

## 1. Overview:

To boost the EV battery charging and swap service and promote the development of electric vehicle industry in a healthy and orderly manner is an important strategic initiative taken by the State Grid to implement national energy policies and build a powerful, smart grid. As a service provider under the State Grid in the capital city, Beijing Electric Power Company is committed to the assignments of the headquarters, the full-scale construction of battery charging and swap stations, and the network building for smart battery charging and swap service.



Sihui Battery Charging and Swap Station

Located in the east of Sihui Traffic Hub and to the south of the Beijing-Tongzhou Expressway, Sihui Battery Charging and Swap Station covers a total area of 2,253 square meters. It was completed on January 18, 2013 and officially put into operation on September 16, 2013. The station mainly serves public transport vehicles shuttling along Chang'an Avenue and in areas surrounding Sihui, which can meet the swap needs of 160 buses on a daily basis.

The construction of the station answers to the municipal government's vision of building Beijing into a "cosmopolitan city with Chinese characteristics", to the campaign of "People's Beijing, Hi-Tech Beijing and Green Beijing", and to the practices of integrating "smart grid" with road transport.



Battery swap workshop of Sihui Battery Charging and Swap Station

Specializing in EV battery swap service, the station, with the battery swap workshop, distribution room, monitoring room and duty room, features state-of-the-art technology and serves as an exemplar of environmental protection.

The station is equipped with four complete sets of fully-automatic battery swap equipment fixed along the two battery swap passages - Passages A & B - which can simultaneously serve four buses; each set includes 2 groups of charging racks and 2 robots, with a combined battery swap duration of 10 minutes. The station is installed with a total of 440 chargers, with a total charging capacity of 6,600 kW, which can charge 640 batteries at the same time.

## **2. Operation:**

Sihui Battery Charging and Swap Station is dedicated to 12m-long EV made by Forton, with a daily service capacity of 160 vehicles. At present, at the station there are 40 public transport vehicles serving two bus lines, namely Lines 455 and 496, starting from Sihui Hub both and extending to Nanhuayuan and Jingkangli respectively. The round trip for each line measures roughly 23 kilometers. Swapping the battery twice, a bus driver can make 6 round trips every day.

From September 16, 2013 on which it was officially put into use to June 30, 2014, the station swapped a total of 20,491 batteries, powering buses to run 1,523,066.3 kilometers. The accumulated power consumption reached 1,591,903.7 kWh (the value of in-vehicle electric meter), and the average number of batteries swapped per day pointed to 65.9.

During the summer season of 2014, each bus needs a battery swap after an average 2.3 round trips, due to increased power consumption by air conditioners and vehicle lights. A bus can run an average 64.4 km after a battery swap. The average number of

battery swaps per day grows sharply to 84.

	Battery swaps	Distance (km)	Charging capacity (kWh)
2013.9	1142	102117.3	106022.5
2013.10	1474	127508	133780
2013.11	1628	127849	128099
2013.12	2112	166036	165154.4
2014.1	2128	144940	164307
2014.2	1687	113733	133769
2014.3	2071	148331	159905.8
2014.4	1892	160552	155243
2014.5	1717	133349	130286
2014.6	2338	161343	160781
2014.7	2302	137308	154556
总计 Total	20491	1523066.3	1591903.7