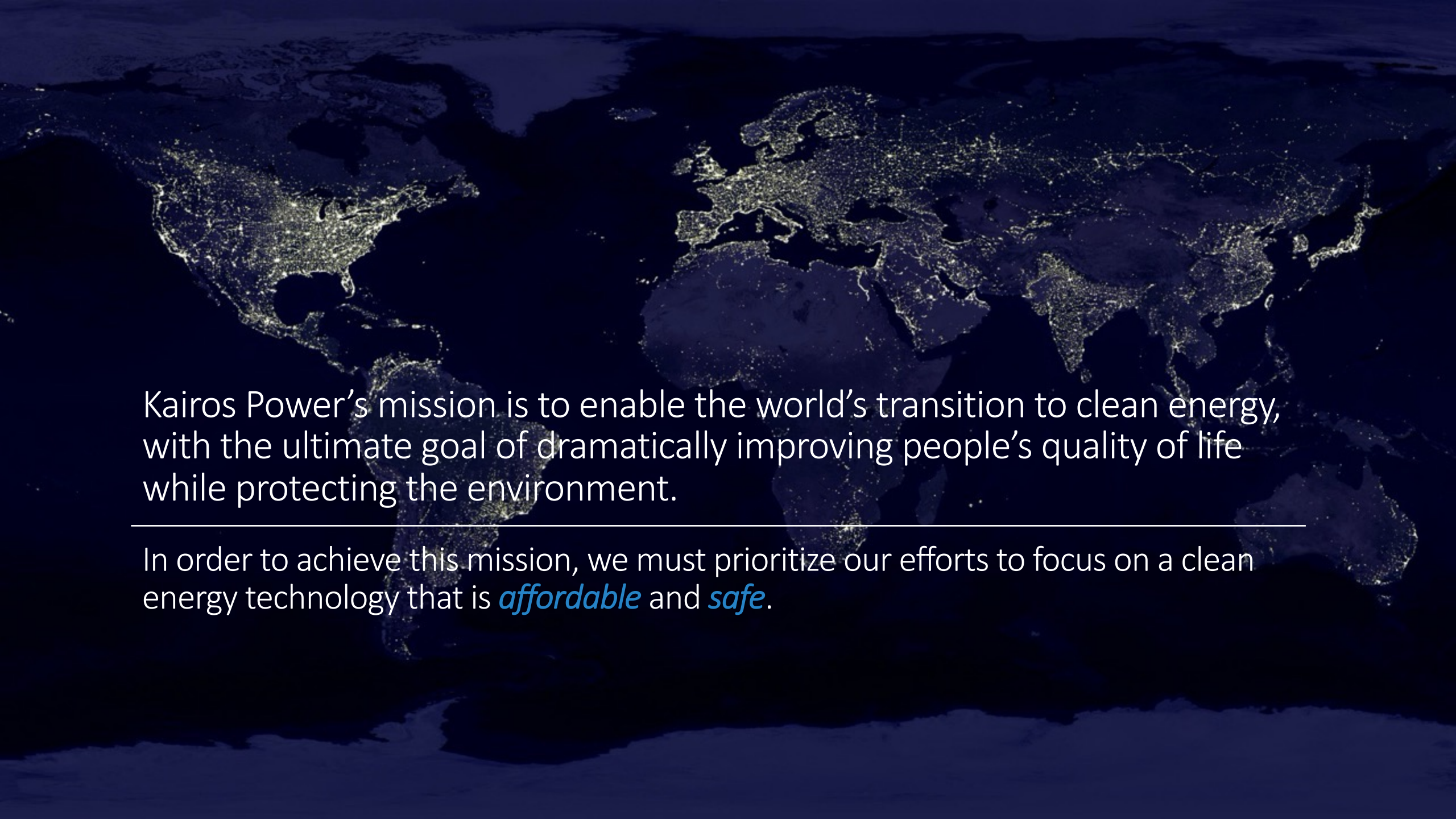
Kairos Power

KAIROS POWER OVERVIEW
2021



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*.

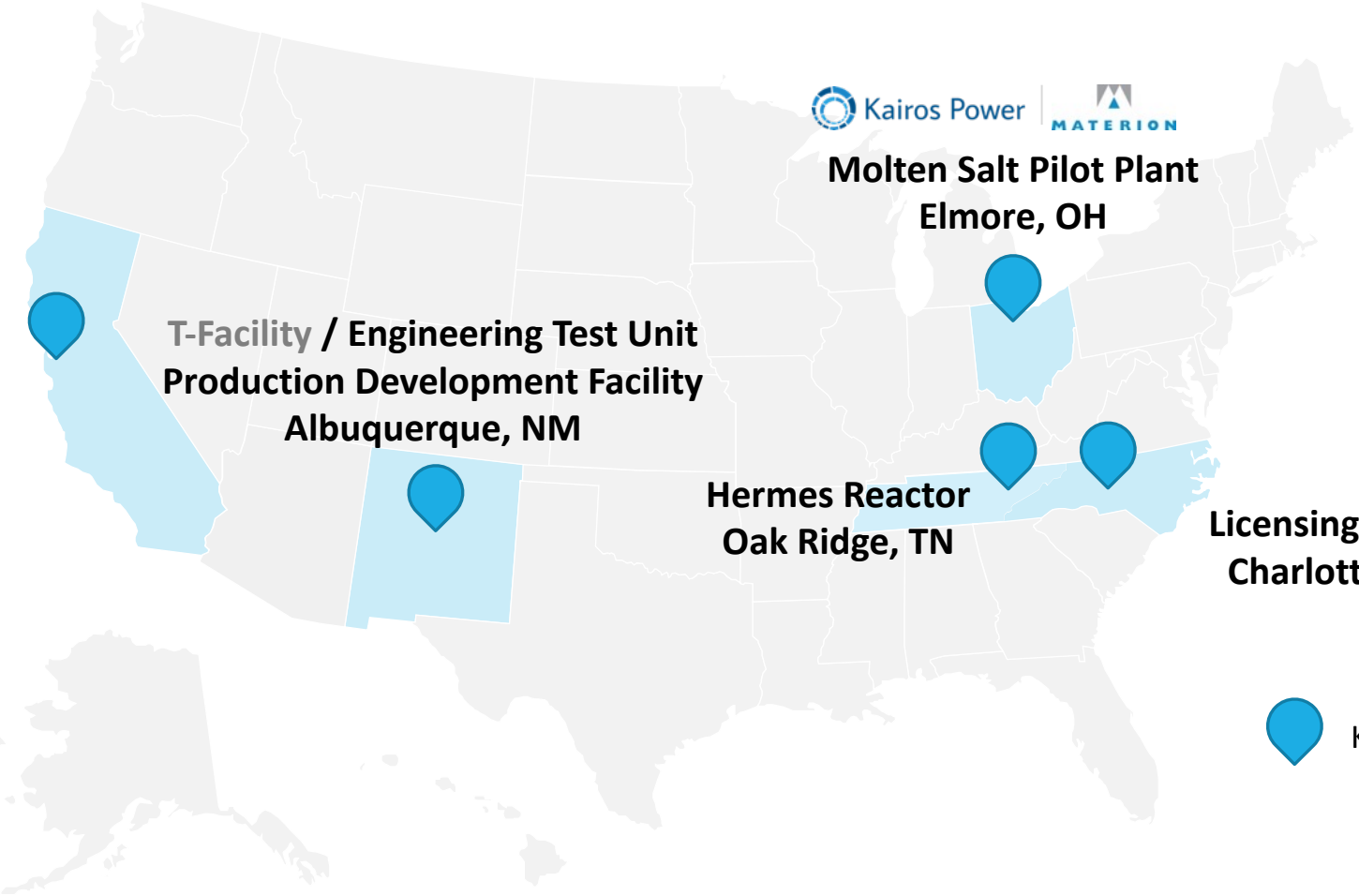
Overview of Kairos Power

- Nuclear energy engineering, design and manufacturing company ***singularly focused*** on the commercialization of the fluoride salt-cooled high temperature reactor (FHR)
  - Founded in 2016
  - Current Staffing
    - 210 Employees (~90% engineering staff)
- Private funding commitment to engineering design and licensing program and physical demonstration through nuclear and non-nuclear technology development program
- 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 U.S. electricity market

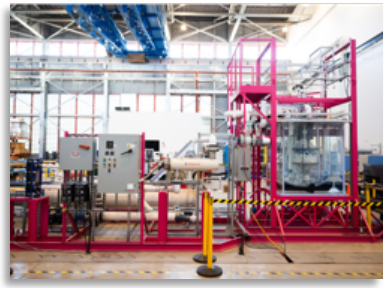
Kairos Power Headquarters

Kairos Power Team

Kairos Power Locations



Internal Milestones and Accomplishments:



R-Lab
Rapid Prototyping and Technology Development

S-Lab
Flibe Chemistry and Materials Testing Lab

T-Facility
Engineering Test Unit
New Mexico Expansion

Hermes Reactor
Site Selection
East Tennessee Technology Park

External Engagement:

Nuclear Regulatory Commission (NRC)
Pre-Application Engagement

DOE Advanced Reactor Demonstration Program (ARDP)
Risk Reduction Award

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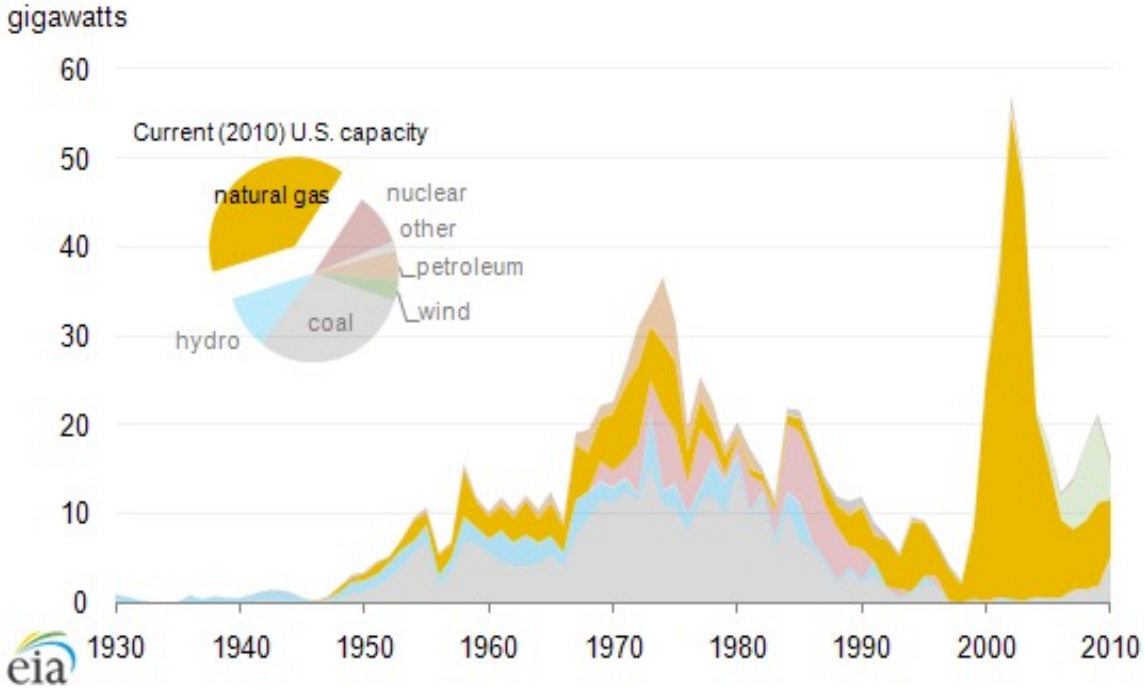
TVA TENNESSEE VALLEY AUTHORITY

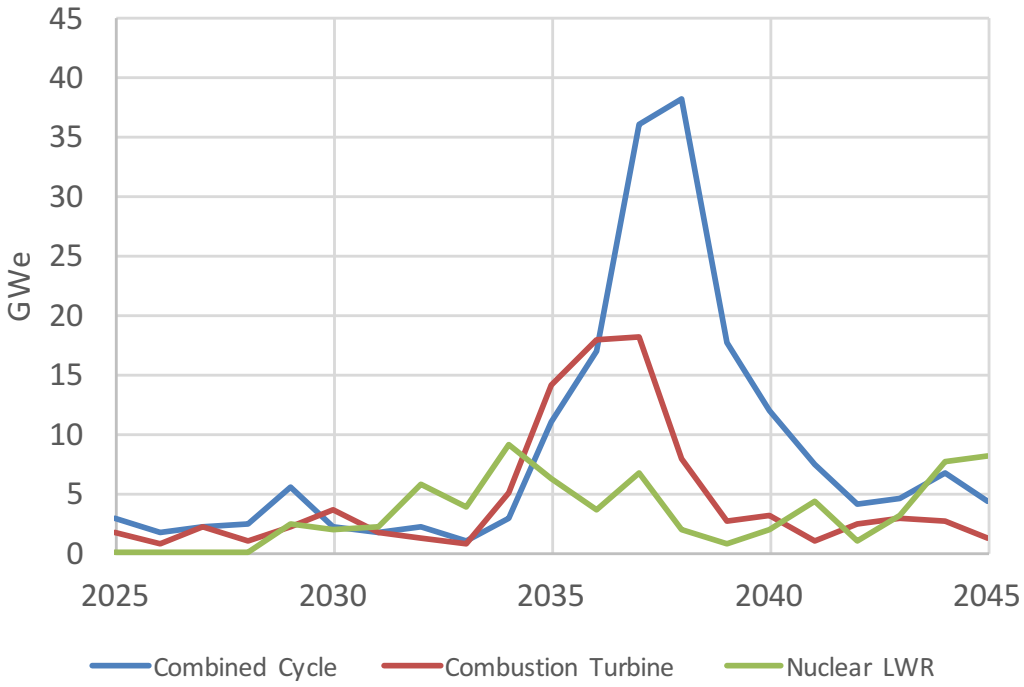
Cooperative Development Agreement
Development & Demonstration Collaboration for Hermes

kairos (def.): the right or opportune moment

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



Annual U.S. Generation Retirements



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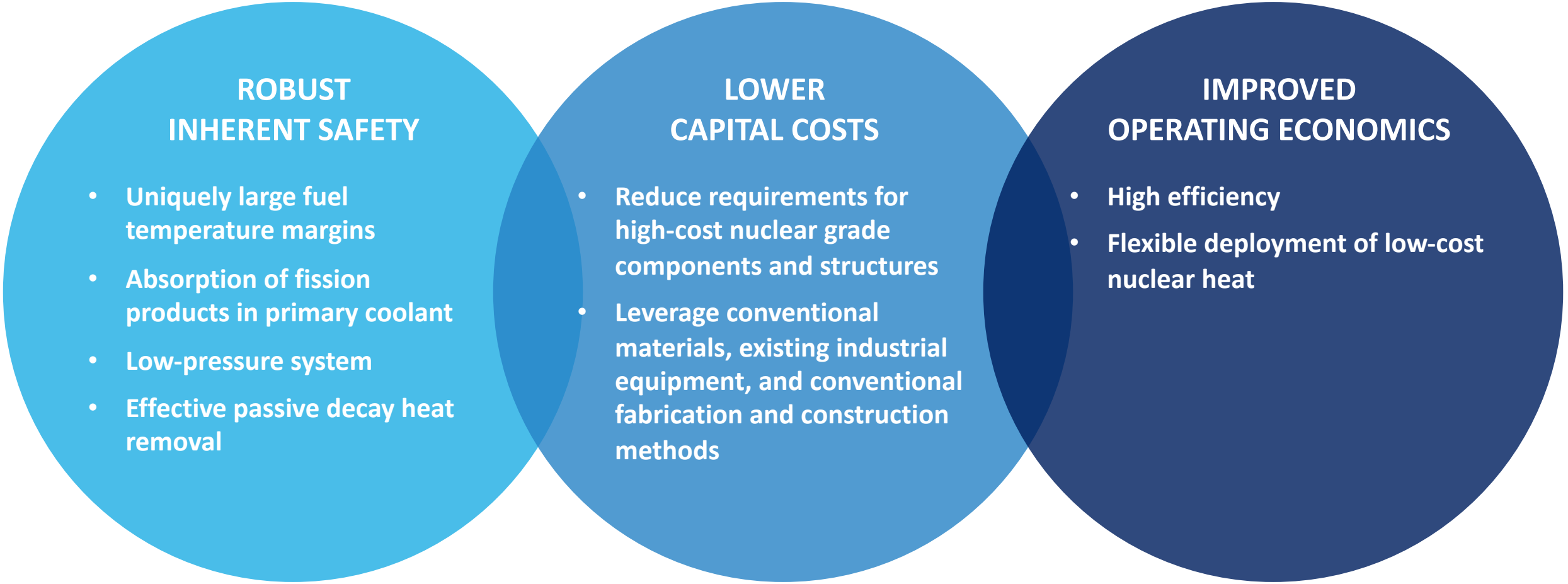
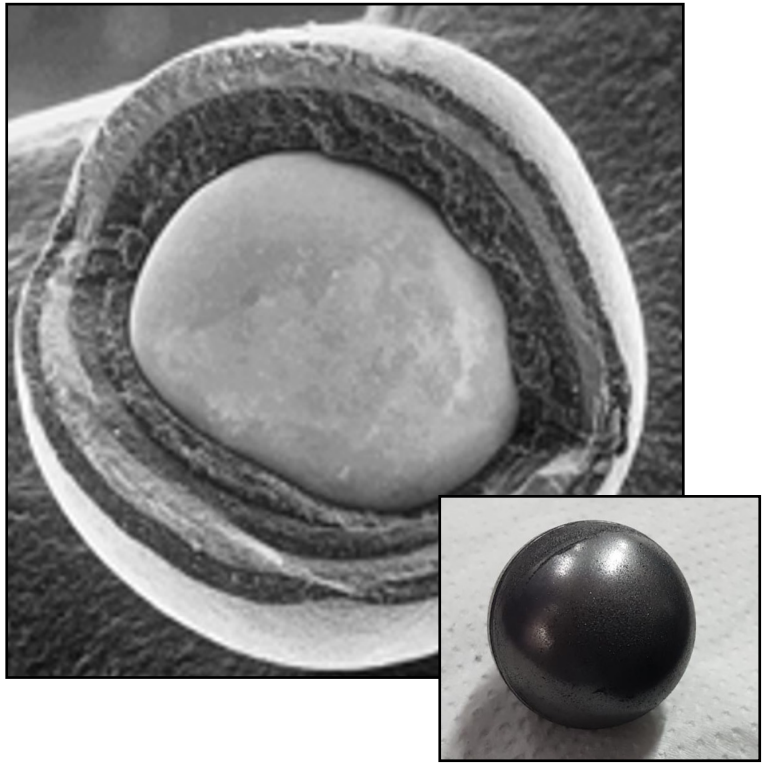
Kairos Power is Uniquely Suited to Supply the Technology to Replace U.S. Natural Gas Capacity



Fluoride Salt-Cooled High-Temperature Reactor (FHR) Technology Basis

Coated Particle Fuel

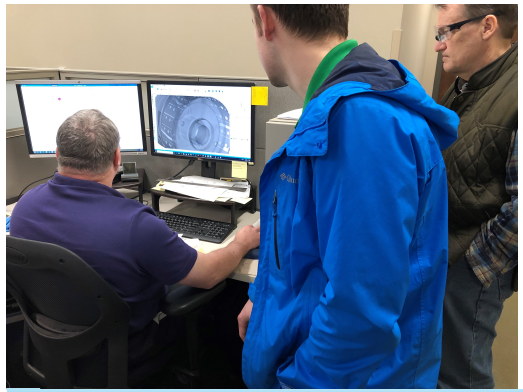
TRISO

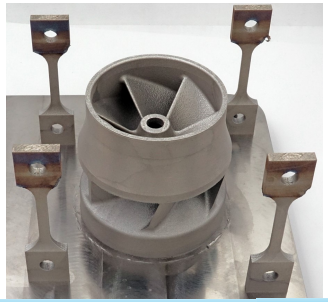


Liquid Fluoride Salt Coolant

Flibe ($2LiF\text{-}BeF_2$)

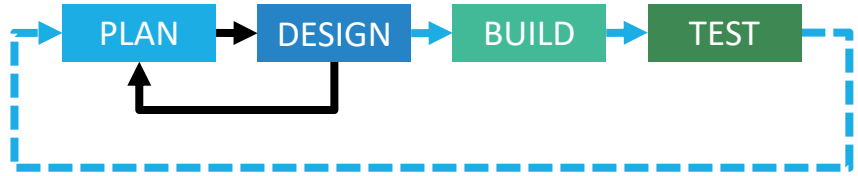
Kairos Power Nuclear Development Paradigm Shift





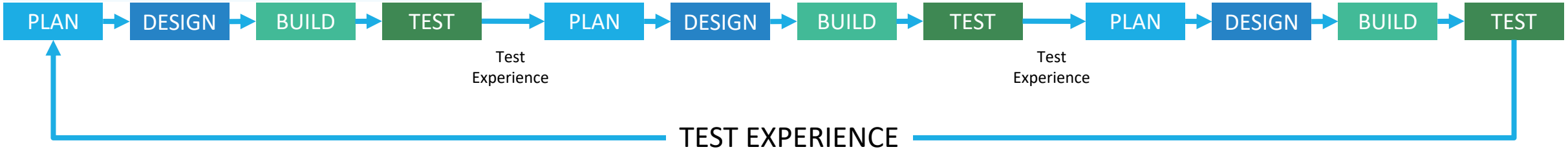
Water testing prototype

Conventional Nuclear Development Cycle



TEST EXPERIENCE

Kairos Power Accelerated Test Cycles for Innovation and Optimization



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Kairos Power Testing Program - Rapid Technology Demonstration Requires Non-Nuclear Development and Qualification Facilities

R RAPID LAB

Rapid Analysis, Prototyping, and Iterative Design Lab

S SALT LAB

Salt Handling and Loop Testing Lab

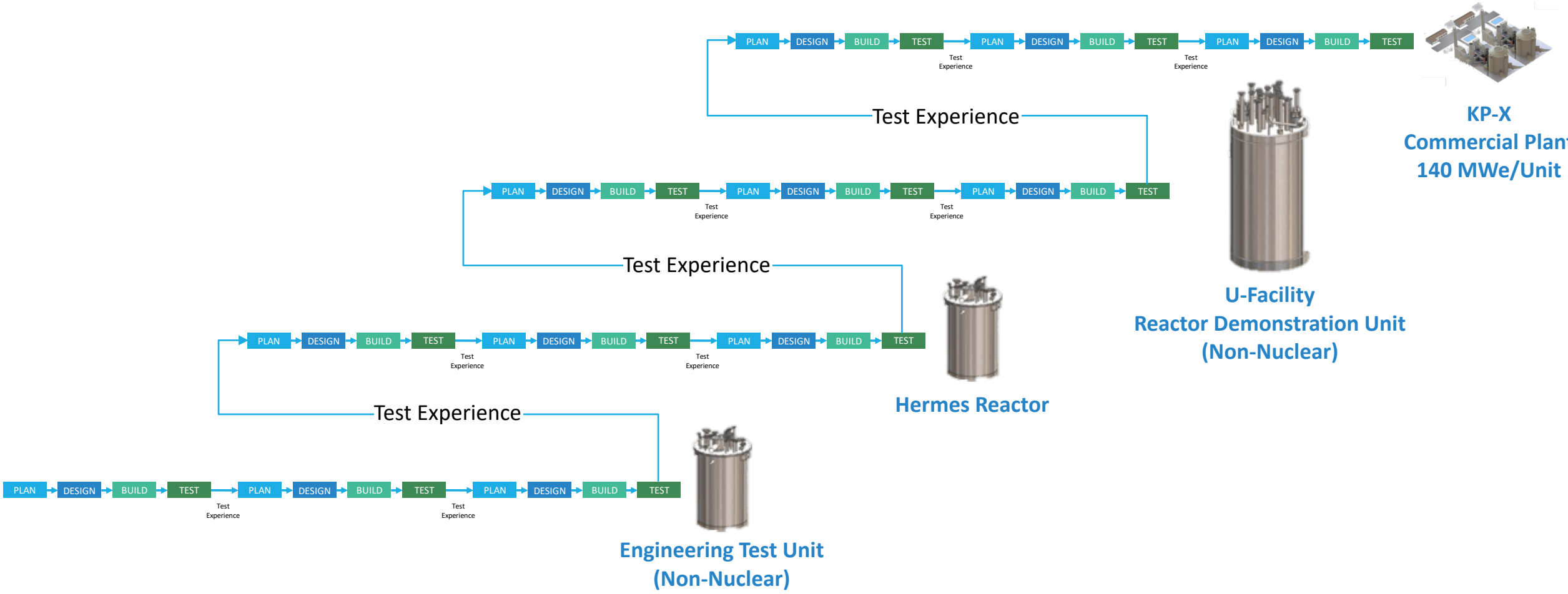
T TESTING FACILITY

Component Testing Facility

U USER FACILITY

User Ops & Maintenance Training Facility

Kairos Power Path to Commercialization: Successive Large-Scale Integrated Demonstrations



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Kairos Power Hermes Reactor Overview

- What?
  - A **low-power demonstration reactor** that will prove Kairos Power's capability to deliver low-cost nuclear heat
- Why?
  - **Cost:** Establish competitive cost through iterative learning cycles
  - **Supply Chain:** Advance the supply chain for KP-FHR specialized components and materials while vertical integrating critical systems
  - **Design / Test**: Deliberate and incremental risk reduction
  - **Licensing Approach:** NRC will license Hermes as a non-power reactor and facilitate licensing certainty for KP-FHR
  - **Operations:** Provide a complete demonstration of nuclear functions including reactor physics, fuel and structural materials irradiation, and radiological controls

Hermes will ultimately demonstrate the U.S. aptitude to license an advanced reactor in a timely manner

Kairos Power Receives U.S. DOE ARDP Award

- Kairos Power is a recipient of an **Advanced Reactor Demonstration Program (ARDP)** award for Risk Reduction funding to support development of the Hermes reactor
- This is a cost-shared partnership between the DOE and industry to demonstrate advanced nuclear technology in the United States
- The total award value over the next seven years is **$629 million** (DOE share is $303 million)
- Kairos Power is partnering with Materion Corporation, Oak Ridge National Laboratory, Idaho National Laboratory, and Electric Power Research Institute on this project

Kairos Power Selects Oak Ridge Site to Deploy Hermes

- Kairos Power has acquired the former K-33 gaseous diffusion plant site at the East Tennessee Technology Park
- Hermes will achieve criticality in **2026**
- Hermes leverages proven technologies that originated in Oak Ridge with the Molten-Salt Reactor Experiment (MSRE) in the 1960s
- Kairos Power is investing **$100 million** and creating **55+ full-time jobs** to support construction and operation of Hermes
- Hermes is a collaborative effort by Kairos Power and our partners

OAK RIDGE National Laboratory

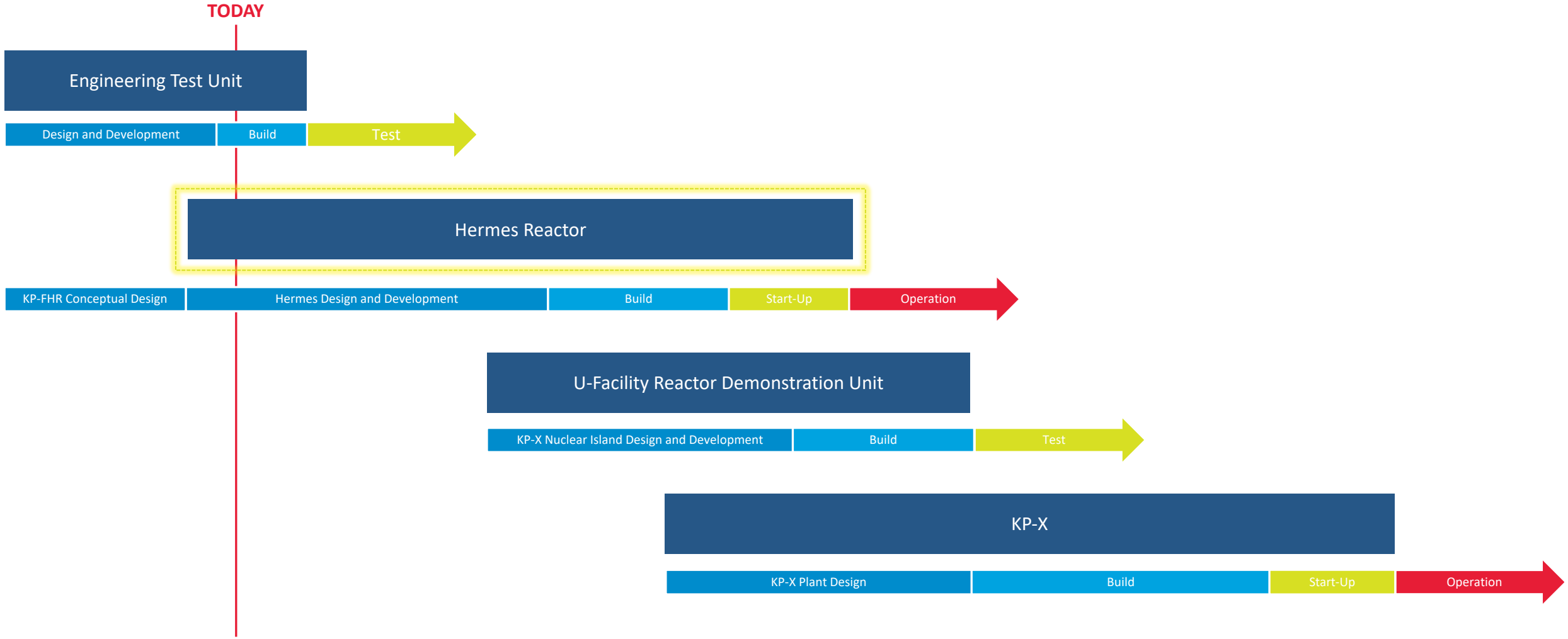
INL Idaho National Laboratory

EPRI ELECTRIC POWER RESEARCH INSTITUTE

MATERION

TVA TENNESSEE VALLEY AUTHORITY

Kairos Power Development Schedule



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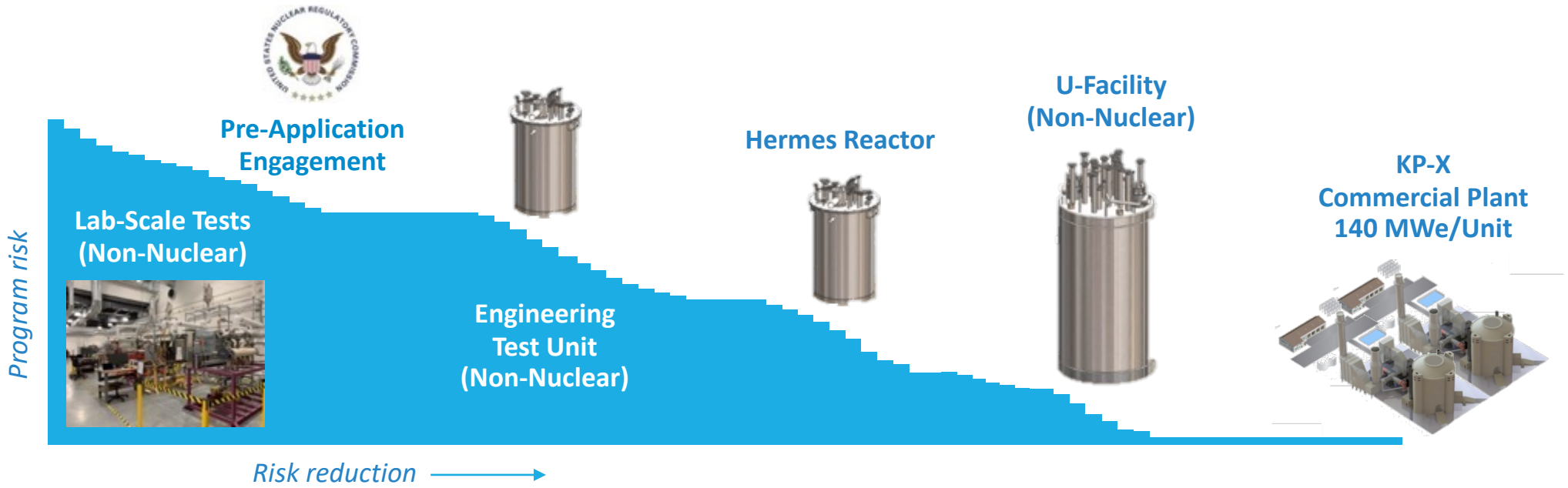
Risk Reduction

- Kairos Power is significantly retiring risk to commercial deployment:
  - **Technical** and **Cost** risk via iterative development and Hermes reactor
  - **Regulatory** risk via comprehensive pre-application engagement
  - **Commercial** risk via full-scale U-Facility




Learn more at kairospower.com