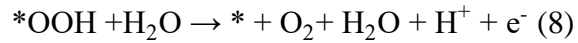
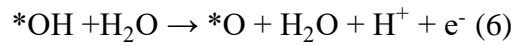
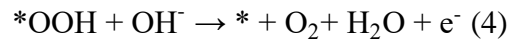
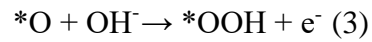
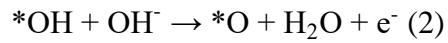
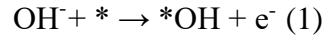


Formula 1:

$$EE = FE \frac{E^0}{E^0 + \eta_{an}}$$

Reactions:



Changes:

$$\Delta G_1 = G(* \text{OH}) + G(\text{H}_2) - G(*) - G(\text{H}_2\text{O})$$

$$\Delta G_2 = G(* \text{O}) + 1/2 G(\text{H}_2) - G(* \text{OH})$$

$$\Delta G_3 = G(* \text{OOH}) + 1/2 G(\text{H}_2) - G(* \text{O}) - G(\text{H}_2\text{O})$$

$$\Delta G_4 = 4.92(\text{eV}) - \Delta G_1 - \Delta G_2 - \Delta G_3$$

Formula 2:

$$G = H - T\Delta S = E_{\text{DFT}} + E_{\text{ZPE}} - TS$$

Formula 3:

$$E = E_{\text{adsorbate}} + E_{\text{slab}} - E_{\text{adsorbate/slab}}$$