Constellation

Constellation Perspectives:

"Accident Tolerant Fuel Safely Enabling Increased Reactor Output"

Jason Murphy, Vice President of
Nuclear Fuels

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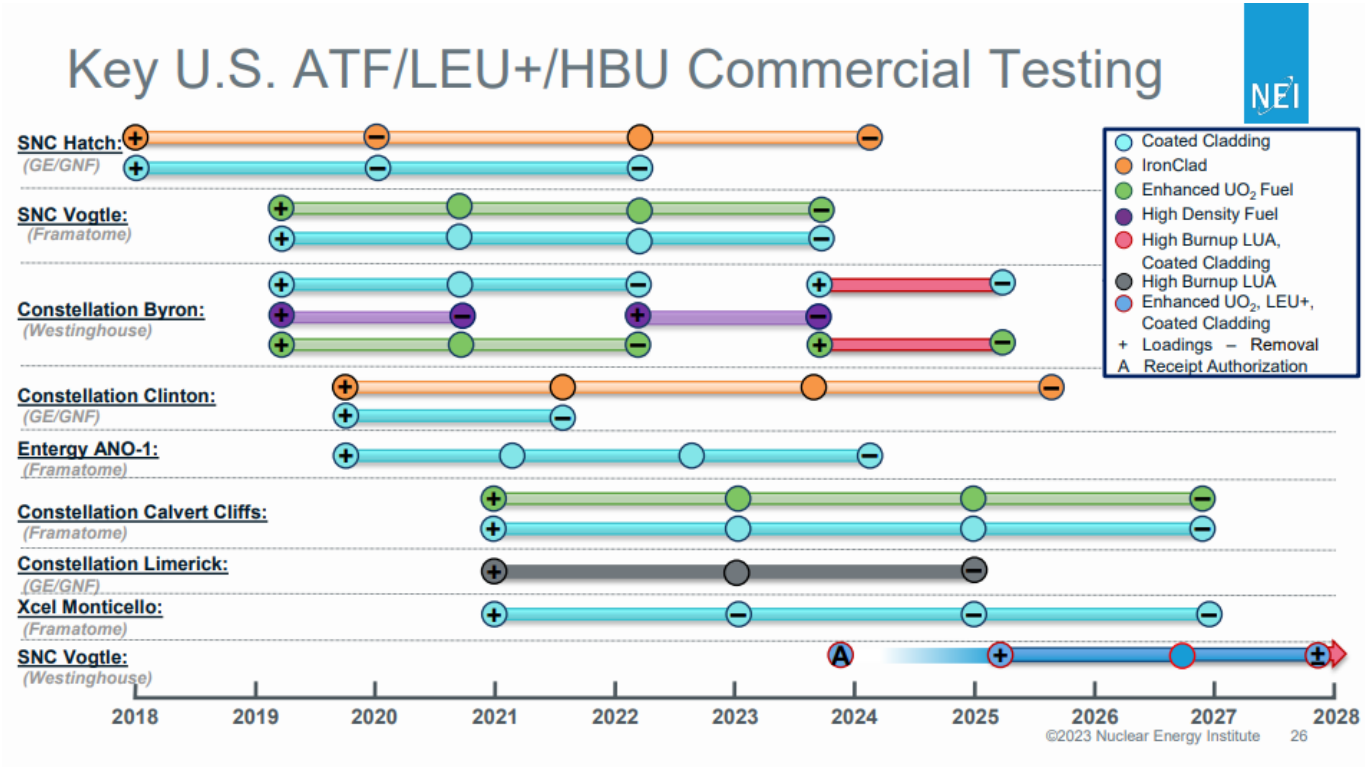
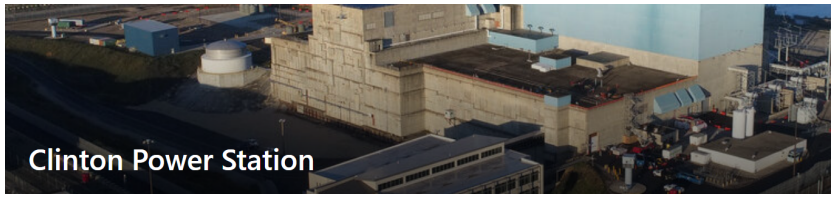
Accident Tolerant Fuel (ATF)

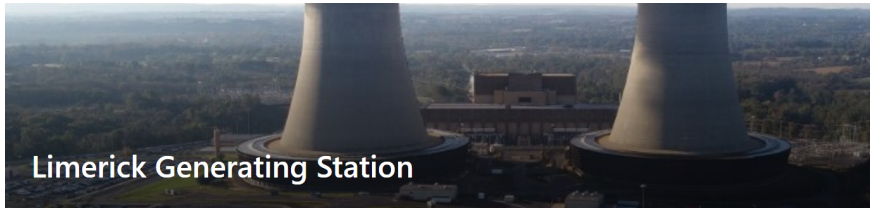
- The U.S. nuclear industry, with the assistance of the U.S. Department of Energy, plans to deploy new ATF fuel technologies, incentivized in the Inflation Reduction Act of 2022, to achieve licensed reload batch loading of ATF fuel, power uprates, and extended fuel cycles in the mid-to-late 2020s.
- ATF will enable numerous improvements such as power uprate via increased enrichment (LEU+) and increased burnup (HBU) limits and improved operating margins.



Constellation Nuclear Has Deployed All Available ATF Variants From The Three US Fuel Vendors at Four Sites

- Doped Uranium Dioxide and Uranium Silicide fueled LTAs
- Cr-Coated zirconium alloy and Advanced Steel fuel rod cladding LTAs
- Extended Burnup LTAs with both ATF and standard fuel rods and cladding





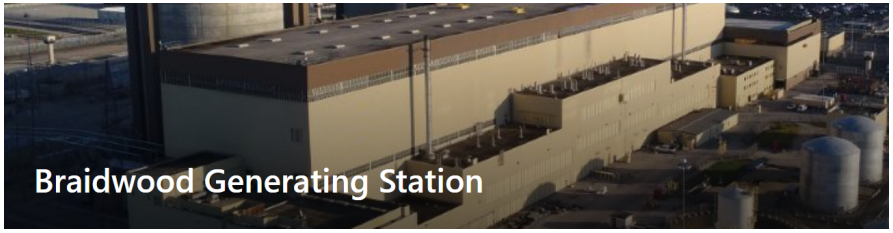
Power Uprate

- Uprating a nuclear power plant is an economic method to add large amounts of baseload energy to the grid.
- Industry response to NRC RIS 2023-03, “Scheduling Information for the Licensing of Accident Tolerant, Increased Enrichment, and Higher Burnup Fuel Submittal,” indicated that over 50% of sites have strong interest in coupling power uprates with ATF efforts to capitalize on potential gains for operational and safety enhancements.

Nuclear Uprates

- Increasing nuclear output by ~135 MWs at Byron and Braidwood
- Investing ~$800M from 2023-2029 for needed low pressure turbine replacements, upgrading the high pressure turbines and pulling forward planned generator maintenance at Byron, of which ~$200M is growth capital to uprate the plants (2)
- Anticipate uprate MWs to be phased in starting in 2026 with full implementation by 2029 based on timing of the turbine installations during planned refuel outages


Byron Generating Station


Braidwood Generating Station