Electric Vehicle Platform Strategies by Chinese Automakers: What’s Going On in the EV Arena In China?

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Chinese market

- In the EV market, more than 95% of the market is dominated by domestic brands: the price and government subsidies are crucial.
- China electric vehicle industry: 200+ carmakers, with currently about 4,000 new energy vehicle (NEV) models in development.
- China became the world’s leading automotive market in 2009.
- China surpassed the U.S. in 2015 to become the world’s biggest market for New Energy Vehicles (NEVs): comprising PHEVs, BEVs, FCEVs
- Great Potential: in United States: 0.8 vehicles/resident; in China: 0.1 vehicles/resident.
## TOP 20 SELLING EV COMPANIES IN CHINA 2016

<table>
<thead>
<tr>
<th>Company</th>
<th>Units Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>BYD</td>
<td>102910</td>
</tr>
<tr>
<td>Geely</td>
<td>49168</td>
</tr>
<tr>
<td>BAIC</td>
<td>46416</td>
</tr>
<tr>
<td>Zotye</td>
<td>37060</td>
</tr>
<tr>
<td>Chery</td>
<td>20963</td>
</tr>
<tr>
<td>SAIC</td>
<td>20073</td>
</tr>
<tr>
<td>JAC</td>
<td>18193</td>
</tr>
<tr>
<td>Jiangling</td>
<td>14232</td>
</tr>
<tr>
<td>Chang'an</td>
<td>4917</td>
</tr>
<tr>
<td>GAC</td>
<td>3378</td>
</tr>
<tr>
<td>Nissian</td>
<td>1893</td>
</tr>
<tr>
<td>Dongfeng</td>
<td>1090</td>
</tr>
<tr>
<td>Volvo</td>
<td>872</td>
</tr>
<tr>
<td>yema auto</td>
<td>524</td>
</tr>
<tr>
<td>BMW</td>
<td>421</td>
</tr>
<tr>
<td>Haima Automobile</td>
<td>381</td>
</tr>
<tr>
<td>Soueast</td>
<td>276</td>
</tr>
<tr>
<td>Benz</td>
<td>36</td>
</tr>
<tr>
<td>SAIC-GM</td>
<td>18</td>
</tr>
<tr>
<td>Tianjin FAW Toyota Motor</td>
<td>7</td>
</tr>
<tr>
<td>Dongfeng Yueda Kia</td>
<td>5</td>
</tr>
</tbody>
</table>

http://www.d1ev.com/industry_data#tables
NEV’S SALES IN CHINA

Source: http://www.d1ev.com

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THE PERMITS

- The permits focus on startups rather than established carmakers.
- The Ministry of Industry and Information Technology (MIIT) initially restricted the number of startup EV makers to a maximum of 10, but so far they approved 14 permits.
- The MIIT listed 17 technologies that companies intending to sell electric cars must possess. (e.g. vehicle control system, information system that tracks sources of key parts, and a battery recycling process)
- It is estimated that 90% of the companies currently developing EV platforms won’t meet the standards in two years.
### COMPANIES THAT HAVE PERMITS SO FAR

<table>
<thead>
<tr>
<th>Part Suppliers:</th>
<th>Traditional carmakers with NEV Independent Operation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wanxiang Group (6)</td>
<td>Beijing New Energy Vehicle Co., Ltd (BAIC) (1)</td>
</tr>
<tr>
<td>Qiantu Motor (3)</td>
<td>Chery New Energy Automotive Technology Co (4)</td>
</tr>
<tr>
<td>Yangtze River EV (2)</td>
<td>Zhidou (Geely) (11)</td>
</tr>
<tr>
<td>Henan Suda (12)</td>
<td>Yundu new energy vehicle Ltd (10)</td>
</tr>
<tr>
<td>Zhejiang Hezhong (13)</td>
<td>Jiangxi Jiangling Group New Energy Vehicle Co (JMEV) (7)</td>
</tr>
<tr>
<td>Min’An Auto (5)</td>
<td></td>
</tr>
<tr>
<td>NEVS (9)</td>
<td></td>
</tr>
</tbody>
</table>

### Joint-Ventures:                                                                 |
Chongqing Jinkang Xiaokang New Energy Vehicle Co (8)                                    |

### Others:                                                                                      |
Shenzhen Ludi Fangzhou Electrocar Limited Company (14)                                     |
GOVERNMENT GOALS AND INCENTIVES IN CHINA

- With massive pollution and scant domestic oil reserves, China has made going electric a top priority. The Federal Government wants 3 (was 5) million "new energy vehicles" (NEVs) on the roads by 2020.
- In order to have access to subsidies, foreign automakers should develop NEVs with their Chinese joint-venture partners.
- The EV sales are spurred by government subsidies and permits:
  - subsidies can reach up to 60% sticker price of a car/bus;
  - exceptions from the lotteries for license plates in big cities.
  - CCG plans to gradually reduce the amount of subsidies by 20% annually from 2016 to 2020, planning to stop providing subsides after 2020.
For Provinces (district, city) with a more complete charging infrastructure construction and a large scale of new energy vehicle application receive financial incentives.

In heavy pollution regions, financial incentives are provided when the region reaches production of NEVs equal to 2%, 3%, 4%, 5%, 6% of total vehicle production from 2016 to 2020.

For mild pollution regions, the goal is 1.5%, 2%, 3%, 4% and 5%.

For all other regions, the goal is 1%, 1.5%, 2%, 2.5% and 3%.
THE TAX EXEMPTION FOR NEW ENERGY VEHICLE PURCHASE

- The purchase of new energy vehicles are exempt from the vehicle purchase tax from September 1, 2014, to December 31, 2017.

- 5 requirements to be in the tax exemption directory:
  - BEV, PHEV, fuel cell vehicles with permit and sold in China.
  - Lead-acid batteries will not be accepted.
  - Driving range requirements
  - The combined fuel consumption of the plug-in hybrid passenger car (fuel consumption excluding electric energy conversion) should be less than 60 percent of the corresponding fuel consumption of traditional vehicle in national standard.
  - Pass the new energy vehicle special inspection and meet the new energy vehicle standards requirements.

- Amount: \((\text{vehicle price}/1.17) \times 10\%\)
THE SUBSIDIES AND THE BUBBLE

- Startups and local authorities invested in making NEVs: unqualified companies far below the minimum scale required (average NEV makers ±3,000 cars).

- The generous subsidies started a gold-rush => Bubble (200+ companies).

- But high subsidies encouraged cheating.

- Because of the cheating/fraud, China’s central government (CCG) imposed stricter technology standards and limited the number of EV makers.
Chinese authorities initiated an investigation early 2016:
- the number of EVs sold in 2015 was about 30,000 units higher;
- There was a widespread subsidy fraud in many small cities;
- Represents approximately 10 percent of total expenditures (CCG);
- In 2015, about 108,000 NEVs were registered for plates in the first 10 months of 2015 (which represented only 63% of the 171,145 units supposedly sold in that period)

Common types of Frauds:
- Mostly about electric buses;
- Electric vehicle producers simply shipped cars to fictitious customers;
- Selling to their own car rental companies, which exist only for get subsidies;
- Doctored invoices to inflate EVs subsidies: Suzhou King Long case (claimed to have sold 12,003 electric buses in 2015).
- Sell or rent a provincial and/or a national license.
AFTER FRAUD

- On December 30, 2016, four ministries published “Notice on Adjusting the Financial Subsidy Policy” on NEVs, which took effect on January 1st, 2017.

- Government made four main changes:
  - Modified the subsidy policy
  - Raised the limit standards
  - Changed the way of giving money
  - Built better regulatory system.
SUBSIDY POLICY MODIFIED

1. Increased the vehicle energy consumption requirements.
2. Gradually improved the vehicle driving range requirements.
3. Introduced a new national battery standard.
4. Raised safety requirements.
5. Established a market sampling inspection mechanism.
6. Established dynamic management system of "directory" of vehicles eligible for subsidies.
NEW POLICY

- Inspired in California law on EVs;
- It’s a credit-based system:
  - For carmakers: they are required to sell a percentage of NEVs; progressive credits for making EVs and BEVs. ICEVs that do not meet the new fuel economy requirements would get negative credits ⇒ possibility for buy credits.
  - For 2018 to 2020, the proportion requirements of new energy vehicles are 8%, 10%, 12%, respectively. The requirement after 2020 will be decided.
  - Recent negotiations with Germany may have delayed production requirements by one year
NEW POLICY

- Ways to offset negative fuel consumption credit:
  - Use positive carry forward credit from fuel consumption of the company
  - Use positive credit from new energy vehicles within the company
  - Use positive credit of fuel consumption obtained by transfer from another company
  - Buy positive new energy vehicle credits from other companies
Platform Strategies of traditional Chinese Carmakers
CONCEPTS:

- Electric Vehicle’s Platforms:
  - Adapted Electric Platform (AEP)
  - New Electric Platform (NEP)

- Electric Vehicle’s Design:
  - New Electric Vehicle Design (NED)
  - Adapted Electric Vehicle Design (AED)
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TRADITIONAL CARMAKERS PLATFORM/DESIGN STRATEGIES

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TRADITIONAL CHINESE CARMAKERS

- Are basing their EVs on their traditional ICEVs platforms, in an Adapted Electric Platform and Design (AEP/AED) strategy.
NON-TRADITIONAL CARMKERS

- The production of NEVs by non-traditional carmakers in China is still in its early stages;
- Lack of capabilities;
- Most of them are still trying to meet regulatory requirements to receive their Permit;
- The future for the startups in China is not clear;
- Most of them are building their EV platforms from scratch, in a New Electric Platform (NEP) strategy;
- They are planning to combine New Electric Platform (NEP) with New Electric Design (NED) strategies.