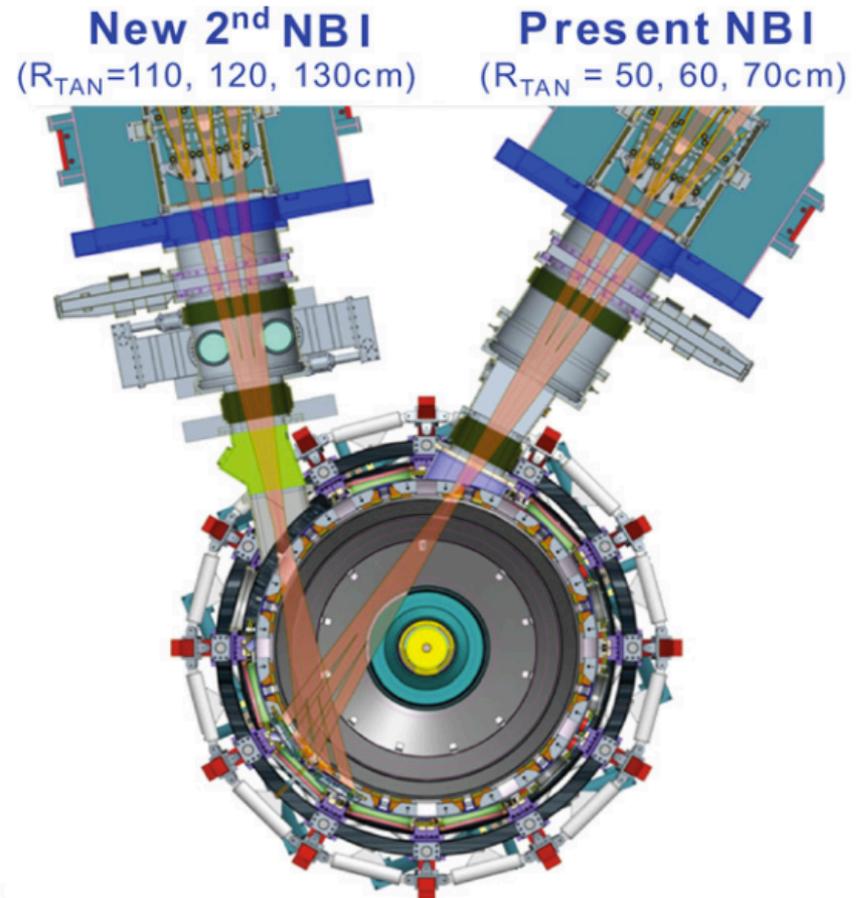


Effect of beam tangency radius on H-mode access and quality with XGC simulations

- 2nd neutral beam on NSTX-U will have sources that deposit energy further
 - Change in heating, torque, current profiles
- Effect on L-H power threshold and H-mode quality? (i.e. if P_{sep} same, what is the effect of on- or off-axis heating/torque/current profiles on P_{LH} and final H98?)



Plan

- Qualitative prediction with XGC0 simulations of H-mode quality with on- and off-axis beams.
- Experiment varying beam sources used to access H-mode
 - Exact beam mix needs consideration, balance of P_{LH} goals vs H-mode quality goals vs need for CHERS
 - LSN and USN to vary active X-point
 - Run time: ~1 day
- Interpretive XGCa/XGC1 simulations of L-mode with on- and off-axis beams to understand H-mode transition (effect of rotation, increased T_i)

Backup

Effect of Rotation and gradB Drift Direction on L-H Power Threshold

- Torque \uparrow , P_{LH} \uparrow
- P_{LH} for unfavorable gradB drift direction:
 - 2x normal for moderate torque
 - 1.25x normal for balanced
 - No difference for negative (counter-current) torque
- NSTX-U can't balance torque like DIII-D, but different torque profiles may still have similar effect

