Heating, Current Drive, Operations and Diagnostics Issues

Operations
• Understand implications of reduced repetition rate, is it adequate for the envisioned experimental program?
• Evaluate the potential of ECRH to improve startup.

Heating
• ICRF is the base line heating system, compare with NBI and ECRH
• What are the issues associated with increasing the toroidal field to 12T?
• Does the ICRF system maintain coupling during elms?

Current Drive
• Are wall antenna a possibility for reducing the antenna power density and providing the directionality needed for ICRF fast wave current drive?
• Is central FWCD feasible? How much current is needed for AT modes?
• More analysis is needed of Lower Hybrid for off-axis current drive in an AT mode, and for possible NTM stabilization.
• Can an LHCD launcher withstand the anticipated heat loads?

Diagnostics
• Capability of beam diagnostics for J(r), E(r), etc or replacement technique
• What divertor diagnostic capability is possible?
• Neutron streaming around diagnostic interfaces

Plasma Control
• Will ICRF drive significant rotation on FIRE? Useful for shear stabilization?
• Evaluate methods for burn control? J(r) is slow, fueling is faster
• Consider real time 1-D simulations as part of the control system