Main Objectives for Task Force II

Main Objective	Scientific Goal	Measures of success / deliverables
Integrated scenarios for long-pulse operation with PFC heat load control, efficient particle exhaust, and impurity screening	• Control of divertor/baffle loads and actuation of heat load distribution • Studies on particle exhaust and optimization of plasma fueling schemes	• Demonstration of safe divertor scenarios to avoid overloaded plasma-facing components • Determination of trim and/or control coil currents required to correct error fields • Demonstration of effective pumping, high divertor compression, and qualification of fueling actuators • Demonstration of long-pulse operation (1 GJ energy turnaround)
Development of long, stationary divertor detachment scenarios with and without impurity seeding	• Creating conditions for detachment by tailoring edge plasma conditions and impurity seeding • Compatibility of stationary detachment with high-performance scenarios • Development of detachment scenarios with efficient exhaust	• Demonstration of scenarios with long, stationary divertor detachment; in particular, for the high-mirror, high-iota and standard configurations • Characterize the conditions under which detachment is possible • Compatibility of detachment with high-performance scenarios • Achieve rapid transition to detachment

Main Objectives for Task Force II

Main Objective	Scientific Goal	Measures of success / deliverables
Exploration of scenarios compatible with carbon-free operation and tungsten PFCs	• Migration (erosion, deposition) of tungsten-based materials and assessment of operation limits • Edge scenario development for metallic plasma-facing components	• Definition of the operation limits associated with plasma-facing components containing tungsten materials • Characterize the scrape-off layer retention for tungsten impurities (eroded from baffle and heat shield) • Determination of erosion effects due to seeding impurities
Development of wall conditioning procedures	• Optimization of glow discharge cleaning, boronization, and qualification of dedicated wall conditioning discharges with ECRH/ICRH	• Condition walls to enable plasmas with high density gradients necessary for high performance

reference discharge for edge studies (attached conditions, with good diagnostic coverage)
-> progress evaluation, code validation