

## Investigation and Management Comparison of the Sino-US Energy Saving and New Energy Vehicles

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**Supported by** Visiting Scholar Program of City College of New York/CUNY (P-100009) by Wu Wenjing; China's CDM Fund 2013 "Studies and ability construction of Hubei statistics and accounting system coping with the climate change".

Received 29 September 2015; accepted 30 November 2015  
Published online 31 December 2015

### Abstract

Based on investigations to Hubei, we take two typical auto economies—China as the current, US as the once world largest auto market, and analyze from management economics point of view, how China and US benefit from each other's experiences. Compare China's new energy vehicle development with the US ones. Discuss and illustrate the experiences. Study and summarize the two countries' characteristics and put forward some constructive suggestions.

**Key words:** New energy vehicle; Sustainable management; Investigation; Sino-US comparison

Zhu, L. J., & Wu, W. J. (2015). Investigation and Management Comparison of the Sino-US Energy Saving and New Energy Vehicles. *International Business and Management*, 11(3), 112-115. Available from: <http://www.cscanada.net/index.php/ibm/article/view/8035>  
DOI: <http://dx.doi.org/10.3968/8035>

### INTRODUCTION

The automobile has arguably shaped modern era more than any other human inventions in the past 130 years (Parissien, 2013). Current global environment problems have been brought to sight and some argue that new energy vehicle is the solution.

The first motor car did not appear in China until 1901. Yet to 2009, China's auto industry has surpassed that of US. China's auto sale and producing market has become the world No. 1 ever since. Meanwhile, the Obama government has focused on green development including developing EV in spite of arguments on its actual environmental effect. Statistics shows that US EV sale is up 58% in 2014. Taking the two typical world auto economies, we now compare and analyze how China and US benefit from each other's experiences and management setting.

## 1. ANALYSIS OF CHINA'S NEW ENERGY VEHICLE DEVELOPMENT—BASING ON INVESTIGATIONS TO CHINA'S MAJOR AUTO BASES

### 1.1 Rapid Development of China's New Energy Vehicles Under the Government's Overall Support

China's new energy vehicle development was formally started in 2001 with application of the national "863" project, taking Hybrid EV, EV and Fuel cell EV as the core. Up to 2012, China has successfully set up its nationwide EV strategic development layout. In July 2014 alone, China has put forward historically rarely three new energy vehicle policies, which has fully demonstrated determination on the government level.

### 1.2 Investigations to Experts and Citizens in Changchun and Hubei

Changchun and Hubei<sup>1</sup> are two among China's three biggest auto bases. We have been doing investigations to the Yangtze Auto corporation and Xiangyang city in Hubei from July 2014 on. In May 2014, we made an

<sup>1</sup>Wuhan and Xiangyang are the two major auto bases in Hubei and are also the only two pilot cities of Hubei in developing new energy vehicles appointed by China's government.

investigation to experts in the research center of China FAW Group Corporation<sup>2</sup>. Investigation figure shows that auto experts optimistically believe new energy vehicle is the future of China's auto development. Our investigation illustrates a very interesting phenomenon: experts hold that even if China's government draws back related preferential policies, auto enterprises will insist on related researches and production. Figure shows that even though imported EV has not been included into China's current subsidy list, 83% experts investigated insist that they should be treated equally. This is mainly for two reasons: diversification in customer choices, and the chance to absorb world advanced technology.

Investigation in Wuhan Hubei, details see table 1, has shown market's strong interest to new energy vehicles. But it also indicates that proper advertisement may be necessary especially among common citizens. 47.4% experts claim that current policy is behind related rapid development (details also see Table 1).

**Table 1**  
**Evaluation of China's Related Policy**

Evaluation of policy	Frequency	Percentage
Good and mature	5	26.3
Outstrip	1	5.3
Lag behind	9	47.4
Others	4	21.1
Total	19	100.00

*Note.* Based on investigation in Yangtze Auto Corporation Ltd 2014.

As to the effectiveness of current policy, 31.6% experts think it's effective while 52.6% argue that it's barely satisfactory (as shown in Table 2). Investigation has shown that the acceptance of current policies is obviously not enough.

**Table 2**  
**Effectiveness of China's Policy**

Policy effectiveness	Frequency	Percentage
Zero effect	1	5.3
Little effect	2	10.5
Just	10	52.6
Effective	6	31.6
Total	19	100.00

*Note.* Based on investigation in Yangtze Auto Corporation 2014.

<sup>2</sup>The research center is among top ten and the Yangtze Auto Corporation is the major public auto producer in China.

As in Table 3, the survey to citizens has shown that 57.9% investigators believe that the inner desire of auto firm to develop new energy vehicles is the major factor in its overall healthy development. To our surprise, up to 2014, there are still 36.6% citizens investigated in the China's major auto city know nothing about development of the new energy vehicles.

**Table 3**  
**Major Factors of Development**

Major factor of development	Frequency	Percentage
Government policy support	86	15.8
Attention from auto firm	43	57.9
Environmental protection view of customer	176	26.3
Others	26	100.0
Total	331	100.0

*Note.* Based on investigation in Hubei 2014.

## 2. US'S EXPERIENCES IN THE LOW CARBON AUTO DEVELOPMENT AND MANAGEMENT

### 2.1 Background of the US's New Energy Vehicles' Development and Management

Relying on its abundant iron and oil resources, US's earliest auto development can be traced back to the 19<sup>th</sup> century, and it has been the king of auto market for a long time. But Our study shows that the US auto industry was in gradual decline, especially since the 21<sup>st</sup> century. With imported cars taking up more market ratio, US's auto sale has fallen to its lowest level in the past 27 years.

### 2.2 Causes of the US Traditional Auto's Decline

Key cause of US auto's decline lies in its market saturation, which is partially caused by its huge second car market and the development of car financing. In order to stop the sharp decline in car sales, the strategy of "Zero down payment, zero interest rate" has been applied since the late 1980s. It has led to a great amount of mortgage car sales, which has limited the follow-up production.

US's second hand car market is unarguably strongly developed, it has accelerated the frequency of its car replacement, therefore has caused over consumption, and has pushed US auto companies to rely heavily on financial products rather than auto production and sale. As a result, economic bubble has arisen.

### 2.3 the US Governments' Effort in Developing Green Autos—Obama's Focus on New Energy Vehicles and His EV Development Plan

With high income, fierce auto competitions and low tax

rate, American can and are more willing to purchase large muscle cars, which goes against the government's will to decrease its oil dependence and ensure the energy safety. Since the 80s, US governments have put forward various auto fuel development strategies. The current Obama government speeds up and focuses more on the green auto related development by increasing related subsidy policies and promising refunds. Yet, according to statistics 2011, its actual EV sale volume was only 17.5 thousand. So in spite of efforts and emphasis put in EV, Obama and his government have encountered obstacles and faced oppositions even from the Congress.

### **3. ANALYSIS AND MANAGEMENT COMPARISON OF THE SINO-US NEW ENERGY VEHICLES' DEVELOPMENT**

#### **3.1 Economic Analysis of the US Auto's Decline—Traditional Advantage Leads to Ignoring the New Green World Development**

US is a nation 'on-the-wheel', owning more than 26% world cars with less than 5% world's population. But nowadays, advantages of traditional auto has become an obstacle to its new energy vehicle development. Compared to traditional auto, new energy vehicle is hindered by the high cost and even by worries to decrease its traditional advantages. Besides, with its cheap gasoline, American prefer to large and luxurious cars, market demand decides its auto supply, so US auto manufacturers have been keen on producing that instead of green and mini autos.

#### **3.2 Management Comparison on World Low Carbon Auto Development to China's Green Autos—"Early Bird Catches the Worm"**

There are enough successful examples such as the green auto development in Japan. As one of the most successful countries in developing new energy vehicles, Japan's green car industry has benefited a lot from its government support. Large amount of fund, both from the central and local governments, is subsidized to green car producers and purchasers. In the round of world new vehicle competition, those which can start a healthy and sustainable auto development will surely grasp the future of world green auto industry.

### **4. MANAGEMENT COMPARISON OF THE SINO-US NEW ENERGY AUTO POLICIES**

#### **4.1 Both Countries Have Been Paying Much Attention to the Institutional Design and Research Management of the New Energy Vehicles**

China's current policies are mainly on subsidy.

Comparatively speaking, US policies are more overall and compulsive, covering voluntary, mixed and compulsive ones.

China's one-sided preferential policies may have caused the current new energy vehicle market with some not real green cars. For example, its current EV still runs on high emission electricity, and the hybrid vehicles are mainly re-construction of traditional autos. So it is important to set up sustainable new energy vehicle policy system and develop real green auto in China.

Above analysis shows both countries have put much focus on the new vehicles. US has always been emphasizing it for future development. While China has taken it as a chance to surpass the traditional auto countries. Both governments are very concerned about the green auto development. But China's policy is still at its trial stage and related effect is still to be tested over time.

#### **4.2 Different Market Entry Administration Between the Two Countries**

Both countries have focused on the product safety, energy saving and environmental protection of the new energy vehicle, yet there exist differences in detailed administration system. Comparatively speaking, China's market entry administration is stricter than that of the US. It puts forward certain requirement both to the product and the auto company. This has restricted certain private companies from participating and also creates loopholes for some unqualified companies. While US prefers to "self confirmation, self calling back" system. China's new energy vehicles' subsidy is under the back slope mechanism and it is expected that the subsidy will come to an end at 2020. Once the subsidy is cancelled, EV can only reduce its price through industrialization which is on the basis of scale production and certain market sale.

### **CONCLUSION AND SUGGESTION**

New energy vehicle development is still at its very beginning, so good management is very important and policy is the only thing that accounts.

#### **a) Take the New Energy Vehicle as Beginning of New Vehicles' Development, Set Up Its Sustainable System and Develop Real Green Autos**

The current trend is to produce small and inexpensive high tech green vehicles to stimulate market consumption, decrease energy consumption and environment pollution. As two major world auto economies, both China and US has been facing challenge and opportunity in the low carbon era. It is obvious that China and US can benefit from each other's experiences. US can take new energy vehicles as a way out its "flat dilemma" while China can continue the EV "leapfrog effect".

#### **b) Stress on the Voluntary Green Policy and Attract the Inner Incentives of the Auto Companies**

As a hi-tech new technology product, EV can bring technical innovation both to auto companies and the society. Key for future development lies in the combination of the government support and inner desire of auto company as well as the market. Tesla's success in US significantly lies in its beneficial effect to the company, while China's "excess" policy support will lead to reliance to governmental support and in a sense hinder the company's voluntary research. So set EV as an index in China's current CO2 emission checking and audition may encourage the replacement of EV to the traditional auto. As two major world auto economies, China and US should cooperate more in facing challenges and opportunities, and share more responsibility in the low carbon era.

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