



FUSION ENERGY REGULATION IN WASHINGTON

Office of Radiation Protection

Disclosure

I am an employee of the WA Dept of Health and hold no private interest in fusion energy or power systems.

CONTENTS

- What is a fusion device?
- Types of fusion devices in WA state
- Washington's regulatory approach to date
- Future of fusion regulation in WA state

But first...



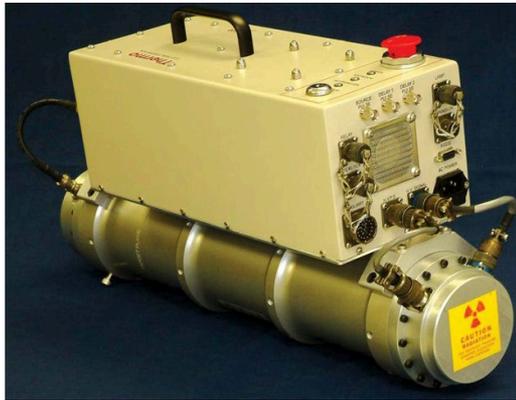
What is a fusion device?



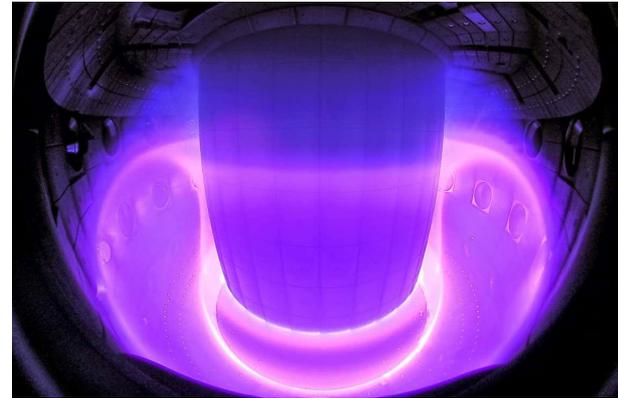
SIMPLISTIC VIEW

Types of Fusion Devices

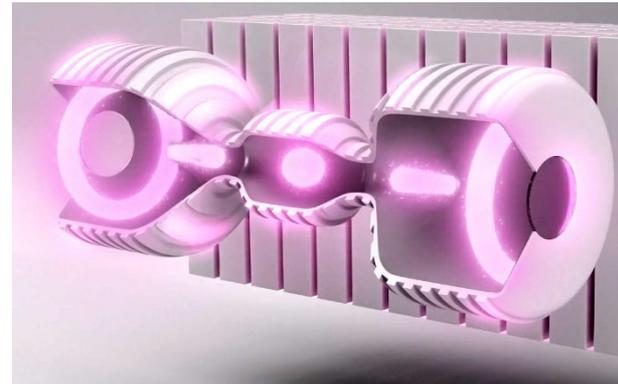
Neutron Generators



Tokamaks



Accelerators



Fusion Devices



WA STATE INVENTORY

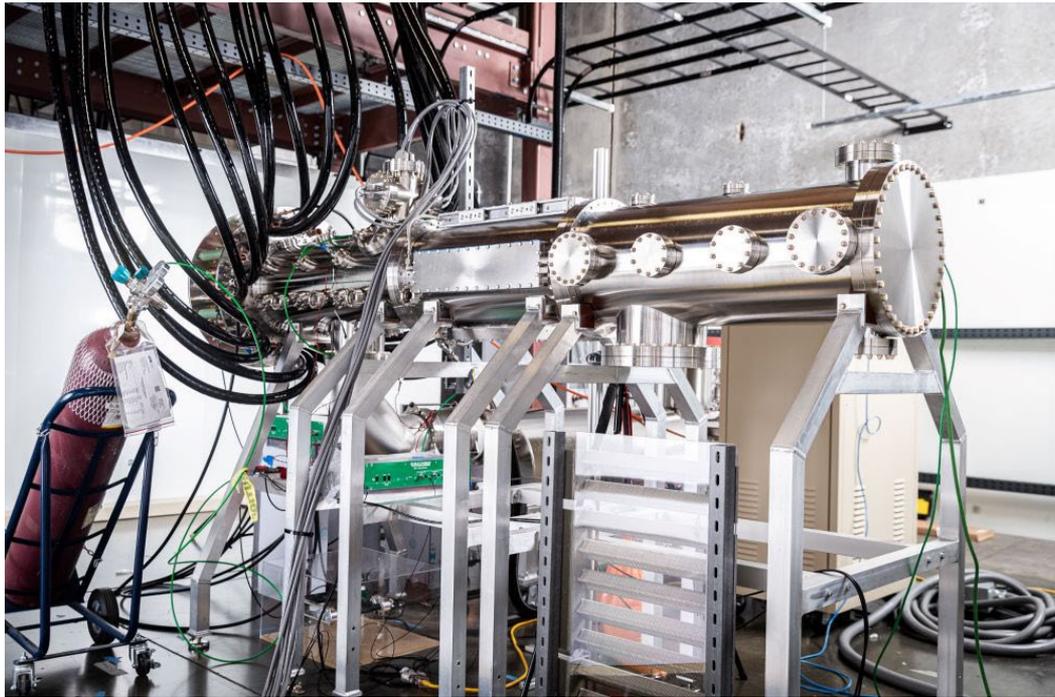
Fusion Startups in WA

- Zap Energy
- Helion Energy
- Avalanche Energy

****All three are in R&D phase, no commercial power to date****

Zap Energy

Everett, WA



Fuze-Q

Z-Pinch Method

Helion Energy

Everett, WA

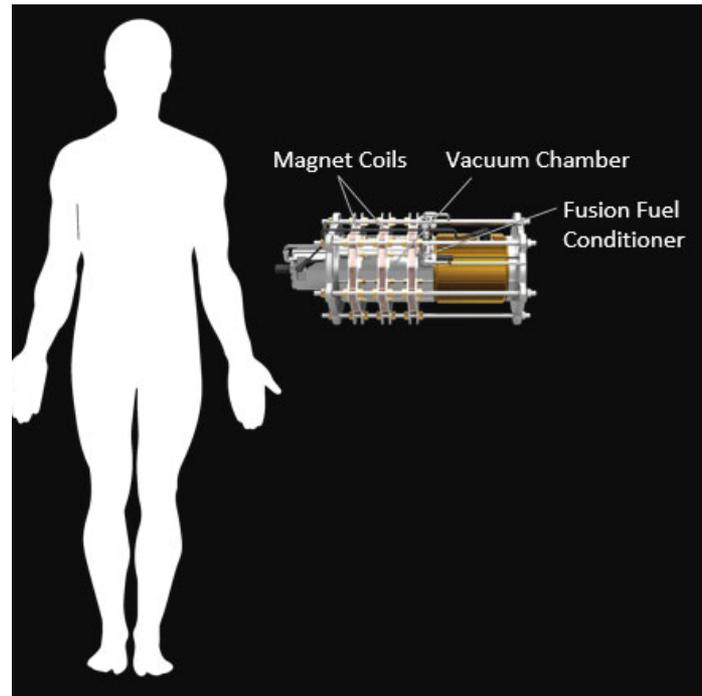


Treнта (6th gen)

*Magnetic Acceleration and
Confinement*

Avalanche Energy

Tukwila, WA



“Orbitron”

Electrostatic Fusion

Regulation



WA STATE APPROACH

The WA way

- Initial Conversations
- Initial Inspection
- Open Communication
- Collaborate vs enforce

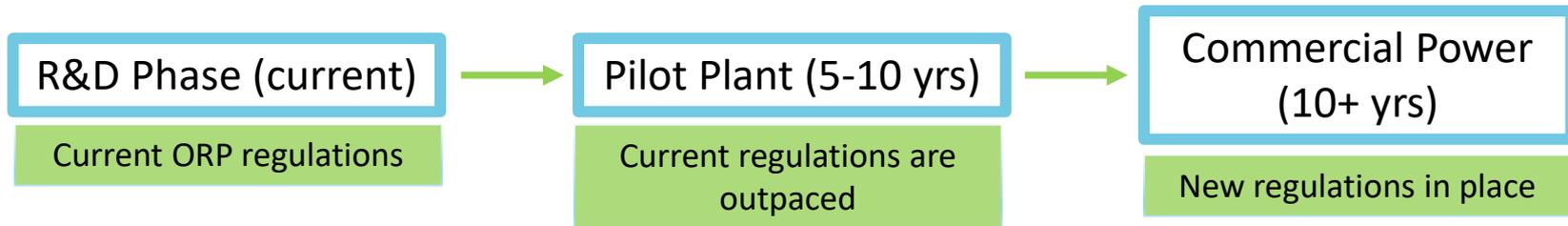
Future of Regulation



WASHINGTON STATE

It gets complicated...

- Different approaches to fusion will alter timelines, but in general:



The Future

- FY 23-24 Proviso budget project (submission Dec 2023)
- Updates to NRC NUREG-1556 (projected end date Sept 2024)
- WA state specific fusion regulations (next 1-2 years)

Questions?

Contact Information

Melvin Weatherly

Radiation Health Physicist III

Office of Radiation Protection

Melvin.weatherly@doh.wa.gov



@WADeptHealth

Credits

- Slide 10, Neutron Generator: <https://www.thermofisher.com/order/catalog/product/1517021A>
- Slide 10, Tokamak: <https://www.newscientist.com/article/2308243-deepmind-uses-ai-to-control-plasma-inside-tokamak-fusion-reactor/>
- Slide 10, Zap: <https://newatlas.com/energy/zap-energy-nuclear-fusion-modular-reactors-first-plasma/>
- Slide 10: Helion: <https://techcrunch.com/2021/11/05/helion-series-e/>



To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email civil.rights@doh.wa.gov.