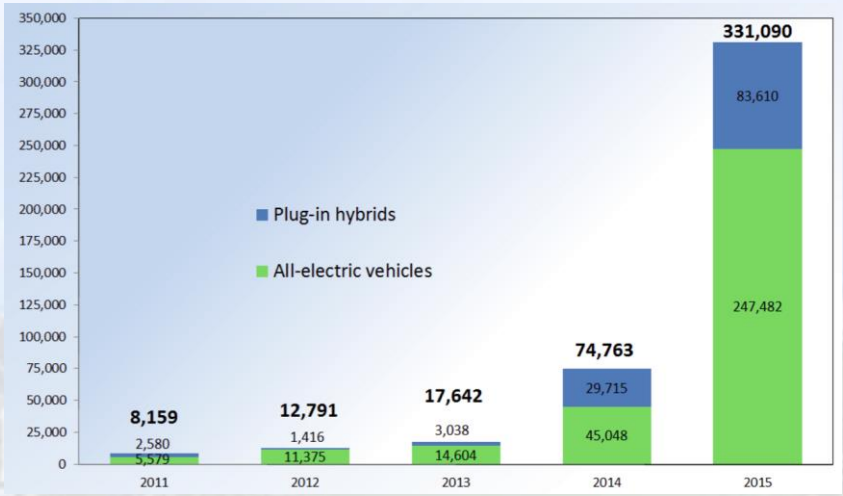
BYD

Commercialization to Date

China

2011 through April 2016
534,344 new energy vehicles (NEVs)

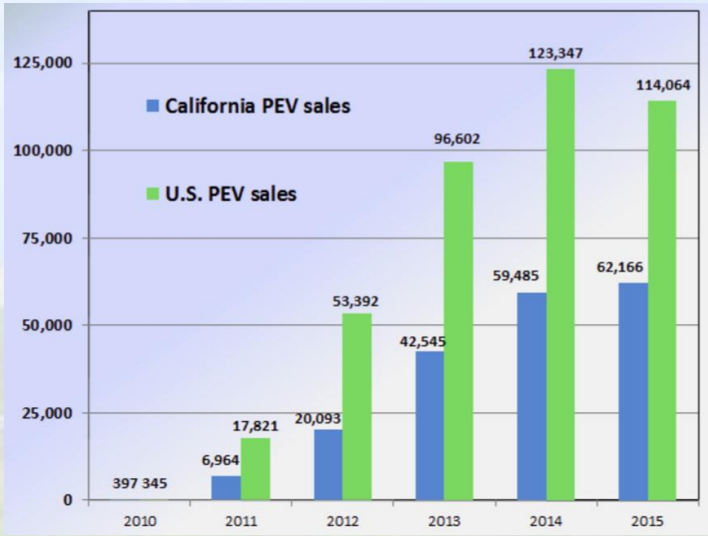


64% passenger/36% heavy duty
HD mostly buses & sanitation trucks

Passenger Cars:
2014 – 0.25% market share
2015 – 0.84% market share

United States & California

2008 through April 2016
450,000 plug-in passenger car sales in USA
California 47% of national; 54.5% in 2015



Heavy duty: N/A, assumed to be <5,000 total

California:
2014 – 3.2% market share (USA 0.75%)
2015 – 3.1% market share (USA 0.66%)

Incentives

	Plug-in Cars	Electric Buses	Electric Trucks	Chargers
Central Government CNY/kWh PAID TO MANUFACTURER	Up to $9,800 by range 2017-18: 80% 2019-20: 60%	Up to $81,600 by range & weight 2017-18: 80% 2019-20: 60%	2016: $275/kWh 2017-18: 80% 2019-20: 60%	$1.7B USD as of April 2015
Provincial Government CNY/kWh	Adopt 1:1 match Not to exceed 60% purchase price			
Federal Government	$2,500-7,500 credit up to 200,000 units	LoNo Grants $55M/yr for 5yrs	DOE Grants	30% cost up to $1,000 Business tax credit up to $30,000
California	CVRP: $1,500-2,500	HVIP: $20,000-110,000 vouchers AB 32/AB 118: demonstration projects		AB 118 IOU proposal to PUC for 62,000 charging stations @ $1.1B
Other State Governments	Rebates: $2,200-2,500 Tax Credits: $1,000-6,000	NY/Chicago 80% incremental w/caps GA: $12,000-20,000		Tax Credits 10-75%

Policy Differences

Policies	China	California	Federal
Goals	➢ 2012 – State Council of China: 500,000 NEVs 2015; 5M by 2020 ➢ July 12, 2014 central government published policy to install 12,000 charging stations with 4.8 million charging poles by 2020; provinces adopting plans to support and add to this target ➢ 13th 5yr Plan 16-20: heavily focused on NEVs	➢ Jerry Brown EO 2012: 1.5M ZEVs by 2025 ➢ Jerry Brown SB1275 2014 – Charge Ahead California: 1M ZEVs by Jan 1, 2023 ➢ Jerry Brown EO 2015: GHG reduction of 40% by 2030 relative to 1990; interim to 2050 goal of 80% ➢ SB350	➢ Obama SOU 2011: 1M EVs by 2015 (currently estimated by 2020)
Regulation and other Incentives	➢ Government Vehicles – 30% purchases must be clean energy ➢ Reduced taxes for NEVs – exemption from 10% purchase tax; 0 annual taxes for all electric & 50% for hybrids ➢ No traffic restrictions for NEVs (e.g. Beijing restricts conventional cars 1 day/week) ➢ Limited quota for gasoline cars in certain cities (e.g. Beijing lottery system) ➢ Reducing fuel subsidies for electric buses	➢ **Green Sticker: HOV/HOT lanes** ➢ **Free Parking** ➢ ZEV Credit Program ➢ State-wide purchasing mandates in consideration (e.g. Advanced Clean Transit 100% ZE by 2040) ➢ City purchase mandates (e.g. Los Angeles 50% of new purchases)	➢ EPA Phase 1 and 2 Other States: ➢ Lower vehicle licensing ➢ Exemptions from inspections ➢ 0% purchase loans for municipalities ➢ Sales tax exemption ➢ ZEV Program (9 other states)
Infrastructure	➢ **December 28, 2015: adopted GB/T 20234 for general standards, AC, DC**	➢ Level 1 and 2 standards ➢ No fast charge standards – 3 SAE committees ➢ Utility rebates for installation ➢ Electricity rates: TOU, separate metering	

Major Hurdles

China

1. Infrastructure – more apartments than households and don't always have dedicated parking spots; charging poles/capita lower than cities like London and Berlin
2. Subsidies Spread Thin – 150 qualifying domestic EV models vs. 22 domestic and 16 foreign in USA
3. High Subsidies Currently – what will purchasing look like once lifted

California

Light Duty:

1. Range anxiety
2. Incremental cost
3. Infrastructure standards for fast charging

Heavy Duty:

1. Customer unfamiliarity – buses; Customer uncertainty – trucks
2. Price –buses 70% premium over diesel, trucks 2-3x
3. Infrastructure – high cost to the meter & behind