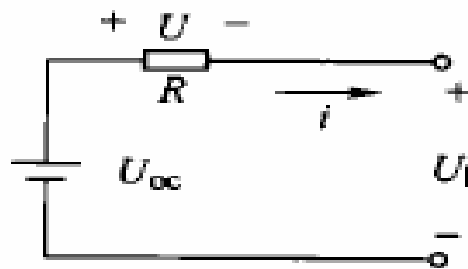


The Principle of voltage **Rebound**

A phenomenon that customers often find puzzling: the battery of the Ebike is fully charged, and the power is displayed as 100%. I tried to ride for a distance and find the battery level showed 54%. When I stopped riding and after a period of time, the display shows the power was 77%. (The customer thinks this is impossible)

Answer: It is possible.



Solution: The above figure shows the circuit model (mathematical model) of the battery.

According to Kirchhoff voltage law: $U_{oc} = Ri + U_I$. U_{oc} is the battery electromotive force; R is the internal resistance of the battery; I is the closed loop current; U_I is the output voltage of the battery (that is, the voltage or power value we see on the E-BIKE display).

Next, we will analyze the value of U_I under E-BIKE shutdown / cycling status.

(1) Shutdown status

At this time, the current $i=0$; So $U_{oc}=R \times 0+U_l$, that is,
 $U_l=U_{oc}$;

(2) Riding status

At this time, the current i is not 0; So $U_{oc}=Ri+U_l$, that is,
 $U_l=U_{oc} - Ri$;

To sum up, the value of voltage/electricity in the shutdown state is greater than that in the riding state. In other words, once the car is stopped, the voltage/power value on the display will increase.

(3) **Supplementary notes**

The corresponding voltage of 74% power capacity is 48.6V.

The corresponding voltage of 54% power capacity is 47.6V.