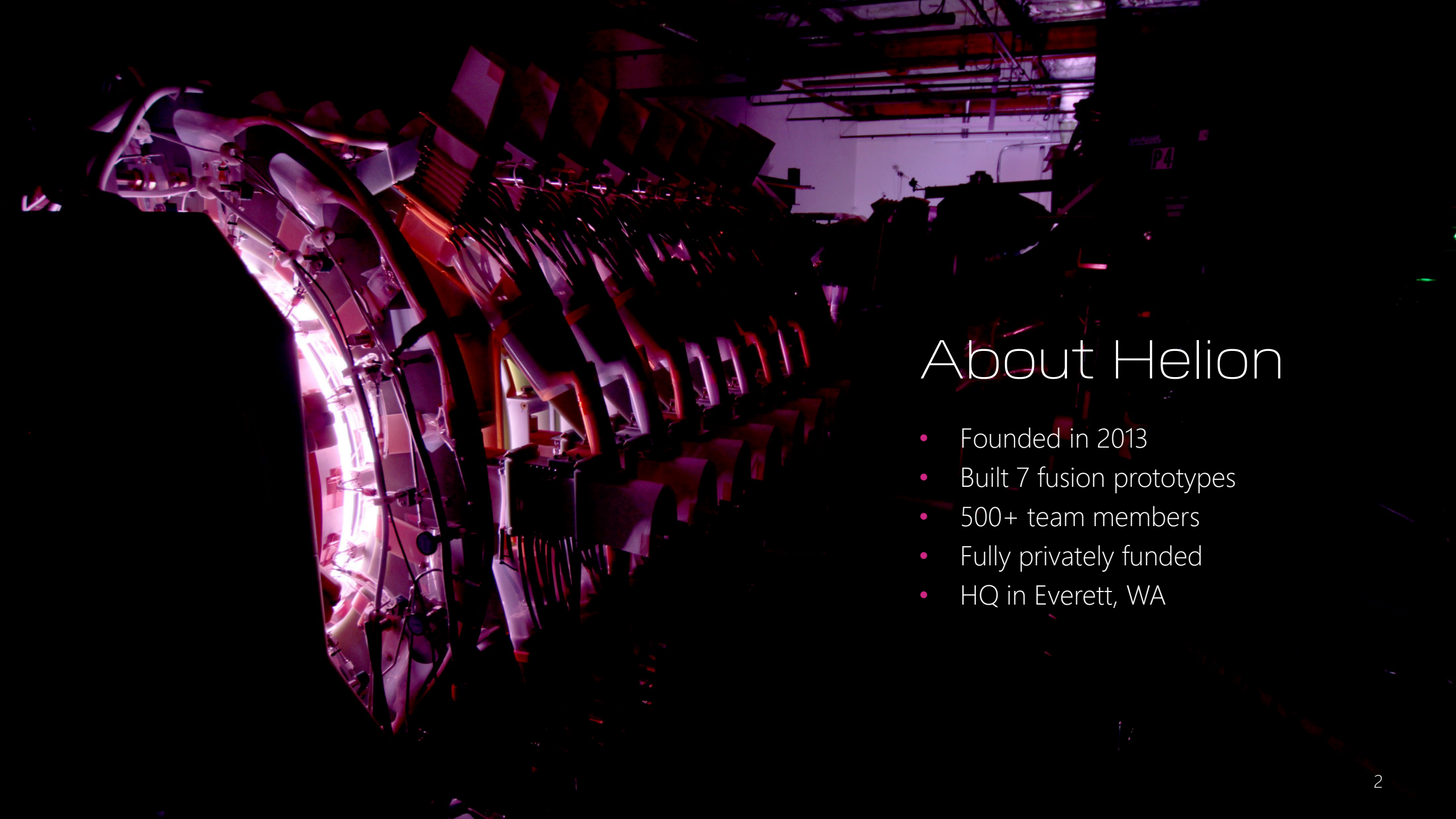


Helion Introduction and Perspective on Codes & Standards

Andrew Proffitt, Senior Director – Regulatory Policy

November 2025





About Helion

- Founded in 2013
- Built 7 fusion prototypes
- 500+ team members
- Fully privately funded
- HQ in Everett, WA

Accelerating commercialization

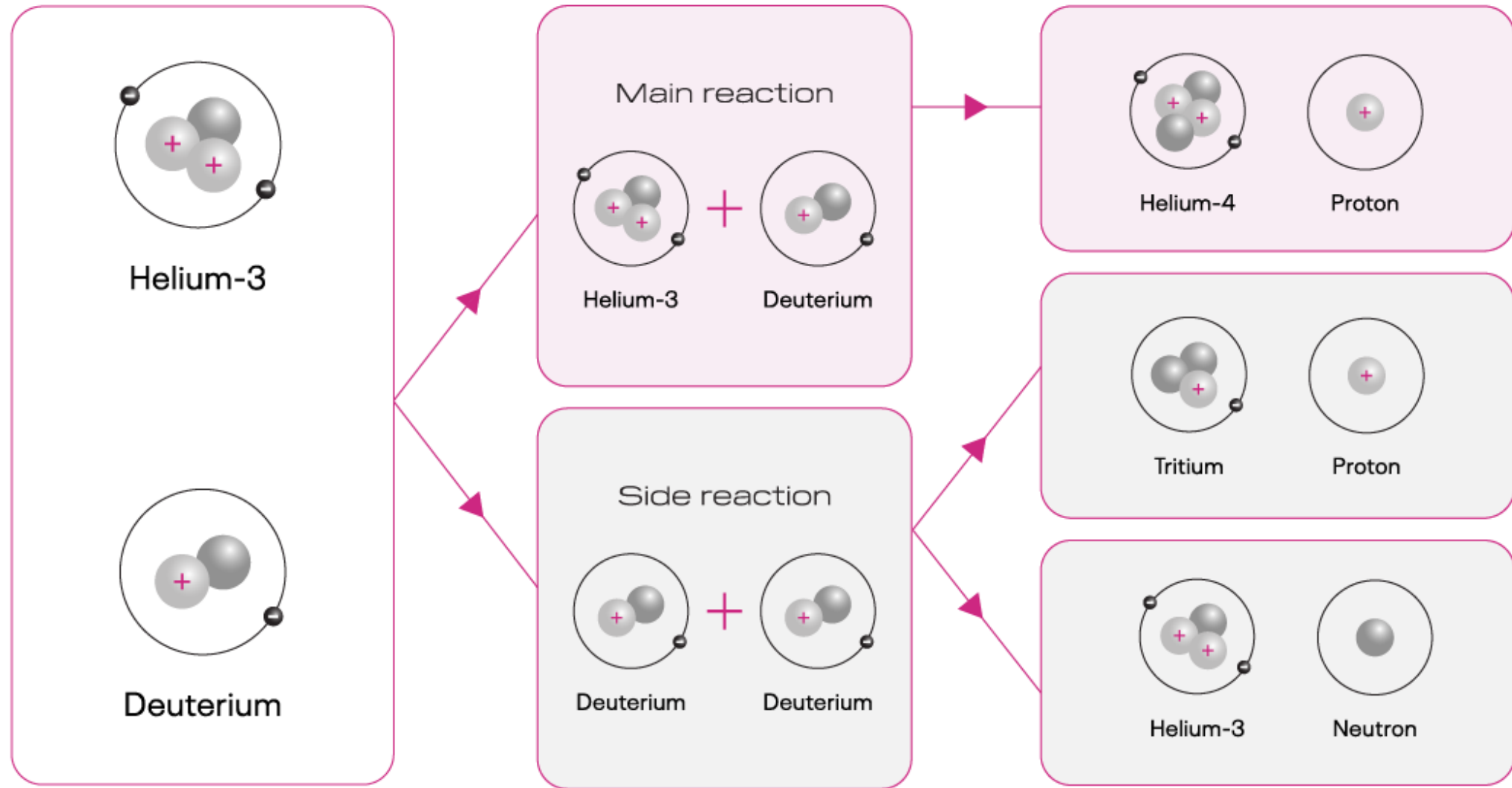
Helion's approach:

- Pulsed
- Direct energy conversion
- Manufactured components



Trenta, Helion's 6th fusion prototype

Fusion produces more fuel and valuable byproducts



1 Formation

Deuterium and helium-3 are heated to plasma conditions. Magnets confine the plasma in a Field Reversed Configuration (FRC).

2 Acceleration

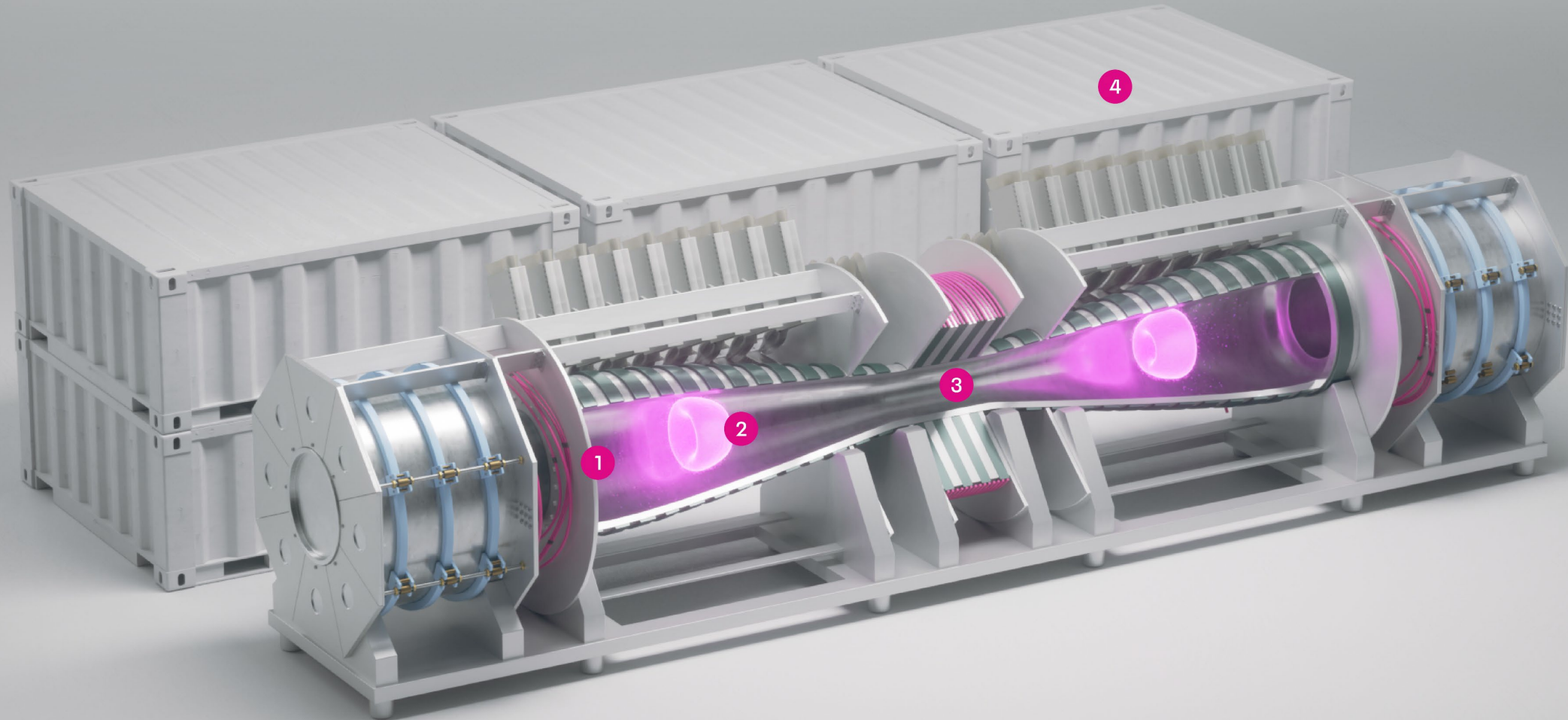
Magnets accelerate the FRCs until they collide in the center of the machine.

3 Compression

The merged plasma is compressed until it reaches 100 M°C. Fusion occurs and the plasma expands.

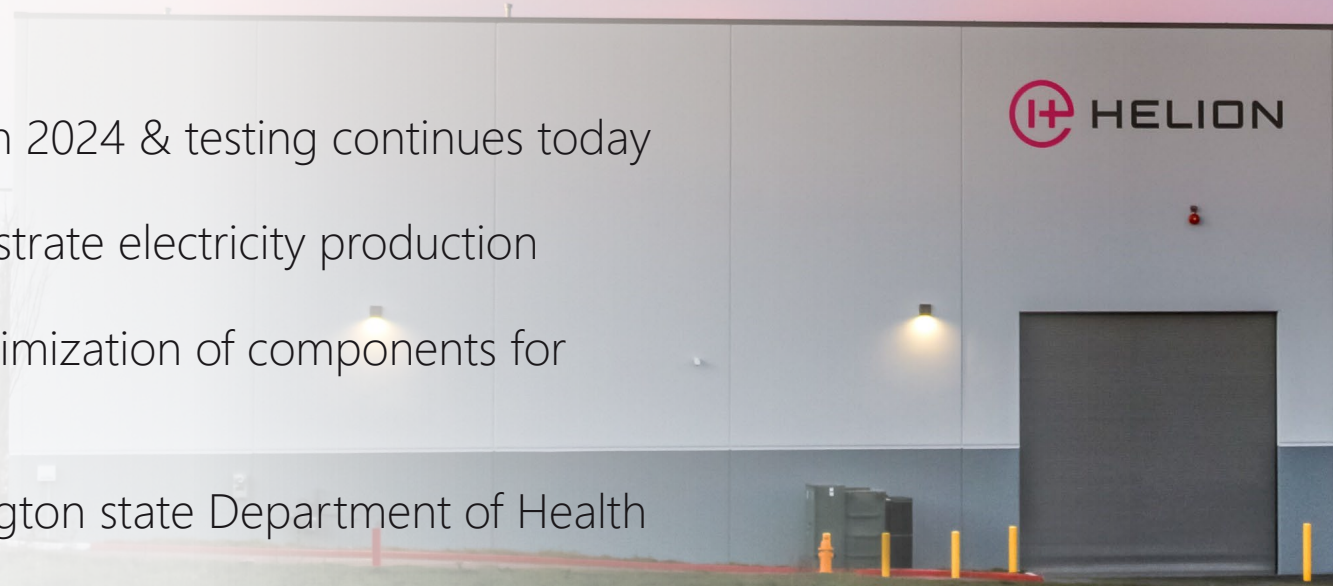
4 Electricity Recapture

As the plasma expands, it pushes back on the magnetic field. The change in field induces current, which is directly recaptured as electricity.

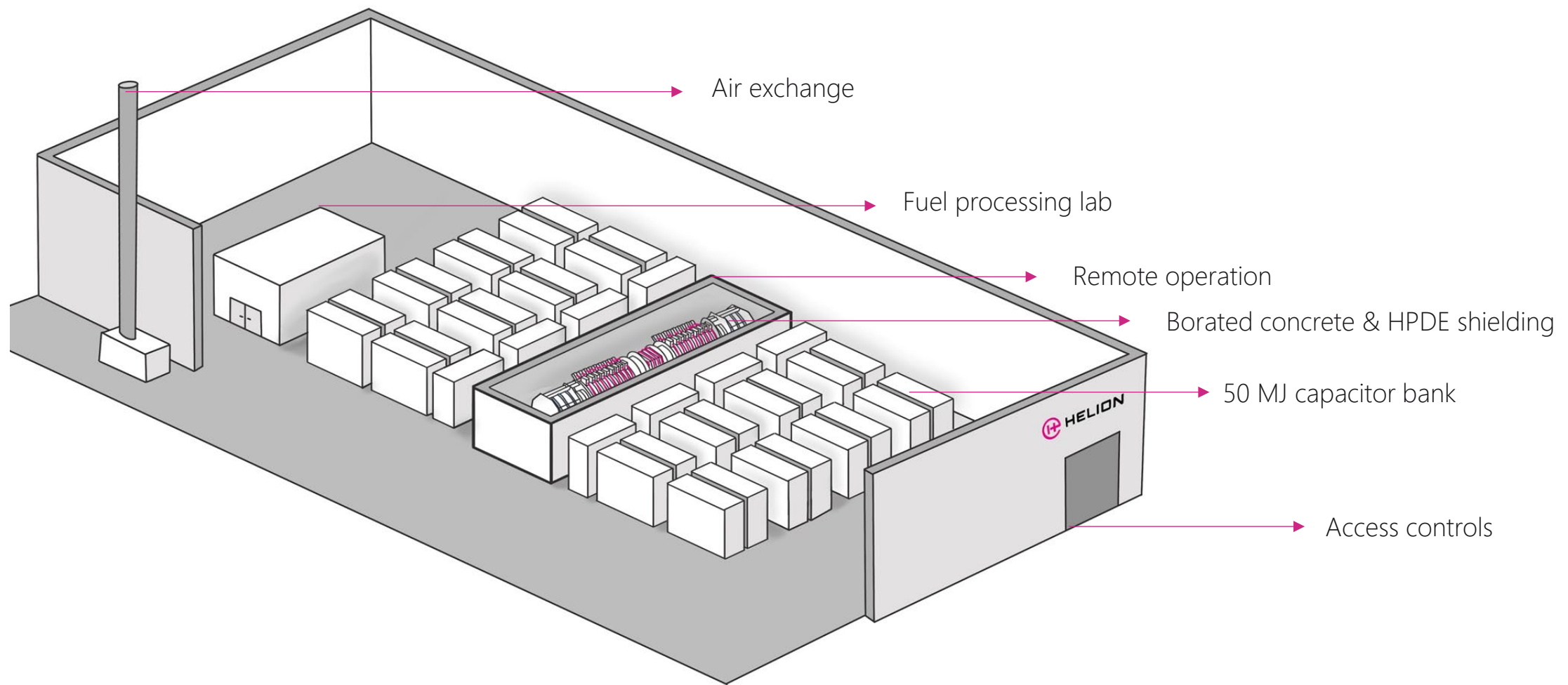


Doing fusion today in Everett, WA

- Operations began in 2024 & testing continues today
- Expected to demonstrate electricity production
- Polaris supports optimization of components for commercial systems
- Licensed by Washington state Department of Health



















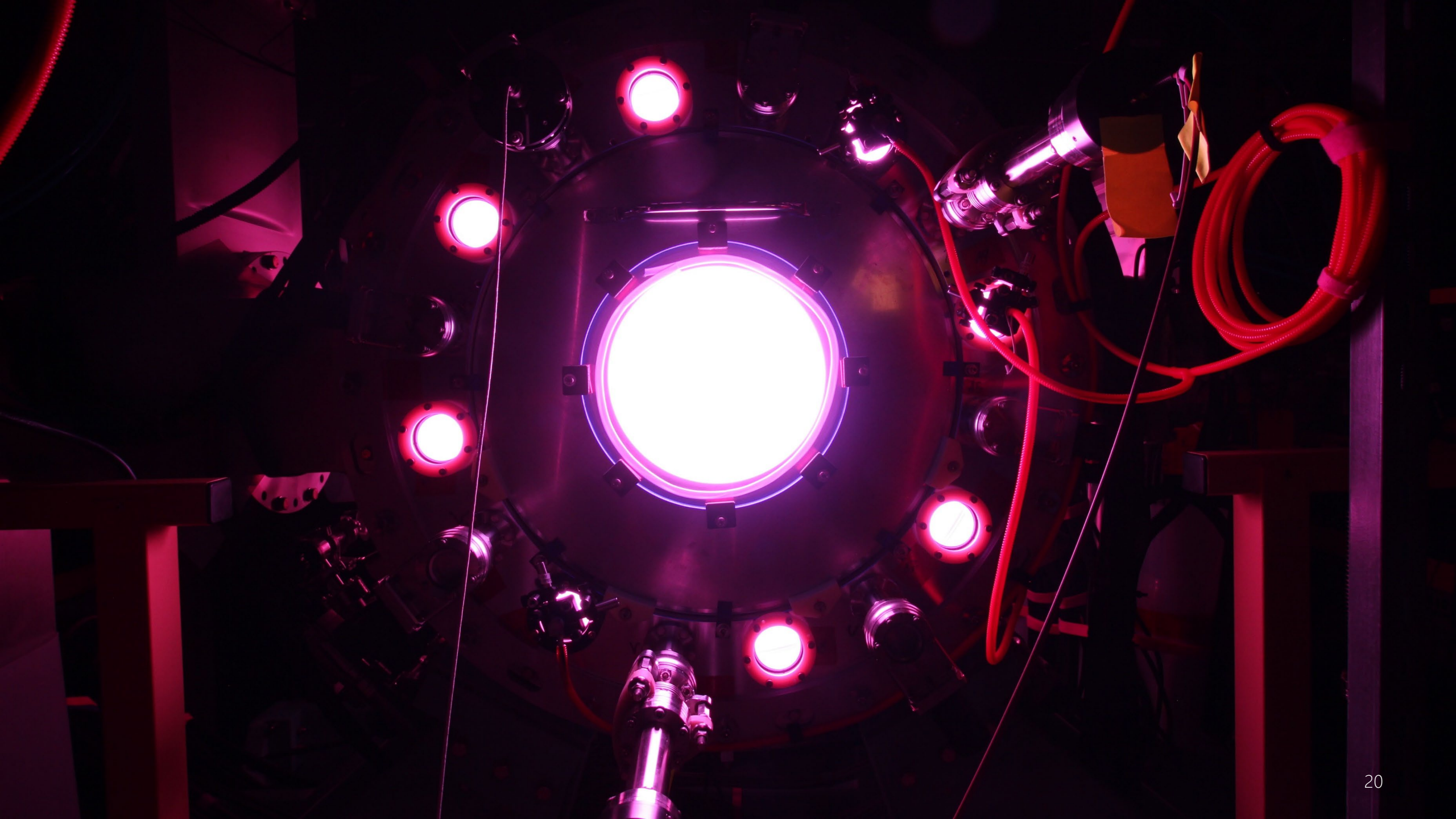






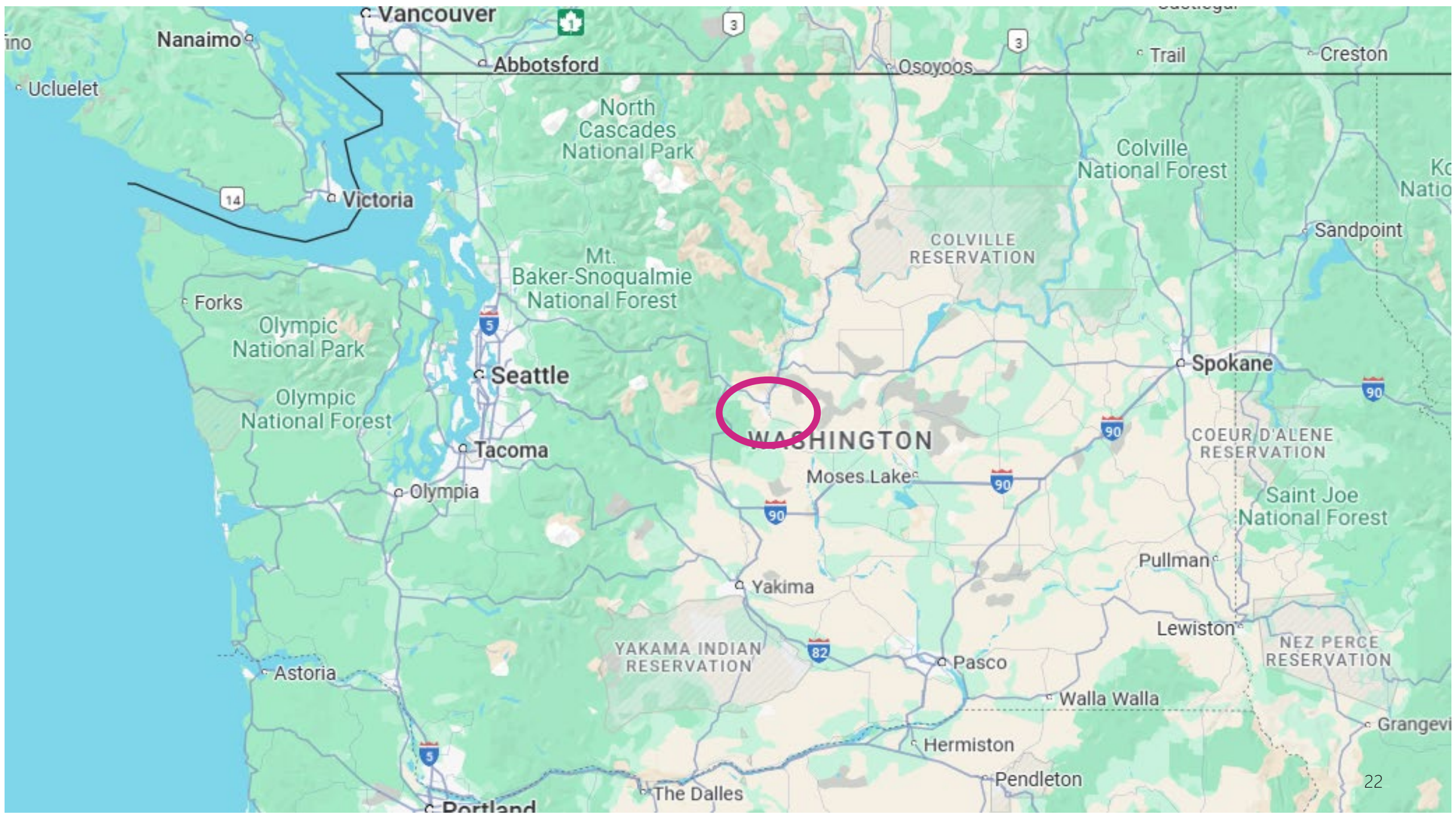






Building a commercial fusion power plant

- Construction begins: 2025
- Expected completion: 2028
- Site: Malaga
- Output: 50 MW+
- First customer: Microsoft

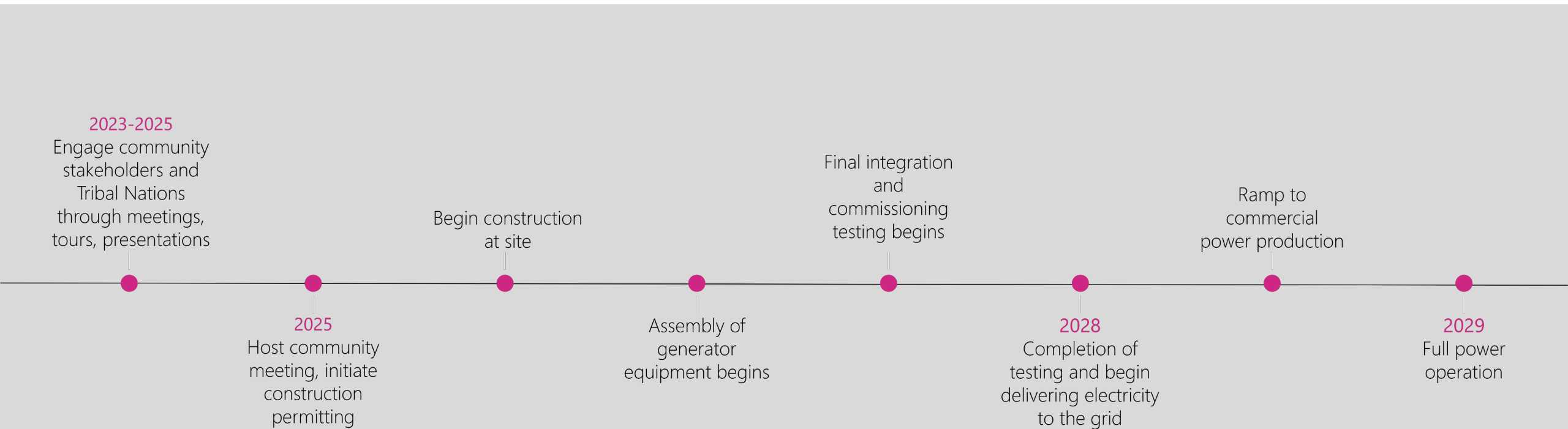




Site

Anticipated timeline:

- State environmental review completed
- Began construction in summer 2025
- Complete testing and begin operations in 2028









Looking toward the future

Fusion will be mass-manufactured

- Well-suited for production and assembly on a factory line
- Do not require forging/fabrication of immense structures
- Factory-built, transported, and quickly installed in industrial buildings
- Once proven, capable of rapid deployment





NRC performed thorough and methodical review of fusion safety

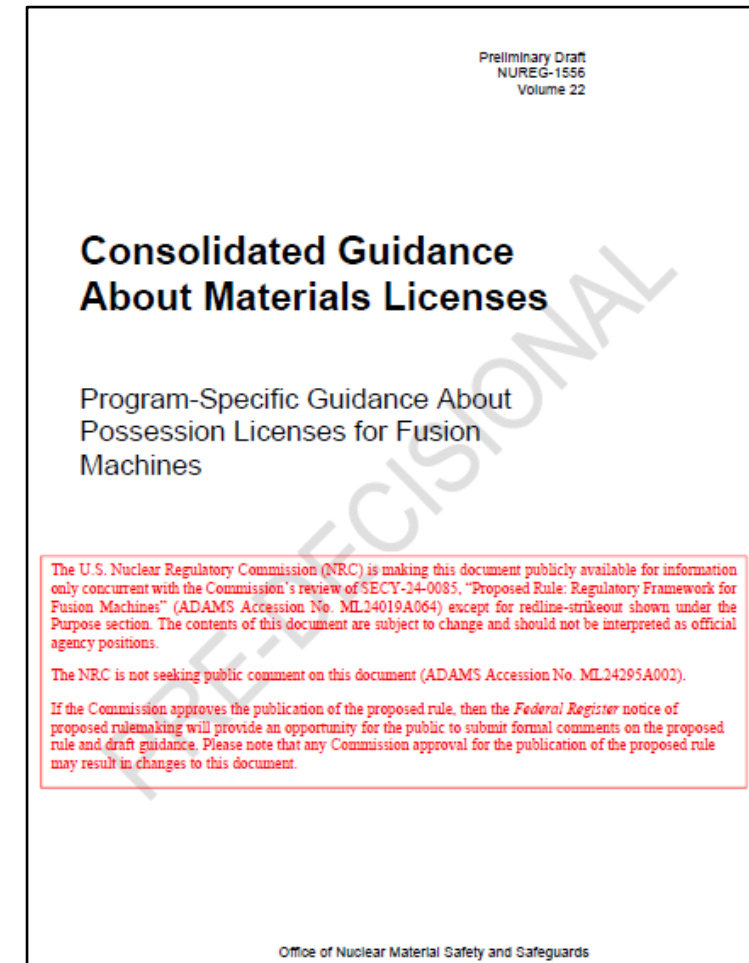
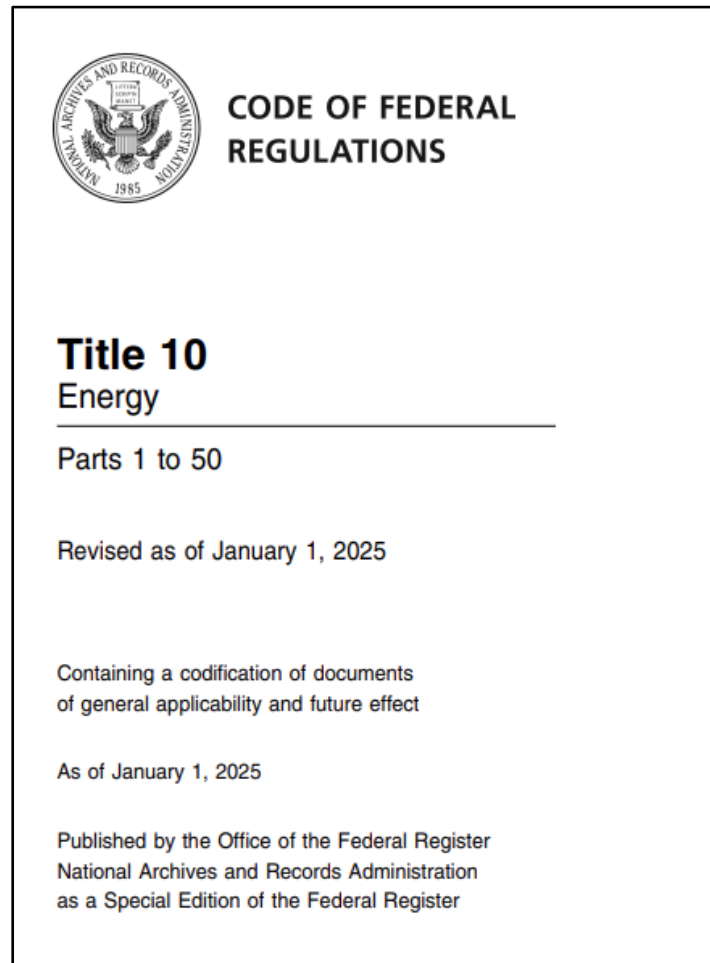
- **2009** Asserted jurisdiction over fusion; monitor progress
- **2019-2022** Public engagement to understand potential hazards
 - 19+ public meetings with broad industry and stakeholder engagement
 - Commission briefing in November 2022
- **2023** Decision that fusion systems are not nuclear reactors
 - Regulation under NRC's byproduct material framework enabling Agreement State authority
 - Requires staff inform Commission if any future fusion system present hazards beyond those considered in the paper
- **2024** Developed draft rule language and regulatory guidance in partnership with Agreement States



- No fissile material is present, and criticality is not possible
- Fusion reactions cease without any intervention in off-normal events or accident scenarios.
- Active post shutdown cooling not necessary to maintain confinement of radioactive material
- Radioactive material in credible accident scenarios would result in low doses (less than the threshold for evacuation)
- Fusion needs active features to achieve and sustain reaction (if something breaks, fusion stops)

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Fusion specific codes and standards not required for licensing or permitting in the US



Helion leverages codes & standards from many common industries



American Concrete Institute
Always advancing



ASM
INTERNATIONAL



National Council on Radiation
Protection and Measurements

Development of fusion specific codes & standards should be pursued with caution and purpose

Caution

- Avoid prescriptive adoption of codes and standards into laws, regulation, and guidance (i.e., fission)

Near-term

- Compilation of commonly used, best-practice industrial codes and standards could enable efficient design and permitting of early deployments
- Align on specific needs and initiate targeted R&D to support future code & standard development

Longer-term

- Maturation of fusion industry will result in natural convergence of approaches
- Consensus codes & standards can ease permitting burden in new jurisdictions and accelerate scaled deployment

