

Annual Target: *Conduct experiments and analysis to quantify the impact of broadened current and pressure profiles on tokamak plasma confinement and stability. Broadened pressure profiles generally improve global stability but can also affect transport and confinement, while broadened current profiles can have both beneficial and adverse impacts on confinement and stability. This research will examine a variety of heating and current drive techniques in order to validate theoretical models of both the actuator performance and the transport and global stability response to varied heating and current drive deposition.*

1st Quarter Milestone: Begin analysis of previously collected data with a goal of defining new experiments. Develop an initial plan for collaborative experiments and analysis to be conducted during the remainder of the fiscal year.

2nd Quarter Milestone: Utilize data analysis to define a final plan for experiments in FY-15 on at least one facility. The plan will include diagnostic and operational requirements.

3rd Quarter Milestone: Begin planned experiments on at least two facilities. Evaluate results, including comparisons to previous data, and adjust analysis and experimental plans for 4th Quarter if necessary.

4th Quarter Milestone: Complete the planned experiments and analysis. Prepare a joint report summarizing the impact of broadened current and pressure profiles on plasma confinement and stability and identifying important paths for future research.