POLICY UPDATE

**NOVEMBER 2013**

# RENEWED AND ENHANCED SUBSIDIES FOR ENERGY-EFFICIENT VEHICLES IN CHINA

ICCT **POLICY UPDATES** SUMMARIZE REGULATORY AND OTHER DEVELOPMENTS RELATED TO CLEAN TRANSPORTATION WORLDWIDE.

In order to increase the market share of clean, energy-efficient, and advanced technology vehicles, the Chinese government offers various fiscal incentives ("market-pull" measures) to complement mandatory vehicle efficiency standards. Over the past few months, the government has issued updates to two such programs. The first, led by the Ministry of Industry and Information Technology (MIIT) and aimed at promoting efficient internal combustion engine vehicles and conventional hybrids, offers subsidies to vehicles whose fuel economy performance significantly outperforms the current Phase III standard limit values. The second, led by the Ministry of Science and Technology (MOST) and MIIT, targets so-called new energy vehicles—especially battery electric vehicles—and offers subsidies based on vehicle range.

Both of these subsidy programs have been in effect in China for several years, but have now been updated and expanded, as described in detail below.[1]

## ENERGY-SAVING AND CLEANER VEHICLE SUBSIDY

Recent policy streams suggest a trend towards performance-based efficiency incentives. The initial energy-saving car subsidy, a direct deduction of 3,000 *yuan* per vehicle from the sales price, was established in 2010 jointly by the MIIT, the Ministry of Finance, and the National Development and Reform Commission, and remained in effect until September 30, 2011. (Link).

Vehicle qualification was determined based upon two factors: (1) the engine displacement of a new car model could not exceed 1.6 liters; and (2) the car model had to meet China's phase 3 fuel consumption standard limit for its weight class, which is a corporate-average style standard for the 2015 new car fleet. To restate the second criterion: a current car model must meet the typical fuel consumption level of a new 2015 car model of the same weight class to be eligible for the subsidy. Regulatory agencies aim at using the incentive to pull the market towards early compliance of the phase-3 standard.

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1 See also Hui He, "China shifting to performance-based incentives for vehicle efficiency" (www.theicct.org/blogs/staff/china-shifting-performance-based-incentives-vehicle-efficiency), for an early assessment following Minister Miao's May 2013 initial announcement of the changes to these programs.

This policy was renewed in October 2011 with more stringent fuel consumption limits (link). Specifically, for the first seven weight bins, the limits were modified to be 7% to 8% lower than the phase 3 limits, although the limit values remain fixed for the heavier weight bins. The policy expired in September 2013.

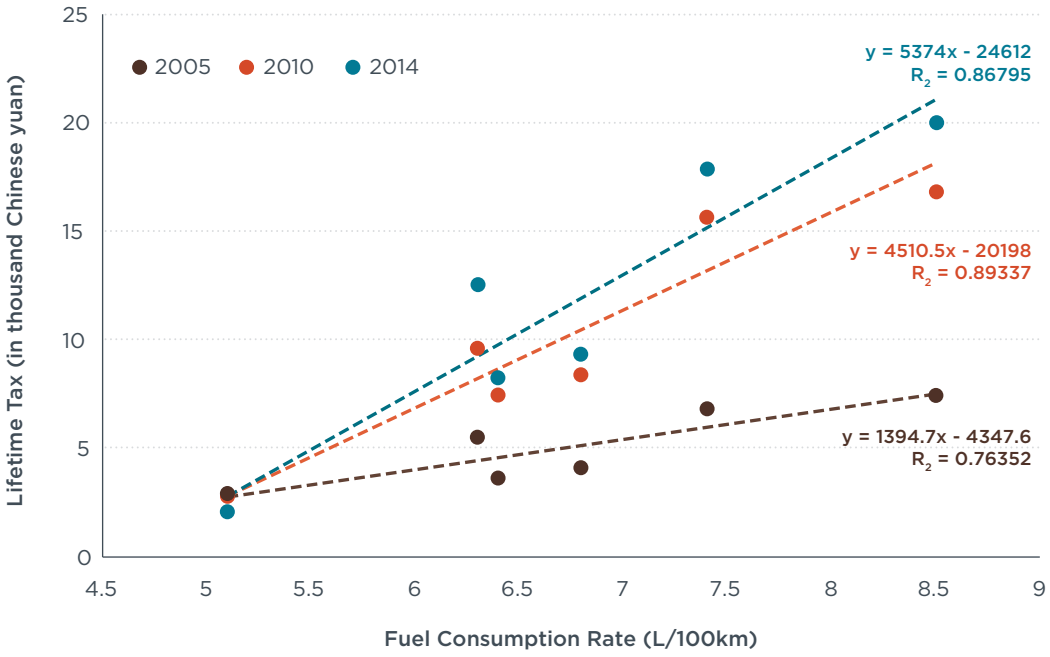
The 2013 renewal of this energy-saving car subsidy, effective from October 1, 2013, enhanced the policy in two ways (link). First, the minimum fuel-consumption requirement for each vehicle weight class was further tightened by 2% to 14% (more stringent for the heavier weight classes) compared to the October 2011 term. Second, a tailpipe emissions requirement is introduced for the first time; only vehicle models compliant with the China 5 light-duty vehicle emissions standard are eligible. The new China 5 requirement echoes the standard released by the Ministry of Environmental Protection earlier in September (link) and creates a market incentive for early implementation of the standard, but only on smaller vehicles, due to the 1.6L threshold.

The figure below illustrates the changes in maximum fuel consumption limits vehicles must meet to be eligible for the subsidy.  With the new policy, MIIT intends  to encourage adoption of advanced fuel-efficiency technologies (such as start-stop, high-efficiency direct-injection engines, hybridization, and mass reduction). But it remains unclear how this incentive is integrated into the subsidy.


* Regular = cars with no more than two rows of seats;
Special feature = cars with more than two rows of seats

## IMPACT ON FLEET FUEL CONSUMPTION REDUCTION

Although none of the fiscal policies are directly tied to vehicle fuel consumption performance, the overall impact of the recently developed/revised policies provide stronger and more straightforward incentives for fuel efficiency than policies about a decade ago, as illustrated in the figure below.[2] This is reflected in the steeper slope and the closer correlation between a vehicle's fuel consumption performance and the amount of tax and fees paid on that vehicle of the 2014 regression curve.




# NEW ENERGY VEHICLE SUBSIDY

On September 13, MIIT, MOF, NDRC, and the Ministry of Science and Technology issued a policy notice (link) extending the new energy vehicle subsidy for pilot cities to 2015, but with several important changes.

### 1. Detailed eligibility requirements for pilot cities

Under the new policy, in order to qualify for the subsidy mega pilot cities (more than 3 million and less than 10 million residents) must demonstrate no less than a total of 10,000 new energy vehicles deployed in the region; smaller-scale pilot cities must demonstrate no less than 5,000 vehicles. Locally manufactured vehicles cannot exceed 70% of the total application. In addition, priority in deploying NEVs is given to civil fleets—governmental fleets, buses, taxis, special vehicles such as sanitation vehicles, postal trucks, and similar. At least 30% of new public vehicles must be NEVs.

Finally, pilot cities must be reviewed against the above criteria annually. Cities failing to meet all requirements will be dropped from the program.

2 For the methodology used here to analyze the combined impact of all existing fiscal incentives aimed at promoting efficiency in conventional-fuel passenger cars, see Hui He, "China shifting to performance-based incentives for vehicle efficiency" (www.theicct.org/blogs/staff/china-shifting-performance-based-incentives-vehicle-efficiency).

These detailed requirements were developed based on the lessons learned during the first phase of the policy, and are intended to resolve some common implementation issues. For example, previously the program had only required vehicle production, not actual use. As a result, considerable resources were devoted to expanding production capacity of NEVs with little or no real market. Additionally, a number of cities in phase 1 of the policy procured only locally manufactured vehicles, which did little to further the policy goal of improving economies of scale for truly advanced vehicle technologies or nurturing healthy competition among manufacturers across the regions.

## 2. Infrastructure readiness

Pilot cities must demonstrate detailed incentive policies for NEV purchase and fleet operation, as well as detailed requirements or feasible plans for infrastructure construction that match their NEV deployment target.

## 3. Utility criteria for certain types of vehicles

The new policy adopts more straightforward and simpler utility criteria for determining the subsidy levels for passenger cars and buses, compared to the previous subsidies for civil and private NEVs announced in 2009–2010. (See here and here).

The table below summarizes the 2013–2015 subsidies for various types of vehicles, based upon specific improvements for each vehicle type.

| Type and technology | | Criteria | Amount 10,000 yuan US$ in brackets | | |
|---|---|---|---|---|---|
| | | | 2013 | 2014 | 2014 |
| **Passenger cars** | PHEV | R>50 km | 3.5 (5737) | 3.15 (5163) | 2.8 (4590) |
| | BEV | 80≤R<150km | 3.5 (5737) | 3.15 (5163) | 2.8 (4590) |
| | | 150≤R<250km | 5 (8196) | 4.5 (7377) | 4 (6557) |
| | | R≥250km | 6 (9836) | 5.4 (8852) | 4.8 (7868) |
| | FCV | / | 20 (32786) | 18 (29508) | 16 (26229) |
| **Buses** | PHEV | L≥10 | 25 (40983) | 25 (40983) | 25 (40983) |
| | BEV | 6≤L<8 | 30 (49180) | 30 (49180) | 30 (49180) |
| | | 8≤L<10 | 40 (65573) | 40 (65573) | 40 (65573) |
| | | L≥10 | 50 (81967) | 50 (81967) | 50 (81967) |
| | Supercapacitor/ lithium titanate | / | 15 (24590) | 15 (24590) | 15 (24590) |
| **Civil BEVs (postal, civil logistics, sanitation etc)** | | / | 0.2/kWh capped 15 (24590) | 0.18/kWh, capped 13.5 (22131) | 0.16/kWh capped 12 (19672) |
| **HD commercial FCV** | | / | 50 (81967) | 45 (73770) | 40 (65573) |

R= all-electric range for battery electric vehicles or plug-ins, measured in km
L= length of buses, measured in meter

### PASSENGER CARS

Previously, the subsidy for public-use light-duty NEVs (HEVs, PHEVs and BEVs) was determined by three factors: (1) type of technology, (2)fuel-saving potential compared to conventional vehicles of similar size, and (3) an artificial utility parameter determined by the ratio between the maximum power output from the electric motor and the overall power output of the vehicles. For private light-duty NEVs, the amount of subsidy was indexed to the vehicle battery size (3,000 *yuan*, or about US$490*,* per kilowatt-hour) and subject to a cap of 50,000 or 60,000 *yuan* (US$9836 or US$8197) for PHEVs and BEVs, respectively.

The new policy for light-duty NEVs makes two major changes. First, it excludes conventional hybrid technologies and only subsidizes PHEVs, BEVs and FCVs. Second, it adopts a simplified and more straightforward utility parameter, all-electric range, to determine the subsidy level for PHEVs and BEVs. Light-duty FCVs started receiving a fixed subsidy in 2013. The amounts will phase down over time (see table).

### CITY BUSES AND GOVERNMENT BEVS

The previous subsidy to buses only covered buses 10 meters or longer. Also, as with passenger cars, the qualification criteria were a combination of technology type, energy saving potential, and maximum electric-power ratio. The new policy expands the scope to buses no less than 6 meters long, but no longer covers conventional hybrid buses. It also adopts a simple factor of vehicle length as the primary determinant of the amount of subsidy.

Special-duty battery-electric vehicles for civil services, such as postal and sanitation trucks, were not specified in the original policy. Because of the great variation in this type of vehicle (compared to city buses), their subsidy is based on battery size rather than vehicle length, and capped at 150,000 *yuan* (US$24590) per vehicle in 2013. The amount declines over the subsequent three years.

## REMAINING ISSUES

The changes just implemented in these two subsidy programs will enhance the incentives they create for reducing vehicle fleet energy consumption. Additional policy changes could further improve their effectiveness.

The current subsidy to conventional fuel passenger cars is determined by a vehicle's fuel consumption relative to its weight class. An ideal design for a vehicle efficiency incentive would be to directly link the incentive to vehicle efficiency performance; an example would be a feebate program based on fuel consumption. If an attribute adjustment to the incentives is needed to reduce the impact on manufacturer competitiveness, vehicle size-based systems are more effective than weight-based system.[3] This is exactly the same situation as for regulatory standards.

3 John German and Nic Lutsey, "Size or Mass? The Technical Rationale for Selecting Size as an Attribute for Vehicle Efficiency Standards," www.theicct.org/size-or-mass-technical-rationale-selecting-size-attribute-vehicle-efficiency-standards.

Also, the policies do not incentivize larger hybrid vehicles. Hybrid technologies are excluded from the subsidy targets under the new energy vehicles incentives. Hybrid cars with greater than 1.6L engine are also excluded from the conventional vehicle subsidy.

Lastly, the current incentives will only benefit domestically produced vehicles, and not imports. MIIT has indicated that this is a limitation imposed by the way the policies are implemented: car manufacturers must prepay the subsidies to consumers at the time of purchase, then apply for reimbursement from the government with proof of sale. Practical difficulties in communicating with foreign OEMs and their countless retailers, and in reimbursing foreign OEMs, are hurdles that would have to be cleared in order to include import vehicles in the incentive programs.