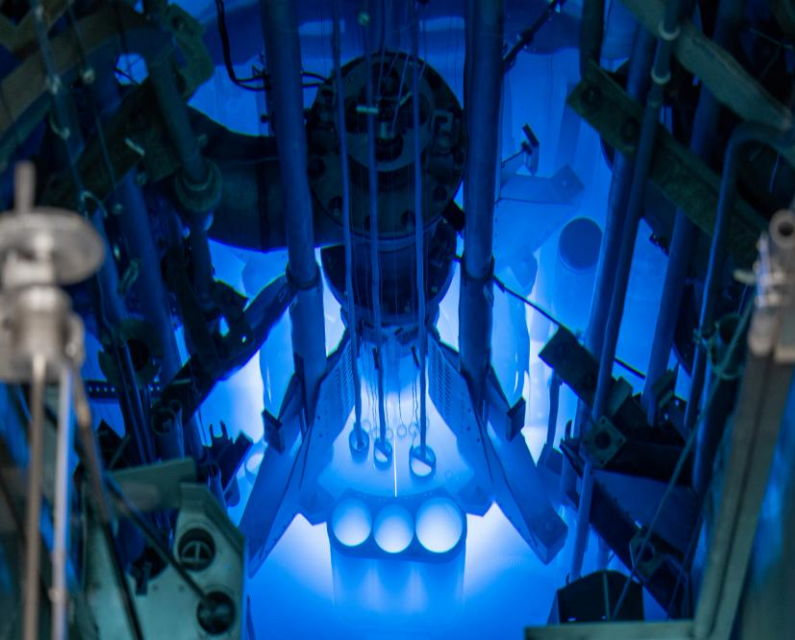




September 22, 2026

Douglas Morrell
UFS Project Manager



2026 Status Report

DOE University Fuel Services Program

Battelle Energy Alliance manages INL for the
U.S. Department of Energy's Office of Nuclear Energy



Topics for Discussion

01

**Overview of the University
Fuel Services Program**

02

**Accomplishments During the
Past Year**

03

TRIGA Fuel Fabrication

04

2027 Forecast



Quality inspection of a MURR fuel element

Purpose of the UFS Program

**Provide fresh nuclear reactor fuel to U.S.
universities at no or low cost.**

Title of fuel remains with the U.S. government and used fuel is returned to the government when universities are finished with it.

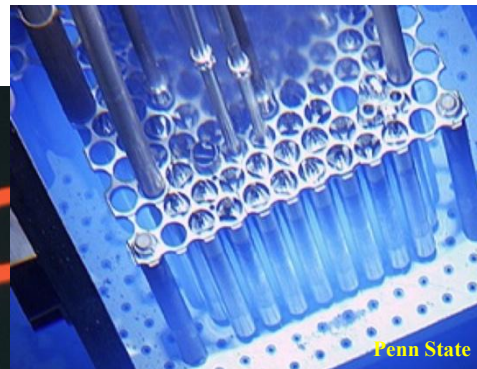
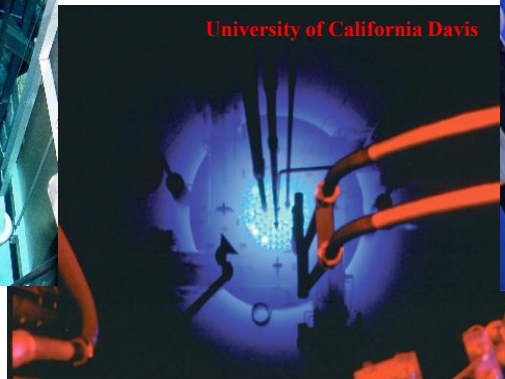
1 Supply
fresh reactor fuel



2 Support
university operations



3 Return
fuel to U.S.
government



UFS does NOT...

UFS does not provide the following:

01

Develop new fuel types

for NRC review and approval.

02

Provide HALEU or enriched uranium

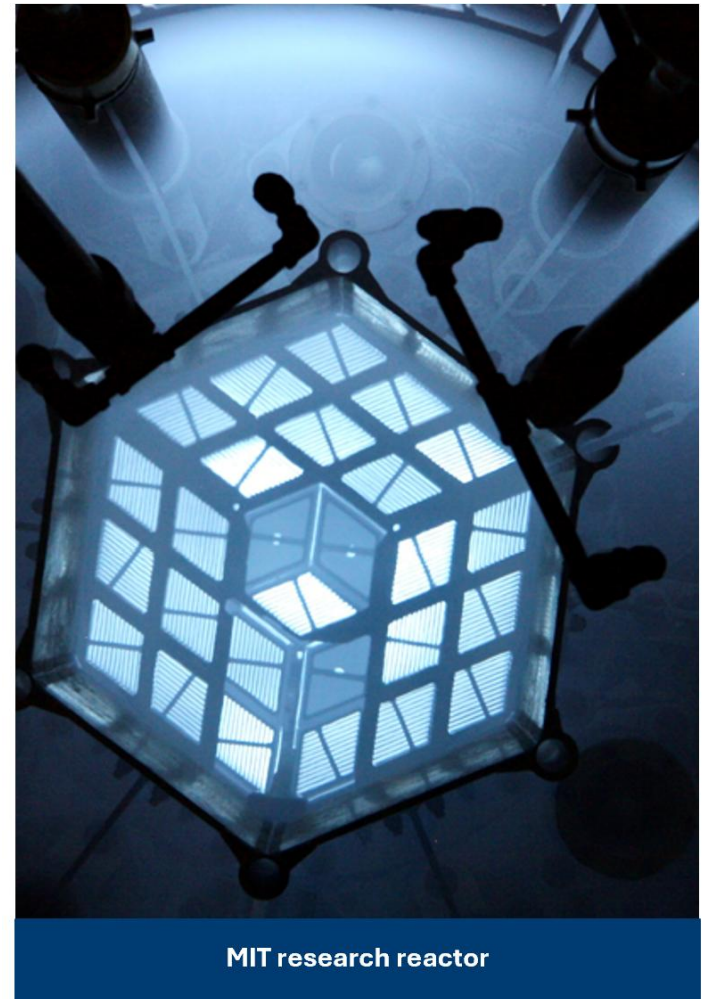
directly to universities.

03

Provide reactor operation equipment

or ancillary components related to fuel fabrication or assembly.

Focus: fuel supply stewardship, not R&D approval pathways or facility operations.



MIT research reactor

Program Management

FEDERAL OVERSIGHT

DOE-HQ



Andrew Boulanger

DOE-ID



Nathan McBride

IDAHO NATIONAL LABORATORY

Program Lead



Doug Morrell

Project Manager

Quality (Idaho)



Melanie Sokoine

Quality Engineer

Quality (Virginia)



Tom Chambers

Quality Engineer

The University Fuel Services Program

DOE-funded support for university research reactor fuel operations

24

U.S. universities
supplied with DOE owned nuclear
reactor fuel

University Fuel Services Program is ...

- Funded by **U.S. Department of Energy**
- Managed by **DOE-HQ and DOE-ID Operations Office**
- Contracted to **INL M&O contractor — Battelle Energy Alliance**
- In Idaho since **1977**

University Facility supported by UFS

12

TRIGA

8

Plate fuel

3

AGN

1

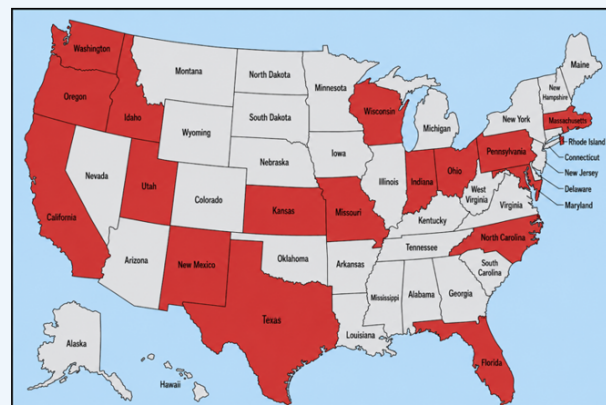
Pulstar

1

Critical

Nationwide university reactor network

States with participating facilities highlighted



Program scope

Fresh fuel supply for research and training reactor operations

University TRIGA Reactor Facilities



12

TRIGA
facilities

- Kansas State University
- Oregon State University
- Penn State University
- Reed College
- Texas A&M
- UC Davis
- UC Irvine
- University of Maryland
- University of Texas at Austin
- University of Utah
- University of Wisconsin
- Washington State University

University Plate Fuel Reactor Facilities



- Massachusetts Institute of Technology
- Missouri University of S&T - Rolla
- Ohio State University
- Purdue University

- Rhode Island Nuclear Science Center
- University of Florida
- University of Massachusetts - Lowell
- University of Missouri - Columbia



Other University Reactor Facilities



5

Other Reactor
facilities

- **AGN Reactors**
 - Idaho State University
 - Texas A&M
 - University of New Mexico
- **Pulstar Reactor**
 - North Carolina State University
 - Critical Facility
 - Rensselaer Polytechnic Institute

Reactor Power Levels

University research reactor facilities listed by power levels

25 facilities

10 MW highest power

1 W lowest power

Facility	Power	Facility	Power
University of Missouri – Columbia	10 MW	Washington State University	1 MW
Massachusetts Institute of Technology	6 MW	Ohio State University	500 kW
University of California – Davis	2 MW	Reed College	250 kW
Rhode Island Nuclear Science Center	2 MW	University of California – Irvine	250 kW
Kansas State University	1.25 MW	University of Maryland	250 kW
Oregon State University	1 MW	Missouri University of S&T	200 kW
University of Texas, Austin	1 MW	University of Florida	100 kW
North Carolina State University	1 MW	University of Utah	100 kW
Pennsylvania State University	1 MW	Purdue University	10 kW
Texas A&M University	1 MW & 5 W	Idaho State University	5 W
University of Massachusetts – Lowell	1 MW	University of New Mexico	5 W
University of Wisconsin	1 MW	Rensselaer Polytechnic Institute	1 W

2026 Accomplishments

Fresh Fuel

Fuel delivered. Operations sustained. Inventory secured.

PLATE FUEL

Supported MURR and MIT

Provided fuel so both reactors can maintain operations at current power levels.

TRIGA FUEL

Completed fuel transfers

Shipped 121 TRIGA fuel elements to INL CPP-651 for storage.



Fresh reactor fuel elements prepared for shipment and storage

2026 Accomplishments

Used Fuel

Used-fuel shipments completed and prepared for secure receipt.

3

Used fuel shipments

MURR → Savannah River Site

Receipt facility accepted three shipments of used nuclear fuel.

64

TRIGA fuel elements

Penn State University → INL

Prepared first used TRIGA fuel shipment to INL in 15+ years.



DOE-owned BRR cask

TRIGA Fuel Fabrication Status

227

fabricated, inspected
and certified

30

sent to
Penn State

165

sent to INL
for storage

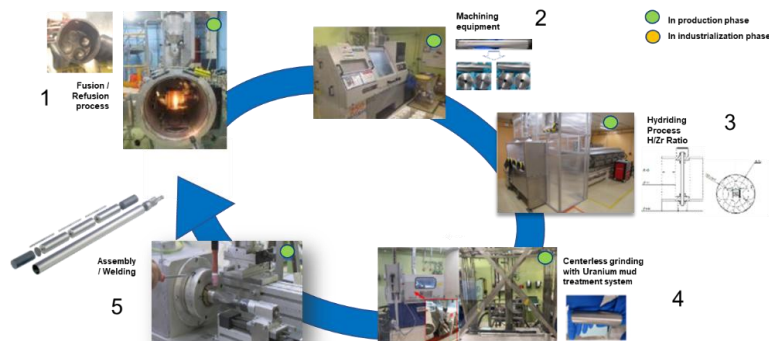
Production update

Fabrication line is in full production mode.

Certified elements have been delivered to Penn State and to the INL fresh TRIGA fuel storage facility.

MARVEL fuel elements are currently being fabricated

Status date: September 1, 2026.



TRIGA Fuel Fabrication Status

TRIGA Fuel elements fabricated to date

Standard elements

- 8.5 wt% Standard Elements
- 12 wt% Standard Elements
- 30 wt% Standard Elements

Instrumented elements

- 8.5 wt% Instrumented Elements
- 12 wt% Instrumented Elements

Cluster elements

- 8.5 wt% Standard Cluster (Conversion)
- 30 wt% Standard Cluster (Conversion)
- 30 wt% Instrumented Cluster (Conversion)

Representative TRIGA fuel elements



TRIGA Standard Fuel Element



TRIGA 4 Element Fuel Cluster (MTR Conversion)

TRIGA Fuel Fabrication Status

227 TRIGA
elements
fabricated
to date

Fabrication contracts awarded

Three TRIGA fuel fabrication contracts have been awarded for a total of 227 TRIGA elements fabricated. Fourth fuel fabrication contract is currently be negotiated.

Storage at reactor facilities

Reactor facilities may need to work with the NRC to increase possession limits and increase physical storage space before receiving new fuel elements.

Fresh fuel shipping package

UFS is relicensing the ATR fresh fuel shipping container to replace aging TRIGA1 and TRIGA2 containers.



TRIGA fuel elements at Penn State University

2027 Forecast

Maintain operating power levels while advancing fuel fabrication and used-fuel returns.

Fresh fuel fabrication

- Provide fuel to MURR and MIT to maintain current operating power levels
- Continue fabrication of TRIGA fuel elements

Used fuel shipments

- Complete three used fuel shipments from MURR
- Complete one used fuel shipment from MIT
- Complete one used fuel shipment from Penn State
- Prepare for a used fuel shipment from UC-Davis



Requests for Assistance

What the UFS program needs from reactor facilities

1

Annual report data

UFS will request data for the Annual Report submitted to the Department of Energy.

2

Shipment planning lead time

Communicate future fresh-fuel or spent-fuel shipment needs at least two years in advance — preferably longer.

3

Documentation required

Provide justification by e-mail or official letter notification to support each request.

Planning window

2+ YEARS

Minimum advance notice for fuel shipment requests

Earlier notification is preferred to support scheduling, packaging, and documentation.

Program Office Contact

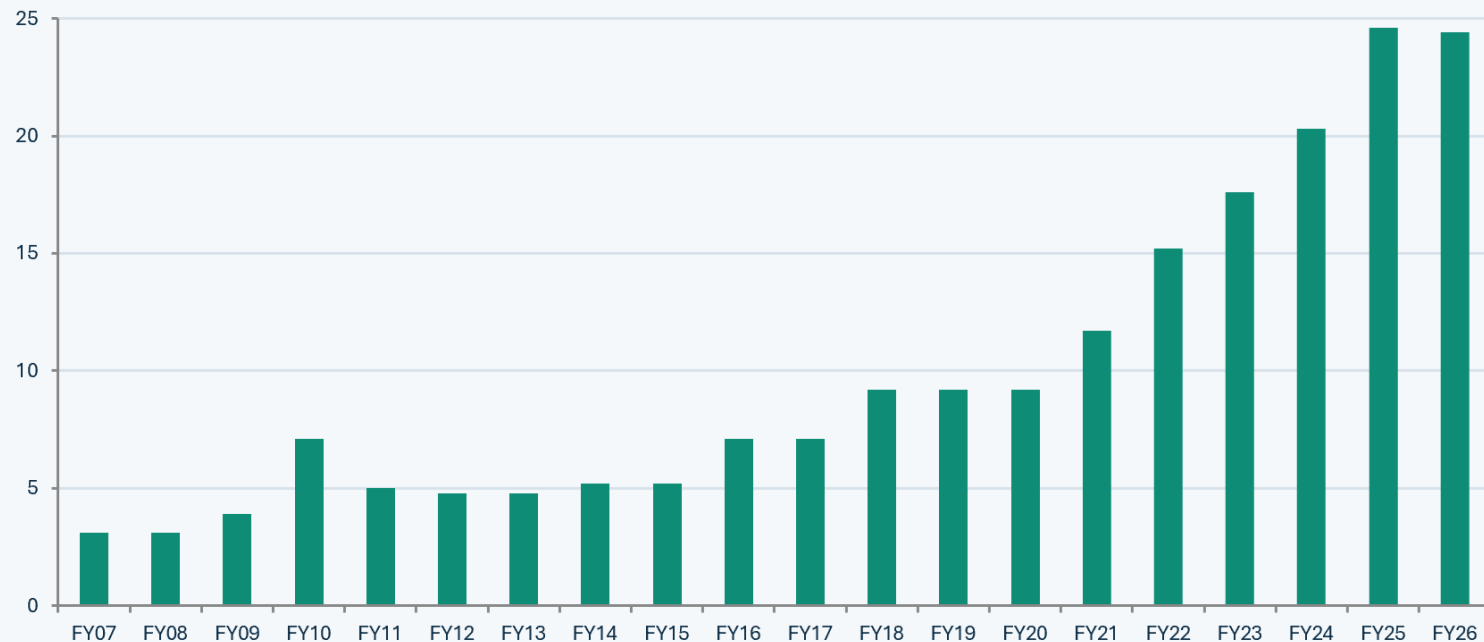
Doug Morrell

(208) 201-6595

Funding Profile

FY26
\$24.4M

Annual programmatic funding by fiscal year



Funding in millions of dollars.

Long-term growth
~8× increase since FY07

UFS Team Members

DOE Program sponsor

INL Program coordination

Universities Research reactor facilities



Easy Questions?

