Vehicle Electrification in China

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China: World’s largest vehicle market

Annual Vehicle Sales

% Global Sales

30.3%

22.2%

USA

China


OICA: http://www.oica.net/category/sales-statistics/
China: World’s largest vehicle market...with room to grow

Annual Vehicle Sales

% Global Sales

Vehicles / 1,000 People

USA

China


OICA: http://www.oica.net/category/sales-statistics/
Potential of Electric Vehicles:
- Reduce Oil Dependence
- Reduce Pollution (GHG & Health)
- Technological Leadership

One week in Beijing, Oct. 2016

U.S. EIA: https://www.eia.gov/petroleum/data.php
2016: 45% of world’s electric vehicles sold in China

Source: http://www.ev-volumes.com
What factors are shaping the plug-in electric vehicle (PEV) industry in China?

1. **Consumer Preferences:**
   Chinese car buyers may be more willing to adopt full electric vehicles than Americans.

2. **Industrial Policy:**
   Incentives aligned for domestic Chinese firms (not multinationals) to dominate China’s PEV market.

3. **New Business Models:**
   Experimentation with BEV car sharing and new bike sharing business models.
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Chinese Consumers More Receptive to Today’s Full Electric Vehicles Than American Consumers

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USA
Consumers sensitive to limited electric range

China
Most Chinese are first time buyers
More alternatives for long-distance travel (e.g., high speed rail)

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The Chinese Joint Venture System

1980s: 以市场换技术 = “Exchange market for technology”

Past research suggests system has largely failed to transfer technology
(Brandt & Thun, 2010; Feng, 2010; Howell, 2016; Huang, 2003; Lazonick & Li, 2012; Nam, 2011)
China Conventional Vehicle Sales: Multinationals Dominate

Conventional Vehicles (23,900,000)

Ind. (4.4M)  JV Partners (19.5M)

Brand:  
- Chinese  
- Multinational  
- Tesla

PEVs

2016 Sales

Data scraped from: https://www.gasgoo.com
China PEV Sales: **Independent** Chinese Firms Dominate (Not MNEs or Chinese JV partners)

**2016 Sales**

Conventional Vehicles (23,900,000)

- **Ind.** (4.4M)
- **JV Partners** (19.5M)

Plug-in Electric Vehicles (352,000)

- **Independent** (259.2k)
- **JV Partners** (85.1k)
- **Imports** (7.5k)

Data scraped from: [https://www.gasgoo.com](https://www.gasgoo.com)
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Rapid rise of Chinese car sharing firms in past 1-2 years
Explosion of BEV Car Sharing Experiments in China

Kandi (康迪), Hangzhou
- Manufactures its own BEVs
- Builds & owns charging infra.

Yidu (一度), Beijing
- Rents BEVs from OEMs
- Uses public charging infra.

Eakay (易开), Wuhu
- Buys BEVs from multiple OEMs
- Builds & owns charging infra.
Dock-less Bicycle Sharing

- Mobile phone-enabled
- Over ~400,000 shared bikes in Beijing (Mar. 2017)
- Currently in 22 cities (cum. 250M people)
- “Last-mile” solution
- Synergies with public transport & car sharing
Thanks!

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