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Impact of new heating and current drive sources on the DIII-D high q_{min} scenario[1] K.E. THOME, C.C. PETTY, W. WEHNER, General Atomics, C.T. HOLCOMB, B.S. VICTOR, LLNL, F. TURCO, Columbia U., B.A. GRIERSON, PPPL, J.M. PARK, ORNL — In the DIII-D high-q_{min} scenario, β_N ~3.7 and q_{min} have been achieved with almost a fully-noninductive current profile for a few seconds in a still-evolving discharge. Starting from this high-performance discharge, changes to the current and pressure profile will be evaluated with the additional new off-axis beamline and top-launch electron cyclotron current drive (ECCD). The broadening of these profiles is expected to reduce the previously significant fast-ion transport in this scenario, increase q_{min}, and improve overall confinement. The original discharge was near its ideal wall limit but DCON modeling has shown that changes to the plasma shape, particularly outer gap and resultant increased triangularity, will increase this limit. During the experiment, shape changes will be implemented to increase its ideal limit and tested with the new heating and current drive sources to achieve higher β_N. The timing of the neutral beam and ECCD waveforms and their injection location will be varied and changes to the fast-ion activity, confinement, q_{min}, profile evolution and inductive fraction will be presented.

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