C^n-NOT gates are important for realizing classical algorithms in a quantum context. To construct circuits for these gates in a fault-tolerant fashion, it is of interest to minimize the T-count of these gates, as the T gate is costly to physically implement compared to the Cliffords. I review optimizations made to the T-count of the C^n-NOT gate family over the past decade — in particular, reductions of the T-counts for the Toffoli and C^3-NOT from 7 to 4 and 8 to 6, respectively, and implications for the general C^n-NOT count. This brings us to the current state-of-the-art count of $4n - 6$ for n controls. Improvements past this current count have proved elusive, so I consider other potential approaches to this problem. ZX calculus has been used to optimize C^n-NOT, so this area could be a candidate. Lower bounds on the T-count could also be investigated for insight into how much the gates can be further optimized.