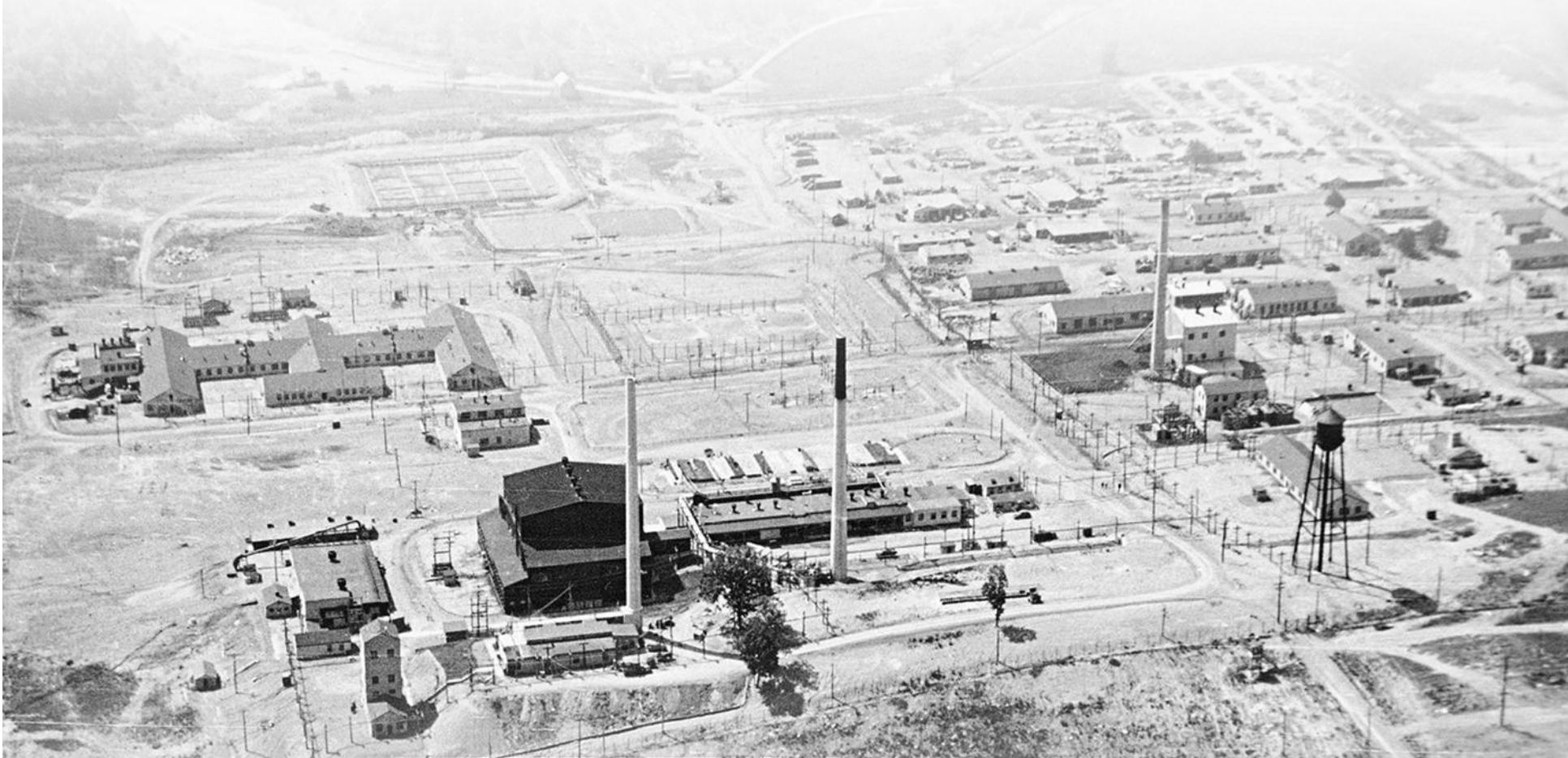
Oak Ridge National Laboratory Emergency Management Program and Laboratory Update

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Oak Ridge Emergency Management Forum
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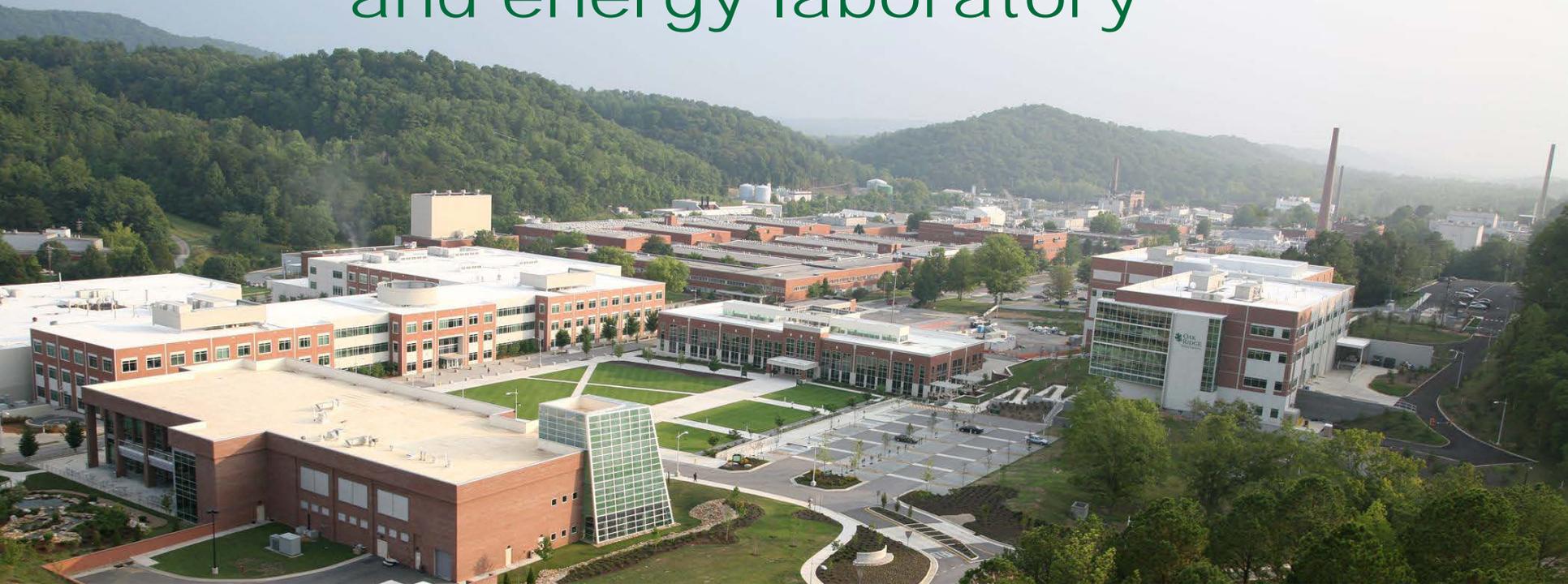


Oak Ridge National Laboratory evolved from the Manhattan Project



ORNL in 1943
The Clinton Pile was the world's first
continuously operated nuclear reactor

Today, ORNL is DOE's largest science and energy laboratory



- \$1.65B budget
- 4,600 employees
- 3,900 research guests annually
- \$500 million invested in modernization
- World's most powerful open scientific computing facility
- Nation's largest concentration of open source materials research
- Nation's most diverse energy portfolio
- Operating the world's most intense pulsed neutron source
- Managing the billion-dollar U.S. ITER project

Multi-purpose Laboratory Facility

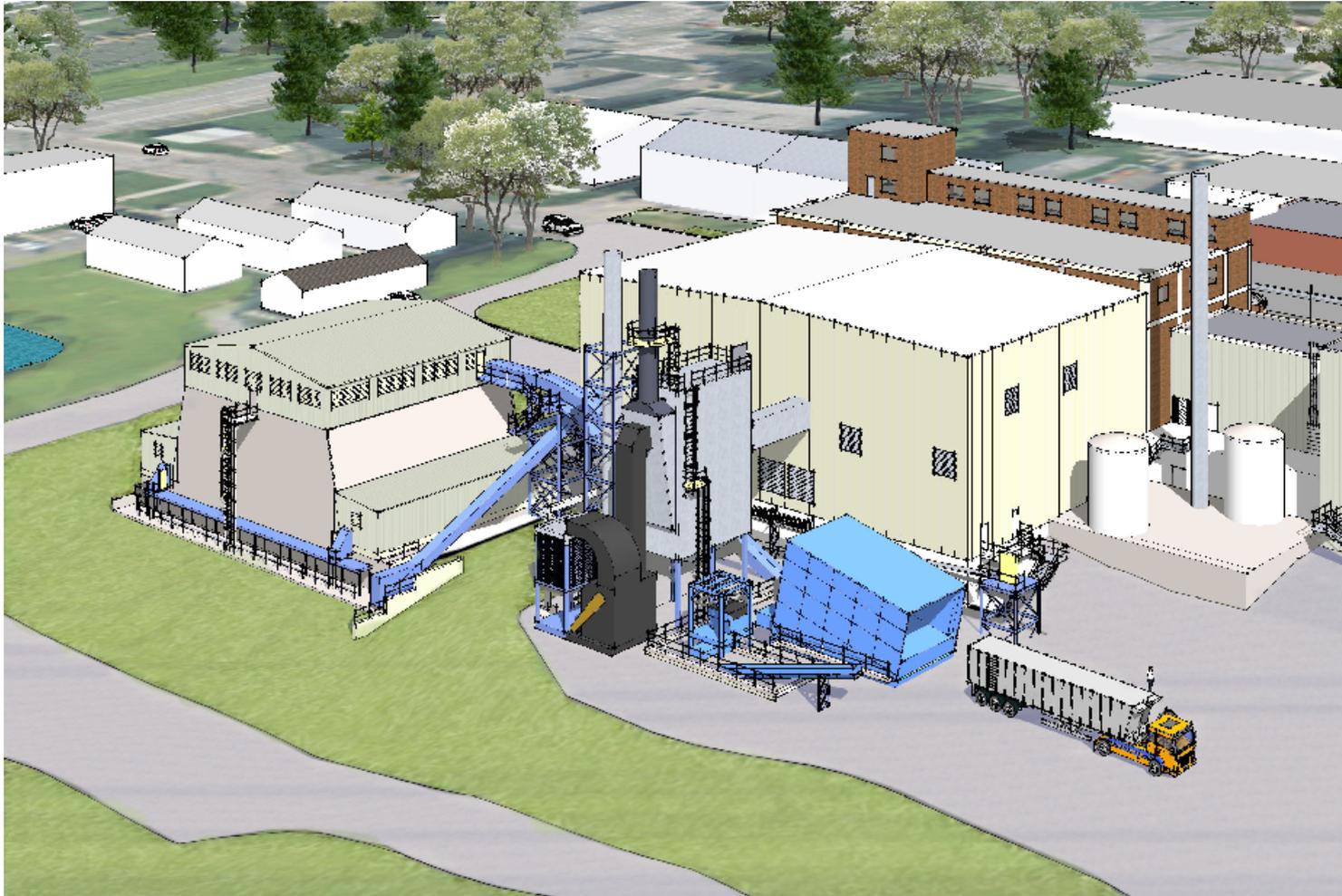
- Construction complete; offices/labs began occupancy in May
- Relocate key research capabilities from aged facilities such as Building 4500
- New 3-story building has ~150,000 ft² of 21st century research laboratory and support space



Biomass Gasification Steam Plant

- Biomass Gasification Steam Plant (BGSP)
 - Being constructed on south side of Steam Plant Building 2519 as part of Energy Conservation Measure
 - Operations scheduled to begin in early 2012
 - Will be used as primary method of supplying steam for ORNL campus (two of current fuel oil boilers will remain and be used to augment as needed)
- Gasification Overview
 - Thermo-chemical process that uses heat to convert carbon-containing fuel (i.e., wood chips) into clean gas, commonly referred to as “syngas”
 - “Starved air” oxidation process provides sufficient heat to chemically break down the remaining fuel into carbon-neutral syngas with particulate emissions as low as 10% of conventional fossil fuel combustion
 - Syngas generated is burned in the oxidizer and then used to produce heat that is fed into a heat recovery steam generator (steam boiler)

Biomass Gasification Steam Plant



Significant Emergency Management Program Changes

- Completed transition of the Public Address System from analog to digital
 - Provides ability to monitor problems with speakers at individual facilities
 - Allows more targeted implementation of protective actions
- Implemented revised Emergency Action Levels (EALs) and protective action methodology
 - Easier to use, more intuitive design of EALs
 - Protective Actions determined by “zones” based on Public Address System capabilities
- Established new Alternate Emergency Operations Center (EOC) at the National Transportation Research Center
 - Increased capabilities when EOC is not accessible
 - Outside of Emergency Planning Zone

FY11 Emergency Management Drills and Exercises

- **Purpose:** Drills and exercises are conducted to evaluate the proficiency and readiness of the ERO in the event of an actual emergency.
- **Current Status:** Conducted 12 successful drills and exercises

Technical Basis Update

- Hazardous materials onsite that may result in Operational Emergencies

Chemical	Radiological Materials
bis (2-ethylhexyl) phosphate	Activation products (Co-60, Fe-59, etc.)
Fluorine	Fission products (Cs-137, Sr-90, etc.)
Hydrogen fluoride	Transuranics (Pu-239, Cm-244, etc.)
Sodium nitrate	Uranium (various isotopes)
Thorium nitrate	Other radioactive materials (Ra-226, Th-232, etc.)
Uranyl nitrate	
Lithium hydride	
Nitric acid	
Zinc bromide	

Technical Basis Update

- Number of facilities based on current EALs that result in classifiable Operational Emergencies

Emergency Class			Hazardous Material
Alert	Site Area Emergency	General Emergency	
2	4	1	Chemicals
3	17	12	Radionuclides

Oak Ridge National Laboratory:
Meeting the challenges of the 21st century

QUESTIONS?



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