$$J(\pi) - J(\pi^*) = \sum_{t=0}^{T-1} \mathop{E}_{s_t \sim d_\pi} \left[Q^{\pi^*}(s_t, \pi(s_t)) - Q^{\pi^*}(s_t, \pi^*(s_t)) \right]$$

$$J(\pi^*) - J(\pi) = \sum_{t=0}^{T-1} \mathop{E}_{s_t \sim d_{\pi^*}} \left[Q^{\pi}(s_t, \pi^*(s_t)) - Q^{\pi}(s_t, \pi(s_t)) \right]$$

$$= \sum_{t=0}^{T-1} \mathop{E}_{s_t \sim \mu(s)} \left| \frac{d_{\pi^*}(s)}{\mu(s)} \right| \left| A^{\pi}(s_t, \pi^*(s_t)) \right|$$

$$\leq \epsilon.$$

Density ratio $\left\| \frac{d_{\pi^*}(s)}{\mu(s)} \right\| \leq C \quad \forall s.$

$$\leq \sum_{t \geq 0}^{T-1} \cdot C \cdot \epsilon \leq \boxed{\epsilon \cdot C \cdot T}$$