

Overview of NE's High-Assay Low Enriched Uranium (HALEU) Program

Andy Griffith

Deputy Assistant Secretary

Office of Nuclear Fuel Cycle and Supply Chain



U.S. DEPARTMENT OF
ENERGY

Objectives

NE HALEU Program Objectives

Taking vital steps to help initiate and facilitate creation of a HALEU pipeline for advanced reactors

- Understanding technical, infrastructure, and regulatory needs
- Competitive awards for use of DOE-owned HALEU for reactor demos
- Development of head end treatment and HEU recovery systems (ZIRCEX)
- Co-funding HALEU enrichment demonstration with Centrus

Workshop Objectives

- Inform stakeholders on current challenges associated with HALEU
 - Understanding and estimating demand
 - Enrichment, conversion, and deconversion capabilities
 - Transportation
 - Legislative and regulatory issues
- Discuss “division of labor”: where government and private roles connect
- Inform DOE of steps we should take

Status of NE HALEU Activities

HEU Recovery (plus down-blending)

- Accelerated treatment of EBR-II fuel (2022 – 2025) (5-10 MT)
- Exploring Hybrid ZIRCEX processing of DOE-owned fuel (2026 – 2036)



Enrichment Demonstration Program

- DOE/Centrus AC100M HALEU Cascade Demonstration, 2019-2022
- Demonstrate capability to produce HALEU with existing US-origin technology and provide DOE with a small quantity of HALEU for its use in research and development of advanced reactor concepts
- NRC License amendment allowing enrichment up to 19.75%
- 200 – 600 kg production target



Supply Chain Considerations

How might a HALEU supply chain look different from a traditional LEU fuel supply?

- **Demand**
 - Understanding HALEU feedstock demand and material types
 - Projecting timing and market factors
- **Technical**
 - Enrichment capability needs
 - Transportation
- **Regulatory**
 - Strategy for predictable licensing cost and schedule
- **Legislative**
 - Meeting Congressional directives
 - Providing necessary program support and incentives

Discussion: Stakeholder Roles

Roles to successfully address the barriers to create the “market draw”

- Future Users
 - Industry
 - Government
- Fuel Fabricators
- Transport System Vendors
- Enrichers/Suppliers

How are users, fabricators, transporters, and enrichers engaging with one another to address technical and infrastructure gaps?

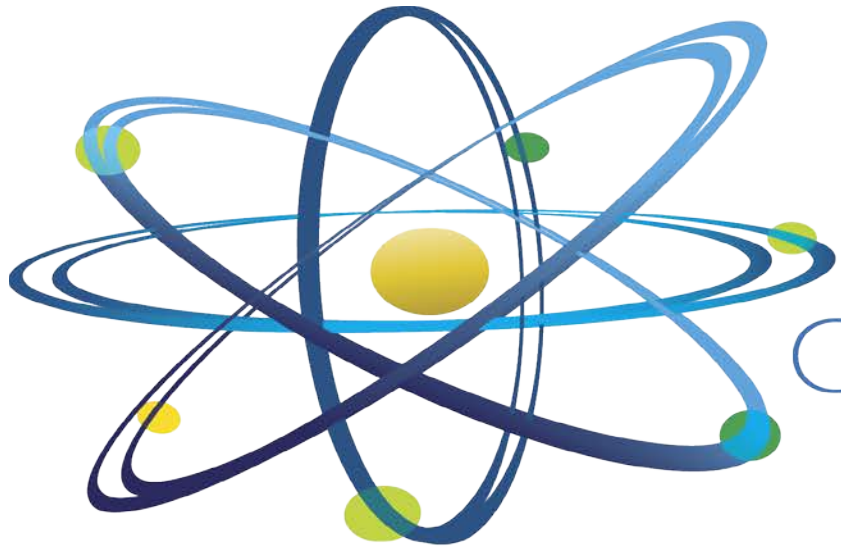
DOE Focus & Conclusions

NE wants to facilitate the best outcome:

Helping connect the “links” of the supply chain to create a diversified, competitive, and healthy HALEU fuel market

- Providing opportunities for developers
- Mitigating schedule risk by providing material for development and demonstration
- Mitigating regulatory risk by demonstrating enrichment technology

Collectively, more actions are needed. This workshop aims to encourage all participants to work together to accomplish this “healthy marketplace” objective.



Clean. **Reliable. Nuclear.**