

Westinghouse Next Generation Fuel

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Purpose of Meeting

- To provide background information to the NRC on Westinghouse fuel development and introduction of new design features
- To propose actions for licensing new design features both on an LTA basis and on a region basis
- To obtain feedback from NRC on licensing actions and on availability of regulatory resources to support proposed licensing actions.



Planned Region Introduction of NGF Features

Feature

- Low tin ZIRLO™ alloy
 - Structural components
 - Fuel rod cladding
- Mixed Integral burnable absorbers
- Tube in a tube guide thimble with thicker wall - increase margin to IRI
- Use of new intermediate mixing grids and IFMs in selected designs - Crud mitigation

Benefit

- Increased corrosion margin
- Support extended cycle length
- Increase margin to IRI
- Crud mitigation
- Increased fretting resistance



Next Generation Fuel Features Tested in LTAs for Possible Use

Feature

- Improvements beyond low tin ZIRLO™ in cladding and structural zirconium alloys
- Cladding surface treatments to achieve smooth surface
- Pellet additives

Benefit

- Further increases in corrosion margin
- Reduced creep
- Reduced in-core growth
- Reduced crud deposition
- Reduced FGR
- Improved PCI performance



Burnable Absorbers

- Westinghouse now uses five burnable absorbers
 - Discrete burnable absorbers
 - BPRAs
 - WABAs
 - Integral absorbers
 - ZrB_2 coating
 - $UO_2-Gd_2O_3$
 - $UO_2-Er_2O_3$
- All absorbers are licensed and have significant operational experience. Use of absorbers in combination in the same assembly can provide benefits for long cycle.

