The oxygen reduction reaction has three main steps Breaking the O-O bond, which may be

Dissociative

$${}^{!}O_{2} \rightarrow 2 O^{!} E1$$

Associatively dissociative

$${}^{!}O_{2} + H^{+} + e^{-} \rightarrow {}^{!}OOH$$
 E2.1.1

$$^{!}OOH \rightarrow ^{!}OH + O^{!}$$
 E2.1.2

Associatively reductive

$${}^{!}O_{2} + H^{+} + e^{-} \rightarrow {}^{!}OOH$$
 E2.2.1

$$^{!}OOH + H^{+} + e^{-} = H_{2}O(aq) + O^{!}$$
 E2.2.2

Conversion of O! to !OH

By electrochemical reduction

$$O^! + H^+ + e^- \rightarrow {}^!OH = E3.1$$

By Langmuir-Hinshelwood hydrolysis

$$O' + H_2O' \rightarrow 'OH + 'OH = E3.2$$

Conversion of OH! to H2O

$$^{!}OH + H^{+} + e^{-} \rightarrow H_{2}O \quad E4$$