We analyze how excitations affect the entanglement entropy for an arbitrary entangling interval in a 2d conformal field theory (CFT) using the holographic entanglement entropy techniques as well as direct CFT computations. We introduce the excitation entanglement entropy \Delta_h S, the difference between the entanglement entropy generic excitations and their arbitrary descendants denoted by h. The excitation entanglement entropy, unlike the entanglement entropy, is a finite quantity (independent of the cutoff), and hence a good physical observable. We show that the excitation entanglement entropy is governed by a second order differential equation sourced by the one point function of the energy momentum tensor computed in the excited background state. We analyze low and high temperature behavior of the excitation entanglement entropy and show that \Delta_h S grows as function of temperature. We prove an "integrated positivity" for the excitation entanglement entropy, that although \Delta_h S can be positive or negative, its average value is always positive. We also discuss the mutual and multipartite information with generic excitations.