Introduction Of Data Collection & Analyze

Shanghai EV Demonstration Zone
Demonstration Zone Introduction

Data Collection & Analysis Plan

Progress Status Introduction

Next Step
At the 1st Clean Energy Ministerial (CEM) held in Washington D.C on July 19th -20th of 2010, the Electric Vehicle Initiative (EVI) proposed by China, USA and other countries received very positive response from France, Germany, Japan, Spain, South Africa, Sweden, Portugal, Denmark and International Energy Agency (IEA). An important part of this initiative is to build electric vehicle international pilot cities.

In January 2011, Shanghai was selected as the electric vehicle international pilot city by the Chinese government and Jiading district of Shanghai as the electric vehicle international demonstration zone. Wan Gang, the minister of ministry of science and technology and Han Zheng, the Mayor of Shanghai uncover the plate in the 2011 International Forum on Electric Vehicle Polit City and Industrial Development in April.
Vice Mayor: Mr. Shen Xiaoming

Deputy Director of Jiading District: Mrs. Fei Xiaomei
Shanghai Science & Technology Commission
Shanghai Municipal Commission of Economy and Informatization
Shanghai Municipal Development & Reform Commission
Shanghai Finance Bureau

Shanghai Science & Technology Commission: General Coordination
Shanghai Inter. Automobile City: Vehicle Operation, Service
Power Supplier: Infrastructure Construction
Tongji University: Data collection & analysis
Vehicle Manufacturer: Vehicle maintenance
Jiading District—is located in the north west of Shanghai which was established as district in the South Song Dynasty which has more than 780 years of history. It is truly a famous historical cultural city in Jiangnan.

From the first car manufactured after 1949 to the present, Jiading has converged a huge amount of whole car manufacturer and components/part manufacturers.

Paris — the capital and largest city in France
Warsaw — the capital and largest city of Poland.

Area — 516.9 Sq Km
Population — 2201578

Area — 464.2 Sq Km
Population — 2300000
**Anting, Shanghai International Pilot City** — area of 100 sq km. The whole investment is over 67 billion, is willing to build an industry commanding height which cover the whole car manufacturer and part manufacturer, R&D, trade and exhibit, automobile culture and competition.
China EV Demonstration Plan

10 City 1000 EV Private EV Incentive International Demonstration

- Shanghai
- Beijing
- Chongqing
- Changchun
- Dalian
- Hangzhou
- Jinan
- Wuhan
- Shenzhen
- Hefei

Three “EV” City

- Shanghai - the only one city in China integrating EV demonstration, operation, and sale as a whole.
International Forum on EV Pilot City & Industrial Development

The International Forum on Electric Vehicle Pilot City and Industrial Development was held on Apr.22 in Shanghai
- Minister Wan Gang & Major Han Zheng unveiled the plaque for Demonstration Zone
- Released the “Shanghai Declaration”
- Signed the letter of intent for partnership organization

EV Test Drive Center

On May.15, the first EV Test Drive Center was opened. On the same day, the official website was released.

EV Incentive for Private

On Apr.6, the first 8 EV buyers hit the road
Demonstration City Partnership

Included many international and national well-known car manufactories, infrastructure constructors, energy suppliers and insurance companies.

Completed the first batch of AC Charging piles

Constructed 45 AC charging piles for the first batch of EV
Chose the location of the charging station

EV Data Collection

Started the EV data collection and communication
BYD will open the protocol in Sept.
## Data Collection Content

### Manual daily note Content

<table>
<thead>
<tr>
<th>No</th>
<th>Date</th>
<th>Start time</th>
<th>Stop time</th>
<th>Before journey reading</th>
<th>After journey reading</th>
<th>Petrol level before journey</th>
<th>Petrol level after journey</th>
<th>weather</th>
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### Real time data collection content

<table>
<thead>
<tr>
<th>Vehicle ID</th>
<th>Date/Time Stamp</th>
<th>Charging Event Info</th>
<th>Battery state of charge</th>
<th>Connect &amp; Disconnect Times (plugged in &amp; out)</th>
<th>Start &amp; End Charge Times</th>
<th>Charging Voltage</th>
<th>Charging Electric Current</th>
<th>Total Energy (Wh) per charging event</th>
<th>Environment Temperature</th>
<th>Battery Temperature</th>
<th>Battery Ceiling Voltage (plugged in &amp; out)</th>
<th>Max. &amp; average Instantaneous Peak Power</th>
<th>Max. &amp; average Rolling 15 Minute Average Peak Power</th>
<th>Weather</th>
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### Diagram

- [Diagram showing data collection content]

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**Shanghai International EV Demonstration Zone Working Daily Record**

<table>
<thead>
<tr>
<th>No</th>
<th>Date</th>
<th>Person</th>
<th>Start time</th>
<th>Stop time</th>
<th>Remain electric power</th>
<th>Remain electric power</th>
<th>Where</th>
<th>Start/End charge</th>
<th>Other</th>
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**Shanghai International EV Demonstration Zone Vehicle Charging Record**

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<th>Date</th>
<th>Person</th>
<th>Start time</th>
<th>Stop time</th>
<th>Remain electric power</th>
<th>Remain electric power</th>
<th>Where</th>
<th>Start/End charge</th>
<th>Other</th>
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Data Collection Process

- Driving diary
- Manual note
- Proof & compare
- TCU transmit
- CAN-BUS partly release
- Databank of manufactory real time transmit
- 3G, GPRS Real time transmit
- Databank Storage & Analysis

Collection definition

Real-time data collection is a process which involves downloading real-time data of running status of vehicles and key parts through the vehicle data acquisition instruments, and then transferring data to a network data server through internet.

Collection Object

- From 8 private EV
- Collection frequency: 1HZ
- Driving data
- Position data
- Charging data
Data Collection Process

Data Collecting System

Data Collection Process
Vehicle performance testing refers to the vehicle performance testing in the drum test rig regularly (quarterly) to get the vehicle performance data.
Questionnaire collection

Research Questionnaire Procedure

- Phone Reservation
- Internet Reservation
- EV History
- Film: Xing — Shanghai 2030
- Test Drive Experience
- Fill out a questionnaire
- Collection Feedback

Questionnaire Sample

- These 382 samples come from questionnaire of 4299 visitors, Apr. 21 – Jun. 15

- Personal information
- Test-drive evaluation
- Cognition & purchase intention
- Service about test-drive & ride center
Consumer Research

Family income analysis

- < 80,000 RMB: 37%
- 80,000 – 120,000 RMB: 33%
- 120,000 – 200,000 RMB: 18%
- > 200,000 RMB: 8%

Academic background preference

- College degree: 67%
- Master: 22%
- P.H.D: 9%
- Secondary technical school: 2%

Target Crowd Orientation

- Employee
- Male: 20-40 years old
- Value environment protection & fashion
- Middle & High Level Education
- Initiative, willing to accept new things

Age Preference

- 20-30: 23%
- 30-40: 38%
- 40-50: 27%
- 50+: 23%

Sex Preference

- Male: 91%
- Female: 9%
Test Drive
Consumers Requirement Analysis

- Environment Friendly & fashion
- Suitable for family
- Moderate price
- Safety and convenience for charging

Requested Vehicle Analysis

Price Reference

<table>
<thead>
<tr>
<th>Reference</th>
<th>0-10万</th>
<th>10-20万</th>
<th>20-40万</th>
<th>40万以上</th>
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<tbody>
<tr>
<td>纯电</td>
<td>45.3%</td>
<td>52.1%</td>
<td>2.4%</td>
<td>0.3%</td>
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Attention Tendency

- 充电便捷性 49%
- 安全性 22%
- 性价比 14%
- 其他 4%

Purchasing Time

- 无意向 5%
- 尽快购买 28%
- 1年内购买 16%
- 不确定 51%

Types Choice

- 纯电 45.5%
- 混合动力 50.79%

Test Drive
Consumers Requirement Analysis

- 安全性 22%
- 性价比 14%
- 充电便捷性 49%
- 维护费用 11%
- 其他 4%

选择购买时间

- 尽快购买 28%
- 3年内购买 16%
- 不确定 51%
- 无意向 5%
Driving Data Analysis

General Status

Total driving distance: 2951
Total driving time: 95h. (till Jun.15)
Total energy consumption: 465.57 Kwh

Average Status

Average distance of single drive: 32Km
Average energy consumption per km: 0.16 Kwh

Consumers

Consumer average daily distance: 51 km
28.6% users drive 63~72Km/day
28.6% users drive 42~61 Km/day
42.8% users drive 14~22 Km/day

Area Position Diagram
### Charging Status Analysis

<table>
<thead>
<tr>
<th><strong>General Status</strong></th>
<th>Total charging time : 193h</th>
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<tbody>
<tr>
<td><strong>Average Status</strong></td>
<td>Average single charging time : 6.2h</td>
</tr>
<tr>
<td><strong>Consumers</strong></td>
<td>Average remanent energy : 45.63%</td>
</tr>
</tbody>
</table>
| **Charging Habit** | 220V AC charging  
93.55%  
In-home charging  
6.45%  |

### Charging Facilities Construction Status

- Till Jul.25, 45 charging piles installed
  - Business Tower : 20
  - Roadside : 5
  - Test Drive Center : 20
Content

- Demonstration Zone Introduction
- Data Collection & Analysis Plan
- Progress Status Introduction
- Next Step
- Maintenance Center Completion
- Seahorse Zhengzhou ME EV join in domo. operation
- Group Buying Promotion 100 EVs In Demo. Zone
- 725 AC charging piles construction & 1 charging station with the functions: charging, discharging, energy saving
- Under discussion FIAT 500 join Demonstration
- Volvo C30 EV will join domo

- Improve data collection & handling analysis plan
Suggestions

- Coordinate with GM & Nissan to introduce Volt & Leaf to demonstrate in Shanghai as soon as possible

- Start the communication of technology sharing report outline as soon as possible
Thank You