



Clean Transportation Program Brief January 2017

New Calculation Methods for 2016-2020 Electric Vehicles (EVs) Subsidies were Adjusted in December 2016

Pursuant to the national effort to accelerate adoption of New Energy Vehicles (NEV) and favorable tax and license plate exemption policies published periodically since 2014¹, the Ministry of Finance, National Reform and Development Commission, Ministry of Information Technology and Ministry of Science and Technology published the revised version of the National 2016-2020 Electric Vehicle Range Based Subsidy in December 2016² (previous draft version as released in April 2015³). The new subsidy calculation major highlights are as follows:

1. The subsidy rewards vehicles of four major types: passenger vehicles, buses, utility vehicles, and FCV vehicles.

Requirements for each vehicle type have increased in stringency, and the subsidy is based on much more detailed vehicle electric performance calculation method. A different calculation method for NEV energy consumption requirement is suggested for each vehicle type, with electric passenger cars on their range conjunct with their curb-weight, buses based on their range conjunct with per unit mass (E_{kg}) and also the test itself changes from constant speed to per-mode test, utility vehicles based on per unit mass (E_{kg}) and electricity consumption per 100km per unit mass, and FCVs based on the type of vehicle.

NEV models are only eligible for subsidies after sales, meaning the subsidy qualification will be invalid for NEV models that are not sold in the market within the first year of the model's catalogue release. Additionally, NEVs for public use (excluding utility vehicles) can only get subsidies after achieving 30k km driving distance.

1.1 Passenger Vehicle (PV) Electric Range Based Subsidy

Current versus previous electric passenger vehicle subsidy calculation method

Passenger Vehicle Type	Regulation period	EV Range (km)			
		100≤R<150	150≤R<250	R≥250	R≥50

¹ http://www.gov.cn/zhengce/content/2014-07/21/content_8936.htm

² http://jjs.mof.gov.cn/zhengwuxinxi/tongzhigonggao/201612/t20161229_2508628.html

³ http://jjs.mof.gov.cn/zhengwuxinxi/zhengcefagui/201504/t20150429_1224515.html



Battery Electric Vehicle BEV (k RMB)	December 2016	20	36	44	/
	April 2015	25	45	55	/
Plug-In Hybrid Electric Vehicle PHEV (k RMB)	December 2016	/	/	/	24
	April 2015	/	/	/	30

While the 2014 calculation method provided EVs of $100 \leq R < 150$ with similar subsidy as PHEVs with $R \geq 50$ (RMB32k), the 2015 calculation rewarded PHEVs with higher subsidy than low-range EVs (RMB30k versus RMB25k, respectively), and the new 2016 subsidy maintained a similar relation (RMB24k versus RMB20k, respectively).

According to the new policy, passenger vehicles should meet the following technical requirements to be eligible for subsidies.

I) Maximum constant speed of BEV in a 30 min drive should be no less than 100 km/h;

II) Mass Energy Density (MED) of battery system in BEVs should be no less than 90 Wh/kg; 10% Extra subsidy will be given to BEVs with battery that has MED higher than 120 Wh/kg;

III) Electricity consumption (Y) of BEVs by curb weight (m) should meet the requirement:

$Y \leq 0.014 \times m + 0.5$, when $m \leq 1000\text{kg}$;

$Y \leq 0.012 \times m + 2.5$, when $1000 < m \leq 1600\text{kg}$;

$Y \leq 0.005 \times m + 13.7$, when $m > 1600\text{kg}$.

IV) For PHEVs with pure electric range lower than 80km, the fuel consumption at B status (corresponding to Charge Sustaining Phase in PHEV energy consumption method adopted by USA⁴) should be lower than 70% of the corresponding national fuel consumption limits; for PHEVs with pure electric range higher than 80km, the electric consumption at A status (corresponding to Charge Depletion Phase in PHEV energy consumption method adopted by USA) should meet the same requirement as BEVs.

⁴ <http://www.docin.com/p-1048730456.html>

1.2 Bus Energy Consumption Based Subsidy:

Subsidy calculation method is as follows: Subsidy = Electricity Quantity × Subsidy for each unit of electricity × Adjusting factor (Adjusting factor = Energy Density/Charging Rate/Fuel saving Ratio). There is a cap for both national and local subsidy (the latter is capped in relation to the former).

Current e-bus subsidy calculation method

Type	National subsidy (RMB/kWh)	Adjusting factor of national subsidy			National subsidy Cap (RMB)			Local subsidy
		6<L≤8m	8<L≤10m	L>10m				
Non-fast charging e-bus	1,800	Energy Density (Wh/kg)			90k	200k	300k	No more than 50% of national subsidy standard
		85<D≤95	95<D≤115	115<D				
		0.8	1	1.2				
Fast charging e-bus	3,000	Fast charging Rate			60k	120k	200k	
		3C<M≤5C	5C<M≤15C	15C<M				
		0.8	1	1.4				
PHE-bus (incl. range extended)	3,000	Fuel saving Ratio			45k	90k	150k	
		40%<R≤45%	45%<R≤60%	60%<R				
		0.8	1	1.2				

In comparison, the previous subsidy was calculated in a more simplified manner, as described in the below table. It is worth noting that the new regulation encourages the market introduction of E-buses with lower energy consumption and rewards fast charging buses. The new draft also rewards small PHE-buses aimed at cross-segment electrification, which were not previously rewarded.

Previous e-bus subsidy calculation method

Type	Energy Consumption (E_{kg} , Wh/km·kg)	Standard Vehicle (10<Length≤12, meters)					
		Pure Electric Range (R) (km, constant speed test)					
		6≤R<20	20≤R<50	50≤R<100	100≤R<150	150≤R<250	R≥250
E-Bus (k RMB)	$E_{kg} < 0.25$	220	260	300	350	420	500
	$0.25 \leq E_{kg} < 0.35$	200	240	280	320	380	460
	$0.35 \leq E_{kg} < 0.5$	180	220	240	280	340	420
	$0.5 \leq E_{kg} < 0.6$	160	180	200	250	300	360
	$0.6 \leq E_{kg} < 0.7$	120	140	160	200	240	300
PHE-Bus (k RMB)		/	/	200	230	250	

1.3 Utility Vehicles Battery Capacity Based Subsidy:

Utility vehicles (garbage, cleaning and other municipality service trucks) are eligible for a subsidy of maximum RMB 150k, and get different subsidies for different electricity capacity divisions (in the original policy draft each kWh corresponds to a constant subsidy standard

Subsidy standard (RMB/kWh)			National subsidy upper limit (RMB)	Local subsidy Cap
0-30 kWh	30-50 kWh	>50 kWh		
1500	1200	1000	150	No more than 50% of national subsidy

Two requirements for utility vehicles to be qualified for subsidy are: 1) Mass Energy Density of power battery system should be no less than 90 Wh/kg; 2) For pure electric freight and transportation vehicles, E_{kg} should be no higher than 0.5 Wh/km•kg; for other utility vehicles, the electricity consumption per unit curb weight (10k kg) should be no higher than 13 kWh.

1.4 FCV subsidy

FCV subsidy is the same as previous policy version, yet more stringent qualification standards were adopted: rated power of fuel cell system should be no less than 30% of the rated power of the driving motor, driving motor power should be of no less than 30 kW, and pure e-range of FCVs should be no less than 300km. For fuel cell passenger vehicles with rated power less than 30 kW but higher than 10 kW, the subsidy standard is set as 6,000 RMB per kW.

FCV subsidy by vehicle type

Vehicle Type	Subsidy (RMB per car)
FCV Passenger Vehicle	200,000
FCV Light-duty Bus/Truck	300,000
FCV Large & Medium-sized coaches and Heavy-duty Truck	500,000

2. Set caps for both central and local subsidies, requiring that the local subsidies should be no more than 50% of the central subsidies.



3. The subsidy is planned to be phased out over time as follows:

Subsidy phase-out plan (excluding FCVs)

2016	2017	2018	2019	2020
100%	100%	100%	80%	80%

4. Power battery testing requirements have been issued as part of the new subsidy calculation method.

Energy storing devices	Standard
Zinc-Air Accumulator	GB/T 18333.2-2015 ⁵
Super capacitor	QC/T 741-2014 ⁶
Power battery cycling life and requirement and testing method	GB/T 31484-2015 ⁷
Power battery safety performance requirement and testing method	GB/T 31485-2015 ⁸
Li-ion power battery safety performance requirements and testing method	GB/T 31467.3-2015 ⁹

5. Subsidies provision process will be stricter. Information related to NEVs (including: test results, sale invoice, vehicle registration documents) submitted by manufacturers at the beginning of each year will be scrutinized before their reporting will be approved and published. The process is involving local government and provincial government before it reaches national authoritative bodies under MIIT, MOF,

⁵ <http://www.zbgb.org/2/StandardDetail3228538.htm>

⁶ <http://www.zbgb.org/30/StandardDetail2603314.htm>

⁷ <http://www.zbgb.org/2/StandardDetail3546738.htm>

⁸ <http://www.zbgb.org/2/StandardDetail3546740.htm>

⁹ <http://www.zbgb.org/2/StandardDetail3546717.htm>



MOST and NDRC¹⁰.

6. The new regulation suggests penalties would apply for vehicle manufacturers that failed to meet the performance requirement based on which they received their subsidy, including providing false marketing or technical information. Penalties include circulating a notice of criticism, subsidy deduction, subsidy disqualification, suspending or removing relative products in Recommended EV list. However, in the absence of a clear management system and agreement among ministries on penalty amounts, this section is merely wishful thinking.

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¹⁰ http://jjs.mof.gov.cn/zhengwuxinxi/tongzhigonggao/201612/t20161229_2508628.html