




Kairos Power

ED BLANDFORD, CTO AND CO-FOUNDER

BUILDING A CLEAN ENERGY FUTURE IN EAST TENNESSEE

18 APRIL 2024



Kairos Power's mission is to enable the world's transition to clean energy, with the ultimate goal of dramatically improving people's quality of life while protecting the environment.

In order to achieve this mission, we must prioritize our efforts to focus on a clean energy technology that is *affordable* and *safe*.

Overview of Kairos Power

- Nuclear energy engineering, design, and manufacturing company *singularly focused* on the commercialization of the fluoride salt-cooled high-temperature reactor (FHR)
 - Founded in 2016
 - ~400 Employees
- Novel approach to nuclear development that includes iterative hardware demonstrations and in-house manufacturing to achieve disruptive cost reduction and provide true cost certainty
- Schedule driven by US demonstration by 2030 (*or earlier*) and rapid deployment ramp in 2030s
- Cost targets set to be competitive with natural gas in the US electricity market

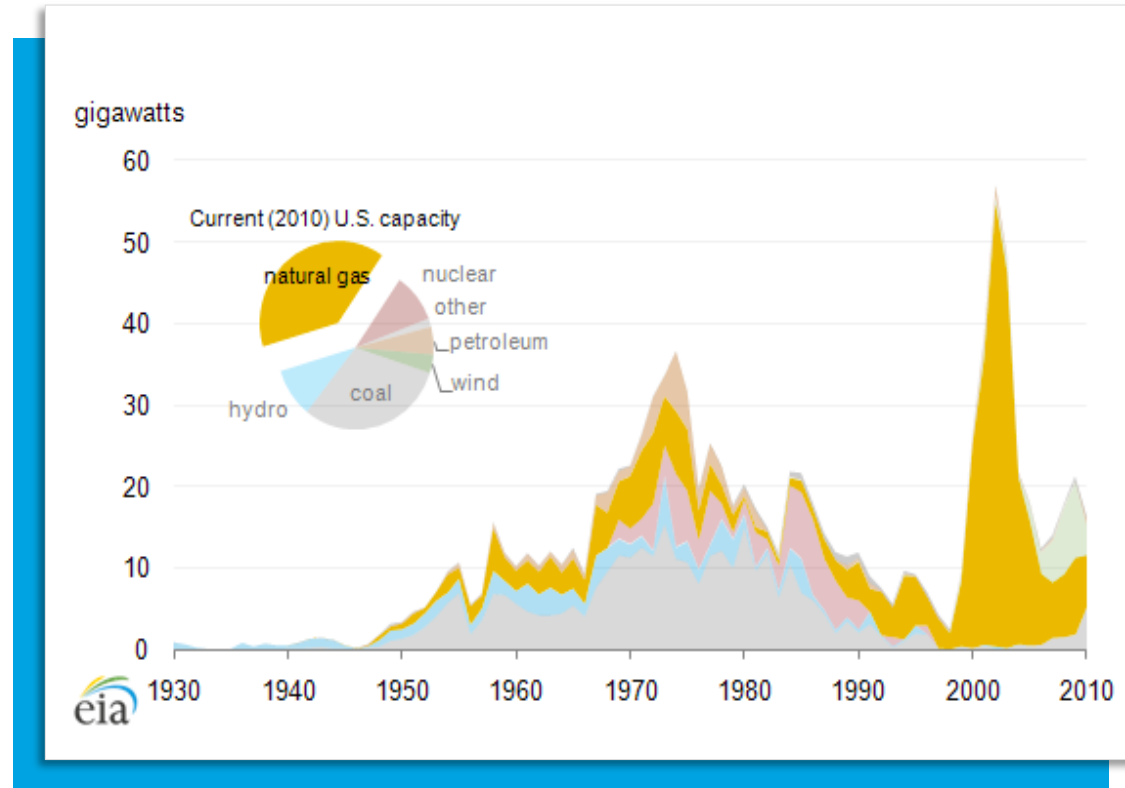
Kairos Power Headquarters



Kairos Power Team



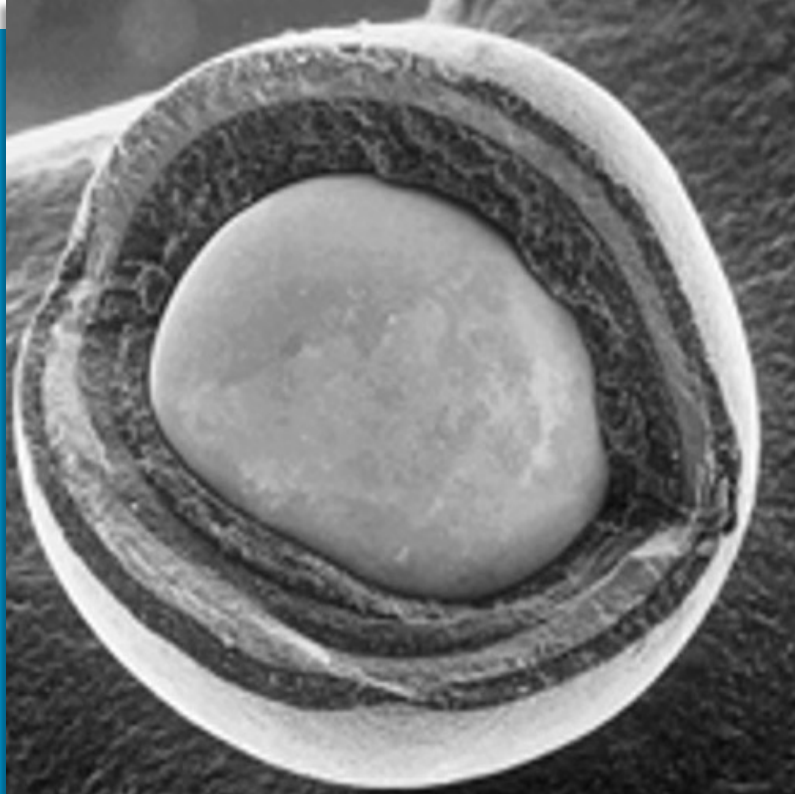
kai-ros (def.): the right or opportune moment



U.S. Electricity Generation by Initial Year of Operation and Fuel Type

Fluoride Salt-Cooled High Temperature Reactor

Technology Basis



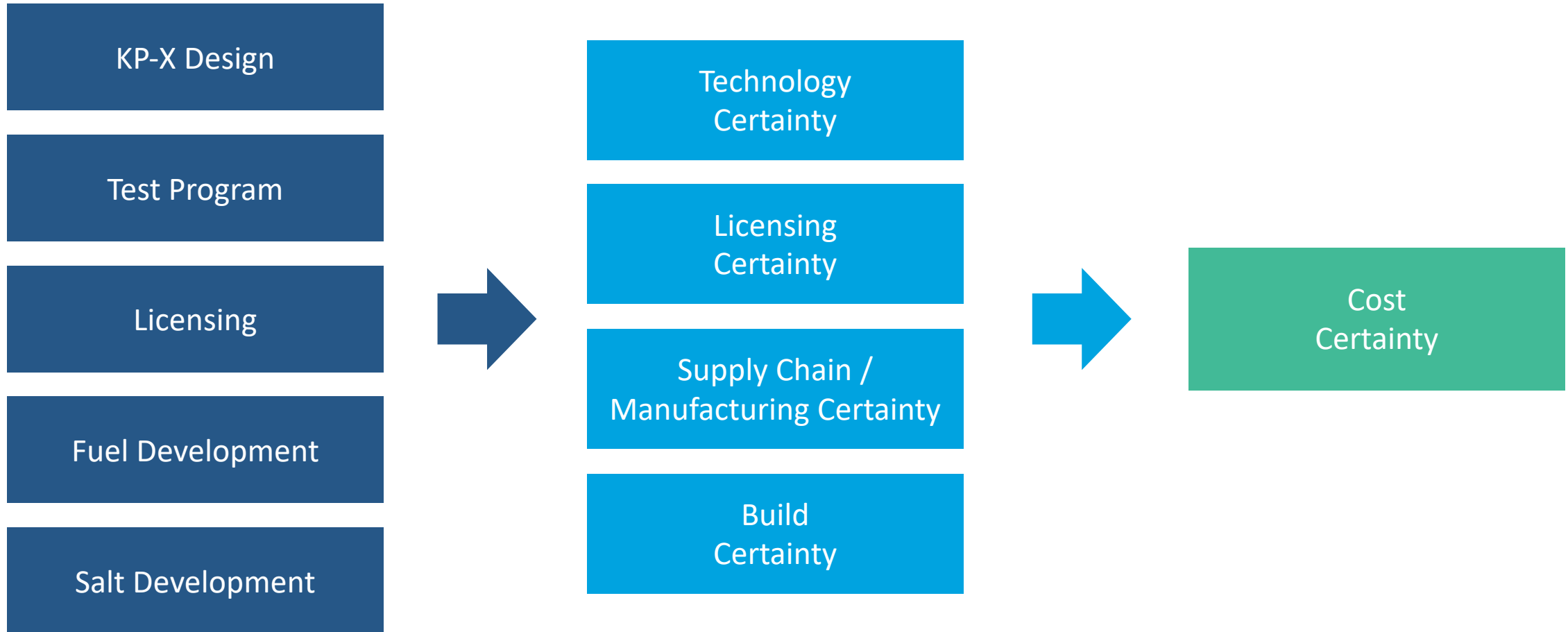
Coated Particle Fuel
TRISO



Liquid Fluoride Salt Coolant
Flibe ($2\text{LiF}-\text{BeF}_2$)

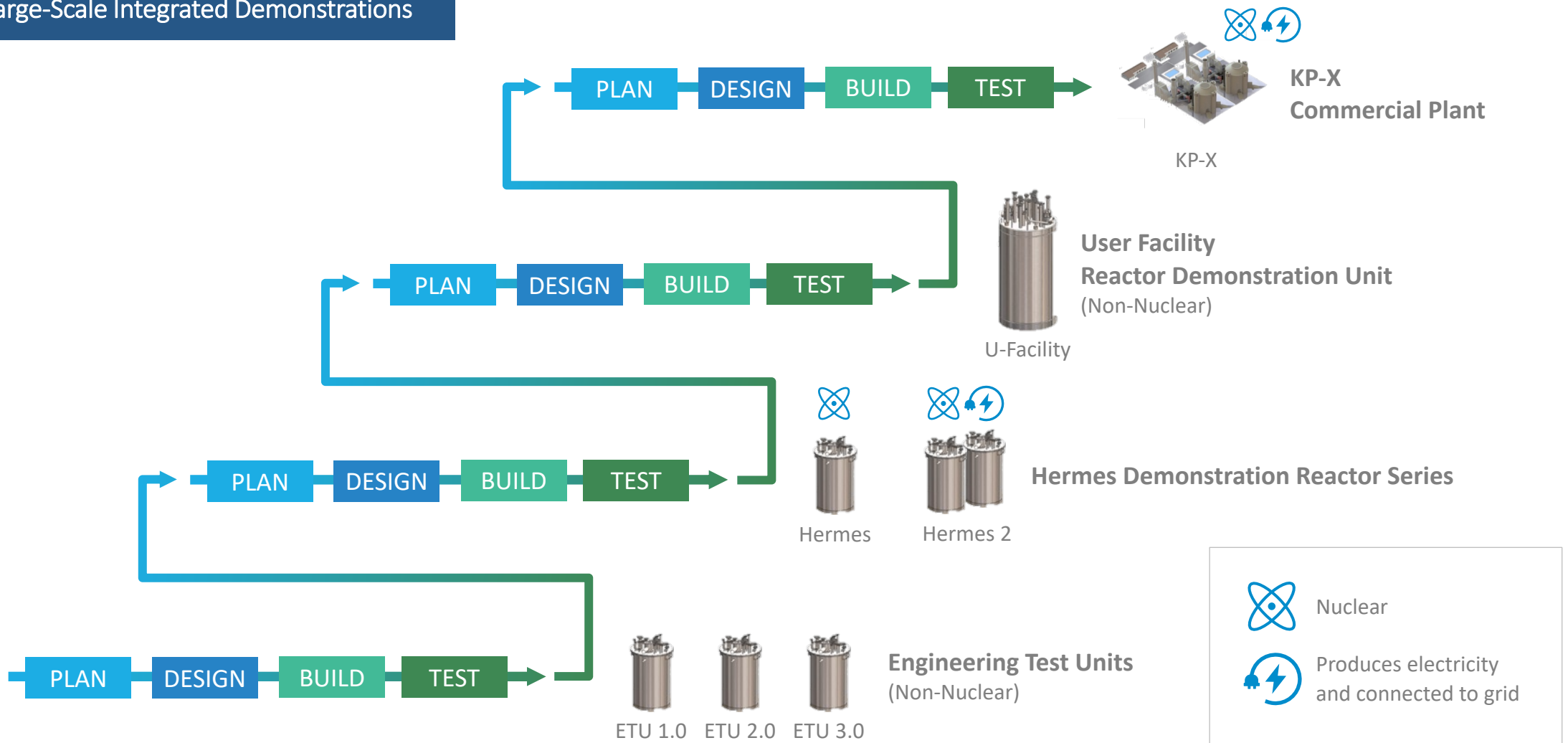
Kairos Power Workstreams

Reduce risk and build cost certainty



Kairos Power Path to Commercialization

Successive Large-Scale Integrated Demonstrations



Kairos Power Locations and Infrastructure



HQ / R-Lab / S-Lab
Alameda, CA



T-Facility / Engineering Test Unit
Production Development Facility
Albuquerque, NM



Molten Salt Purification Plant
Elmore, OH

Instrumentation Labs
Rexford, NY

Hermes Reactor
Oak Ridge, TN

Licensing Office
Charlotte, NC



Kairos Power Facilities

- RAPID Lab
- Salt Lab
- Testing Facility

Flibe & Fuel Production

Vertical Integration

Molten Salt Purification Plant
Elmore, OH



First batch of Flibe arrives at KP Southwest
April 2023



TRISO Development Lab
Albuquerque, NM



Pebble Development Lab
Albuquerque, NM



Manufacturing

Vertical Integration



KP Southwest Manufacturing Floor
Albuquerque, NM

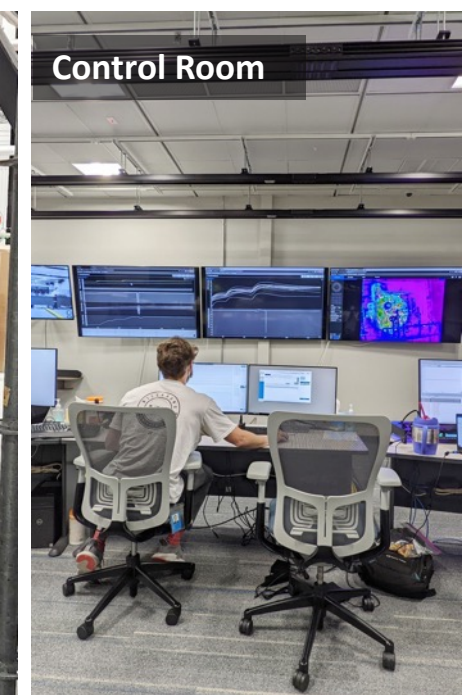


First U-Stamped Vessel
December 2022



Engineering Test Unit

Albuquerque, NM



ETU 1.0 Testing Progress

2,000+ Hours of Pumped Salt Operations

- **ETU 1.0 testing highlights at 550+°C:**
 - Loaded 12 metric tons of molten salt into the largest Flibe system ever built
 - Demonstrated online refueling with surrogate fuel via the Pebble Handling and Storage System
 - Achieved highest-ever Flibe flow rate up to 3,000 GPM
 - Logged over 25,000 strokes of the Reactivity Control System
 - Commissioned a first-of-its-kind chemistry control system to continuously monitor purity of Flibe in the system



Lessons learned from the ETU program will inform the design and operation of the Hermes demonstration reactor in Tennessee

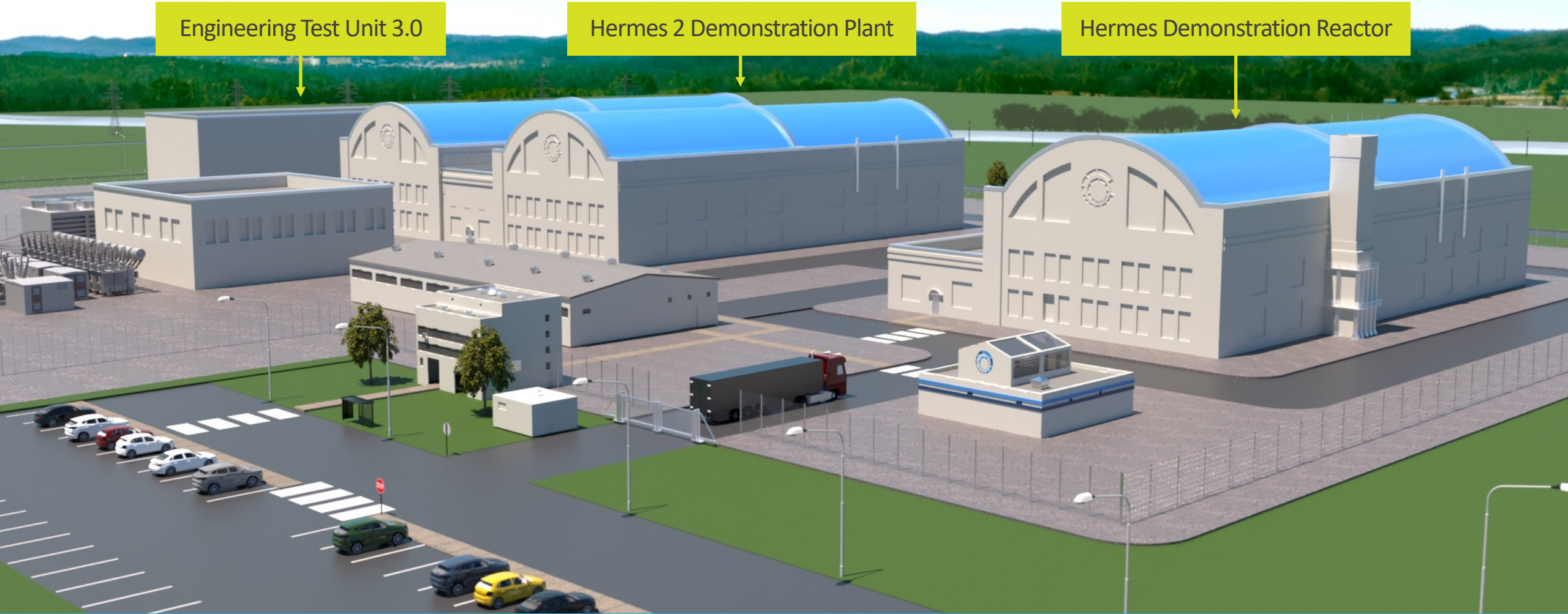
Hermes Demonstration Reactor Series

Heritage Center K-33 Site / Oak Ridge, TN

Engineering Test Unit 3.0

Hermes 2 Demonstration Plant

Hermes Demonstration Reactor



Hermes Demonstration Reactor Series

Leading the Way in Advanced Reactor Licensing

- The U.S. Nuclear Regulatory Commission issued a construction permit for the **Hermes demonstration reactor** in 2023 following an accelerated application review enabled by robust pre-application engagement
- Kairos Power submitted a construction permit application (CPA) for the **Hermes 2 demonstration plant** in July 2023, which builds upon the successful Hermes CPA
- **Major licensing accomplishments to date:**
 - ✓ **12 of 12 topical reports supporting KP-FHR licensing approved**
 - ✓ **Hermes Construction Permit Issued by NRC in Dec. 2023**
 - ✓ **First CP for a non-water-cooled reactor in over 50 years**
 - ✓ **Hermes 2 CPA accepted for review in Sept. 2023**



Kairos Power completed its mandatory hearing for the Hermes CPA and received its construction permit in Q4 2023

KP-OMADA Advanced Nuclear Alliance

The Kairos Power Operations, Manufacturing and Development Alliance brings together leading North American utilities and generating companies to collaborate on the advancement of KP-FHR technology.



Kairos Power's Commitment to the Community

Embedded in Our Mission

Everything we do at Kairos Power is driven by our mission to **improve people's quality of life while protecting the environment**

Our Commitment:

- Engage and support local communities
- Prioritize diversity, equity, and inclusion
- Selectively build on brownfield sites
- Deliver high energy density with low land use



1 fuel pebble = 4 tons of coal



Headquarters
Alameda, CA



KP Southwest
Albuquerque, NM

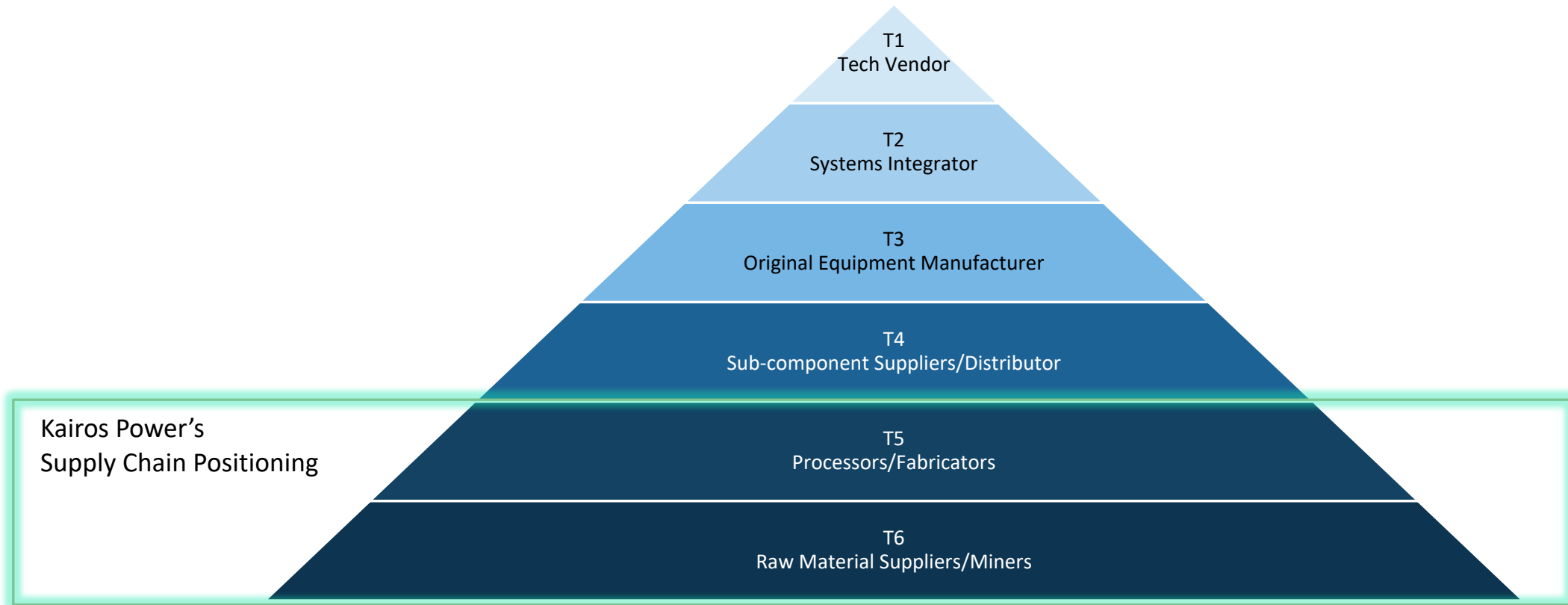


K-33 Site
Oak Ridge, TN



Vertical Integration and Supply Chain Positioning

Delivering Cost Certainty



Supplier Diversity at Kairos Power

At Kairos Power, we believe that our team's diverse backgrounds, skill sets, and perspectives are a critical part of driving us toward achieving our mission. We value diversity in all levels of our organization, including our supplier partnerships.

- **Goals** – Kairos Power has multiple opportunities throughout the year and across all our locations to outsource to local industries
- **Process** – Local small and diverse-owned businesses will be tracked and identified in our supplier database for ease of sourcing when looking for RFQ participants. Kairos Power will continue to contact our local Chambers of Commerce and Small Business development groups with these opportunities for distribution among their members.



*In August, Kairos Power hosted its first **Supply Chain & Procurement Meet and Greet** in Oak Ridge to engage with diverse local suppliers*

Procurement Opportunities

Oak Ridge, Tennessee

Upcoming Needs

- Fencing, concrete, construction
- Environmental engineering
- Security
- General contractors (small to mid-size): Electrical subcontractors
- Mechanical contractors
- Heavy rigging and transportation vendors
- Equipment rentals

Year-Round Needs

- Insulation
- Valves & pipe fittings
- Instrumentation & control
- Blowers
- Tanks/vessels, bearings, wiring
- Steel fabrication /metal manufacturing
- Hardware (nuts, bolts, screws) & Gaskets
- Filter materials

Infrastructure

- Concrete services
- Fencing services
- Security
- Construction contractor
- Electrical services
- Plumbing services
- Painting services
- Rigging services

Business Services

- Janitorial services
- Office furniture
- Office supplies
- Courier services
- Catering
- Food trucks
- Event rentals
- Event spaces



Kairos Power

Enabling the world's transition to clean energy
while improving people's quality of life
and protecting the environment