J.P.Morgan

North America Equity Research
09 August 2010

Initiation
Overweight
TSLA, TSLA US
Price: $20.45
Price Target: $25.00

Tesla Motors

Electrifying Luxury; Initiate with Overweight

We initiate coverage on Tesla Motors with an Overweight, $25 price target. Since its 2003 start, Tesla has been singularly focused on developing pure electric vehicles (EVs). We think EVs and plug-in hybrids (PHEVs) both hold strong long-term promise given tightening environment regulations and an increasingly green global consumer. We believe Daimler's and Toyota's supply contracts with Tesla provide reassuring technology validation.

- **A central competitive advantage is the low cost of Tesla's battery pack,** which should allow it to sell the Model S (2012 launch) at a reasonable price but with a near-normal (up to) 300 mile range, a combination other EVs have yet to deliver. We think Tesla Model S battery pack costs will be at/below ~$300/kWh, well below what we hear from other OEMs/battery makers ($500-600/kWh for 2011-2012 timeframe, and $375-500/kWh mid-decade target). A key source of Tesla's cost advantage is its ability to apply commoditized small cylindrical lithium cells (used in consumer electronics) to a car via proprietary thermal/power management.
- **Model S is key.** Launching in mid-2012, we expect the mid-size luxury segment Model S to raise TSLA's revenue from $0.1B (2010) to $1.8B by 2013. It will be sold in three battery pack variants ranging from 160 miles to 300 miles (post tax credit, $50-70k base MSRP est.). TSLA aims to sell 20k units in 2013, not an aggressive assumption, in our view, as it represents a 2% share of the BMW 5-series sedan segment. 2.8k refundable reservations exist now for the Model S. But competition should eventually arrive, a key reason we assume long-term EBIT margins of 8-12% vs guidance of 14-16%.
- **Small but different.** (1) *Efficiency*: Tesla spent $100MM on Roadster development and plans to spend $0.4B on Model S, probably half of what other OEMs are spending on new PHEVs/EVs. (2) *Distribution*: Tesla will own, not franchise, its dealers, which should result in tighter brand equity/customer experience control. (3) *EV Pure Focus*: Tesla does not invest in anything but EV powertrains. This, coupled with an ability to attract top-notch vehicle engineering talent, should allow Tesla to address technical challenges better, cheaper, and faster than large global OEMs.
- **Set Dec-2011 price target of $25**. Our 2013 EPS ($1.51; $1.15 taxed) assumes 18.5k Model S units and 8.3% EBIT margin (in line with luxury OEMs; guidance is ~15%). We get to $25 with DCF and p/sales (avg. of BYD, A123 and HEV), though we do not see positive EPS until 2013 and, as such, TSLA may tread water until Model S launch becomes more visible (1H.11) and/or reservations increase further.

Automobile Manufacture

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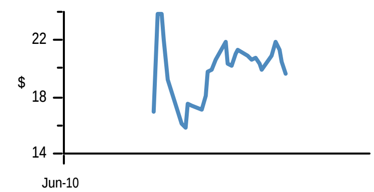
Price Performance



	YTD	1m	3m	12m
Abs	15.2%	21.6%	15.2%	15.2%

Tesla Motors, Inc. (TSLA;TSLA US)

	2010A	2011E	2012E	2013E	2014E	2015E
EPS Reported ($)						
Q1 (Mar)						
Q2 (Jun)						
Q3 (Sep)						
Q4 (Dec)						
FY	(1.38)	(1.88)	(1.46)	1.51	1.07	3.12

Source: Company data, J.P. Morgan estimates.

Company Data	
Price ($)	20.45
Date Of Price	05 Aug 10
52-week Range ($)	30.42 - 14.98
Mkt Cap ($ mn)	1,944.88
Fiscal Year End	Dec
Shares O/S (mn)	95
Price Target ($)	25.00
Price Target End Date	31 Dec 11

See page 35 for analyst certification and important disclosures.

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Key Investment Points

Tesla Motor Company (TSLA)

Overweight

Tesla uses small cylindrical lithium cells, a low-cost commoditized battery cell already produced in high volume in Asia for consumer electronics.

Battery pack costs are quoted in $/kWh, where kWh is the unit for nominal energy stored in a battery-pack.

Class leading battery storage capacity

	kWh	Pure EV range
Tesla Model S-300	90	300
Tesla Model S-230*	66	230
Tesla Model S-160	42	160
Nissan Leaf**	24	100
Chevy Volt**	16	40

Source: ** Company Websites; * J.P. Morgan Estimates; Rest others are taken from company reports and presentations.

Lowest battery pack cost = impressive range

We estimate that the Model S' battery pack will cost ~$300/kWh, well below the cost of the current Tesla Roadster's pack (~$550/kWh), and substantially below large format prismatic lithium battery costs ($750-1000 kWh now, expected to be $375-500 kWh by mid-decade). Key reasons for the pack cost saves from Roadster to Model S are ~44% better cell packing density, economies of scale (Model S volumes expected to be over 30x Roadsters'), 15% improved energy density at cell level, and 2/3 lower cobalt usage. But more fundamental than these factors, Tesla, unlike its competitors, uses "18650" form-factor small lithium cylindrical cells (the Roadster combines 6,831 of these individual cells together), a commoditized battery cell type long produced in high volume in Asia for consumer electronics. The large prismatic cells many other carmakers use do have some advantages (reduced packaging complexity) but they are fairly costly, at least today. Roughly speaking, lower per kWh battery cost allows Tesla to create a pack with more batteries, hence greater range. We believe the 300 mile range Model S has a ~90 kWh battery pack (most other carmakers are working with significantly smaller packs; the pure-EV Nissan Leaf, for example, has only a 100 mile range due to its 24 kWh pack). Carmakers and lithium automotive prismatic battery makers suggest most in the industry (with the exception of Daimler and recently Toyota) have simply not done a teardown of Tesla's pack (the Model S pack will be derived from the Roadster pack). This suggests Tesla likely does have a genuine competitive technology/cost advantage today, but the risk is that if the Model S is highly successful (the Roadster was high priced and low volume and therefore arguably easy for other OEMs to ignore), others will try to replicate Tesla's technology.

EV market potential

A key enabler for rising EV/PHEV penetration is rapidly falling lithium battery costs and step change improvements in recent years in lithium battery abuse tolerance (safety).

Many third party consultancies have estimated that PHEVs (plug-in hybrid vehicles) and EVs combined could account for 5-10% of global auto production by 2020 (translating into a 5-10MM unit segment at that time, and we would suspect that the EV/PHEV split between this would be 30/70). We believe key long-term drivers are obvious: global regulations that are increasingly stricter on greenhouse gas emissions, and a consumer who is increasingly eco conscience. And a key enabler is rapidly falling lithium battery costs and step change improvements in recent years in lithium battery abuse tolerance (safety). Key hurdles we see are *range anxiety* (concerns regarding number of miles vehicle would drive on one charge) and more broadly, *infrastructure anxiety* (availability of charging points). Tesla's 300-mile capable Model-S starts to address range anxiety (average gas engine cars have 300-400 mile ranges), but we believe infrastructure anxiety remains a major hurdle for the foreseeable future, suggesting pure EVs will likely be a consumers' second car, not the sole/primary mode of transport. PHEVs, which run pure electric for a limited range (e.g., 40 miles) after which a gas-powered generator recharges the battery, likely would find wider acceptance amongst single car owning consumers.

Manufacturing ramp risks high, while technology risks seem lower

A Model S launch delay could dilute, not just delay expected EPS.

Tesla currently sells the Roadster, but the Model S will be the first model it fully assembles in house (the Roadster's final assembly is done by Lotus), suggesting sizable manufacturing ramp risks (although we believe the recent purchase of

Toyota's NUMMI plant does de-risk the ramp). We calculate that a one-year delay in volume ramp vs. our projected timeframe would hit free cash flow by $350MM (a delay could trigger additional dilution). On the technology front, we are less concerned about the Model S. The Model S, while novel on many fronts, is not all that risky in terms of its technology, in our view, as it will essentially be employing a refinement (read: more powerful, lower cost) version of Roadster's (Gen II) battery pack (since 2008, Tesla has sold 1,063 Roadsters and there are no reports of widespread battery pack failures or safety issues).

Model-S will be employing a refined version of the Roadster battery, reducing technological risk.

Daimler/Toyota's involvement validates technology

Daimler plans to use Tesla's pack in the *smart* and *A-Class* vehicles, and owns ~8% of TSLA. While we suspect that Daimler's Tesla stake (like its ~$65MM investment in Chinese electric carmaker BYD, and 49.9% stake in battery manufacturer Evonik) is a part of a portfolio approach, it is encouraging to note that Daimler plans to use Tesla's battery pack in its *smart* and *A-Class*. Further, Toyota has recently made an equity investment of $50MM in Tesla (~3%), and has agreed to use Tesla packs for all-electric versions of the RAV4 (unconfirmed press reports state Tesla is also involved in EV versions of the Lexus RX and a Toyota high-end sports car). We think Daimler's and Toyota's involvement provides technology validation.

Tesla seems to so far be spending a fraction of global OEM peers on product development.

Owning, not franchising, the dealer network could constrain growth pace but this could have many long-term benefits.

Small and so different

Tesla's small size and roots in Silicon Valley, far from the core of the global auto industry, have many advantages, in our view. **(1)** *Product development: fast and low cost* – Tesla spends a fraction of what global auto peers spend to develop a new vehicle, and does it relatively fast, aided by physical co-location of design and engineering staffs. Development costs for the Roadster were $100MM and expected to be $400MM for the Model S versus ~$1B reported for most global OEMs for their PHEVs/Evs. Partly because of this, Tesla claims its break-even point on Model S is only 10k units. **(2)** *Distribution* – Tesla plans to 100% own (not franchise) its dealer network. While this can potentially slow the pace of distribution point expansion, this approach should benefit TSLA long term, both in terms of profitability and being able to tightly control brand equity and customer experience. **(3)** *EV Pure Play* -- Tesla claims it has never entertained developing anything but an EV. Most other carmakers are focused on a portfolio approach covering all future powertrain options (refining gas/diesel engines, HEVs, PHEVs, EVs, and fuel cells). While Tesla is clearly effectively putting all its eggs in one basket, its sole focus on pure EVs should help it better conquer technical challenges and also keep costs low.

Investment Risks

Downside Risks: ***(1)*** Established luxury carmakers introduce competing vehicles that eventually prove performance and cost competitive to Tesla's technology. Audi, for example, is targeting a 2012 launch of its E-tron EV ultra luxury sports car, and Mercedes and Porsche have pure EV sports car plans in the works as well. ***(2)*** The manufacturing ramp of Model S is delayed notably. ***(3)*** Model S sales start cannibalizing Roadster sales. ***(4)*** Elon Musk (CEO) is a key executive whose loss to the company could potentially be fairly detrimental (he has a history of moving on once companies become successful). We see him as a visionary who drives Tesla to high technical and commercial targets.

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Company Description

Tesla, an electric carmaker, is based in Palo Alto, California, and is currently the only company to manufacture federally compliant pure electric vehicles (EVs) commercially with its Tesla Roadster vehicle, an EV that was launched in early 2008. Tesla had sold 1,063 Roadster vehicles through March 31, 2010, and is now planning to launch a mid-size luxury sedan called “Model-S” (~$50K base price) in late 2012. Apart from manufacturing electric vehicles, Tesla also sells battery packs to Daimler’s *smart* and *A-Class* electric vehicles. Very recently, Toyota made an equity investment in Tesla and also agreed to develop an EV version of the RAV4 compact SUV for Toyota that may go on sale in 2012.

Outlook for Electrified Vehicles

While Tesla's medium-term volume projections do not seem aggressive (2.0% projected market share in 2013 of the global mid-size luxury sedan segment, e.g. BMW 5-series segment), we believe the longer-term success of the company (and our long-dated projections) will ultimately hinge on the magnitude of consumer adaptation of electrified vehicles (PHEVs or EVs).

There are many "2020 EV/PHEV market penetration rate" forecasts but these are essentially guesstimates at this stage as OEMs do not typically release product plans (let alone a product's volume targets) more than 2-3 years in advance of a vehicle launch. As such, while these estimates can provide a useful flag post, it is perhaps more useful at this juncture to debate the underlying factors that will influence the curve shape of electrified vehicles' penetration rates.

Over the next 10-20 years, widely accessible on-road charging stations may become a reality, but for the next 5 years, we presume the primary means for recharging an EV/PHEV will be the *home* and, in some cases, *work*.

- **Infrastructure –** Electric recharging infrastructure on the road, by and large, seems a very long way from being a reality. Better Place and a few others private enterprises do have efforts under way in this area, but the scale of these projects is still modest, in our view. Over the next 10-20 years, widely accessible on-road charging stations may become a reality, but for the next 5 years, we presume the primary means for recharging an EV/PHEV will be the *home* and in some cases *work*. So long as this is the case, we believe consumer "range anxiety" will likely remain a, if not *the*, primary constraining force on adaptation rates of EVs (but PHEVs can overcome this issue by having a range-extending gasoline/diesel generator onboard).

OEMs are highly unlikely to pigeon hole themselves into any single battery chemistry or form factor long term but in reality, switching battery chemistries probably entails less engineering/R&D investment than switching battery form factors.

- **Battery Technologies**– Battery technology should broadly be viewed in two dimensions: *cell chemistry* (there are many flavors of lithium chemistries and, eventually, there is likely to be non-lithium based chemistries as well) and *cell form factor* (large flat/prismatic or small cylindrical). We believe OEMs are highly unlikely to pigeon hole themselves into any single battery chemistry or form factor long term, but in reality, switching battery chemistries probably entails less engineering/R&D investment than switching battery form factors. Tesla is one of the only EV/PHEV carmakers to use small lithium cylindrical cells. In battery parlance, Tesla uses a "18650" form factor lithium battery with the 18 and 65 digits referring to the width and height in mm of the cylindrical battery. Small cylindrical cells are generally much cheaper than (the newer) large format prismatic lithium batteries as the former is an established product already manufactured in extremely high volume by Asian electronics firms (Panasonic/Sanyo, Samsung, etc) for use in consumer electronics. On the flip side, the large and flat shape of prismatic cells lend themselves to a) greater packaging efficiency in a vehicle, b) fewer cells per pack (ie, reduced pack complexity), and (supposedly, though Tesla likely would not agree) c) more robust cell cooling; tight management of battery cell temperature is critical to maintaining a cell's longevity. We later discuss Tesla's battery form factor choice in greater detail but the most critical point to understand is that its use of small lithium cylindrical cells is a major, and perhaps the primary, contributor to what we believe is its leading battery pack cost ($/kWh) competitiveness today. But the longer-term question is whether or not this cost advantage can be maintained as costs of large format prismatic batteries are falling rapidly.

Li-ion battery cost trajectory

	Time	Costs ($/kWh)
Tesla Roadster 2.0	Today	~550
Tesla Model-S	2012 launch	~300
Large Prismatic	Today	750-1000
Large Prismatic	2011-2012	500-600
Large Prismatic	2015	375-500

Source: J.P. Morgan Estimates

- **Battery Costs** – *Range anxiety* and *battery cost* (typically quoted in $/kWh) may initially appear like two separate obstacles in EV adaptation rates, but reducing the latter can go a long way to resolve the former. Lithium battery costs for *large format prismatic (flat)* batteries from various suppliers (A123, LG Chem, Ener 1, etc) are widely believed to be in the $750-1000/kWh range today and $500-600/kWh in 2011-2012. One of Tesla's critical but we believe often under-explained competitive advantages is that its battery costs are likely substantially lower than this level (perhaps in the $250-300 range for the Model S), partly because its battery packs rely on commoditized small format cylindrical cells (widely used in consumer electronics) instead of the newer prismatic batteries (discussed more below). We believe Tesla could do one of two things with this cost advantage: either sell its vehicle for a lower cost relative to competing vehicles with a comparable energy density (storage capacity) battery pack or simply sell the car with a much larger battery pack to achieve greater aggregate storage capacity, which in turn should translate into that much greater vehicle range. Tesla has essentially chosen the latter option.

In the US, annual fuel costs are estimated at $0.04/mile for gas engines and $0.12 for EVs; translating into $1,260/yr of annual average savings on fuel costs.

- **Consumers' ownership cost considerations** – While EV's (and PHEV's) have a notable upfront cost premium to ICE (internal combustion engine) vehicles today, the long-term economics of owning EVs look quite favorable. Several factors to consider: ***1) Upfront Vehicle Acquisition Cost*** – it is widely expected that battery costs can fall another 50% from current levels, at least for large format prismatic batteries, and sizable declines likely for small formal cylindrical cell batteries as well. Therefore, the upfront vehicle acquisition cost premium can likely eventually be eliminated/narrowed; ***2) Fuel Consumption Costs*** – We assume annual cost of fuel for EV's to be $0.04/mile versus $0.12/mile for ICE vehicles (this assumes gas prices of $3/gallon, and average US vehicle fuel efficiency of 25 mpg for gasoline powered vehicles and 3.3 miles/kWh for electric vehicles). Assuming an average of 15,000 miles per year per vehicle, annual fuel consumption costs would be an estimated $540 for EVs versus $1,800 for gasoline vehicles; ***3) Vehicle Maintenance Costs*** – we do not have any reasonable way of measuring maintenance costs for EVs, but assuming batteries perform as expected with an 8 year or so life, operating costs for EVs may prove competitive given fewer moving parts. ***4) Vehicle Residual Values*** – the performance of all batteries degrade with time in that they lose storage capacity, meaning vehicle range fades with time. Most carmakers at this stage feel comfortable guaranteeing EV battery packs for only 8-10 years at most. ICE engines do not have such an obvious degradation path. If battery replacement costs do not fall notably in the coming decade, residual values for EVs may prove uncompetitive to ICE engines.

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Table 1: Fuel Consumption Costs: Gasoline Engine vs. EV

	Gasoline		Electricity	
Energy's unit cost	$3.00	$/gal	$0.12	$/kwh*
Energy Consumed per mile	25.0	miles/gallon	3.3	miles/kwh**
Cost of Energy / mile	$0.12		$0.04	
Avg vehicle's miles driven / year	15,000		15,000	
Annual Energy Costs	$1,800		$540	

* US 50 state average. High population coastal states like CA and NY are in the $0.15-$0.18 range.
** A123 (in June 2010) states ~300 watts needed to propel a vehicle 1 mile (0.3 kwh/mile = 3.3 miles/kwh)
Source: JPMorgan estimates

Competition can initially be good for Tesla as new PHEV/EV models may broadly reduce consumer resistance to these advanced powertrains, but eventually (perhaps as early as 3-5 years from now) many of Tesla's current advantages may start to narrow or be eliminated.

- **Competition aimed at Tesla should be severe, even if not in plain sight today –** By the late-2008 Paris Auto Show, all OEMs had not convinced themselves of the commercial feasibility of PHEVs/EVs; regardless, nearly all OEMs had by then come to the realization that consumer and government interest in electrified vehicles had risen to a new level. As such, while Tesla has a clear first mover advantage, nearly every major global carmaker will likely have an advanced PHEV and/or EV model in production before the end of the current decade (see table on next page), in our view. We note announced pure EV plans of the Audi E-tron (42 kWh, 15 mile range, 0-60 in 4.8 seconds, and 2012 launch) and the Mercedes SLS AMG E-cell (48 kWh, 0-60 in 4 seconds), and press reports of Porsche management committing to an all electric Boxster (perhaps by mid-decade). Competition can initially be good for Tesla, in our view, as new PHEV/EV models may broadly reduce consumer resistance to these advanced powertrains, but eventually, perhaps as early as 3-5 years from now, many of Tesla's current advantages may start to narrow or be eliminated.

Table 2: Competing EV/PHEV Launches

High-end vehicles

OEM	Model	Make	Battery Type	Energy Density kWh	Power Density kW	All-Electric Range (miles/charge)	Launch Date	Performance 0 -60 mph	Price
Audi	E-Tron	EV	Lithium-ion battery	42	230	154	2012	4.8 sec	NA
Fisker	Karma	PHEV	Lithium-ion battery	20	NA	50	Sep-10	6 sec	$88K
Nissan	GT-R	EV	Lithium-Ion Battery	NA	NA	NA	NA	3.5 sec	$70K
Mercedes	SLS AMG E-Cell	EV	Lithium-ion battery	48	392	NA	NA	4 sec	NA
Tesla	Roadster	EV	Lithium-Ion Battery	53	200	244	2008	3.7 sec	$109K
	Model S	EV	Lithium-Ion Battery	42	NA	160	2012	5.6 sec	$49.5K
	Model S	EV	Lithium-Ion Battery	66	NA	230	2012	NA	NA
	Model S	EV	Lithium-Ion Battery	90	NA	300	2012	NA	NA

Mainstream vehicles

OEM	Model	Make	Battery Type	Energy Density kWh	Power Density kW	All-Electric Range (miles/charge)	Launch Date	Performance 0 -60 mph	Price
BMW	Mini E	EV	Lithium-Ion Battery	35	150	104	NA	8.5 sec	NA
BYD	E6	EV	Lithium iron phosphate	60	NA	186	Late 2010	NA	$40K
	F3DM	PHEV							
Chevrolet	Volt	PHEV	Lithium-Ion Battery	16	111	40	NA	NA	$41K
Coda	Sedan	EV	Lithium iron phosphate	34	NA	95	2010	<11 sec	$45K
Ford	Escape	PHEV	Lithium-Ion Battery	10	NA	30	2012	NA	NA
	Focus	EV	Lithium-Ion Battery	23	NA	100	2011	NA	~$35K
Mercedes	Smart	EV	Lithium-Ion Battery	14	30	68	2012	NA	<$20K
	B-Class	EV	Fuel Cell Technology	NA	100	249	2010		$64K
Mitsubishi	iMiev	EV	Lithium-Ion Battery	16	47	80	Apr-10	NA	$43K
Nissan	Leaf	EV	Lithium-Ion Battery	24	90	100	2010	NA	$33K
Phoenix	SUV	EV	Lithium Titanate Battery	35	NA	100	2010	<10 sec	$45K
	SUT	EV	Lithium Titanate Battery	35	NA	100	2010	<10 sec	$40K
Peugeot	Ion	EV	Nickel Metal Hydride Battery	47	NA	81	Late 2010	NA	$44K
Th!nk	City	EV	Lithium-Ion Battery	23	30	113	2009	16 sec	$28K
	Ox	EV	Lithium-Ion Battery	NA	60	125-155	2011	<8.5 sec	NA
Toyota	Prius	PHEV	Lithium-Ion Battery	50	NA	13	Late 2011	NA	$47.5K

Source: Company reports and company websites.

Even though Europeans pay twice as much for petroleum-based fuel as Americans do, American penetration rates for PHEV's/EVs may, at least initially, be some of the highest in the world because of high levels of suburbanized dwelling with home garages.

- **Addressable Market Nuances --** (1) ***EVs. vs. PHEVs*** -- Until on-road vehicle charging infrastructure is widely in place, EVs are likely to be primarily attractive to consumers/households who own more than one car. PHEVs, on the other hand, are likely to have much broader consumer acceptance over the next 10 years precisely because their usage is not constrained by recharging infrastructure. (2) ***Geographical considerations*** – Outside of a few dense urban metropolises like Manhattan, a wide swath of Americans have access to home charging (suburban homes with garages). We believe home charging itself is not widely available in Europe and Asia (let alone on-road charging). Even though Europeans pay twice as much for petroleum-based fuel as Americans do, American penetration rates for PHEVs/EVs may, at least initially, be some of the highest in the world. Separately, markets like China may have particularly high EV/PHEV penetration rates because of a) government involvement in addressing infrastructure challenges, and b) rising suburbanization levels in China.

Table 3: EV / PHEV Global Market Penetration Forecasts

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EV/PHEV	1	1	4	4	30	103	223	375	438	482	518
HEV	416	793	1,133	2,309	4,891	8,785	11,867	15,127	17,440	18,835	19,944
ICE	64,549	67,825	64,328	54,706	59,433	60,334	62,233	64,472	65,482	65,859	66,609
Global LV Production	**64,966**	**68,619**	**65,464**	**57,019**	**64,355**	**69,222**	**74,322**	**79,974**	**83,360**	**85,176**	**87,071**
EV/PHEV as % of global production	***0.0%***	***0.0%***	***0.0%***	***0.0%***	***0.0%***	***0.1%***	***0.3%***	***0.5%***	***0.5%***	***0.6%***	***0.6%***
HEV as % of global production	***0.6%***	***1.2%***	***1.7%***	***4.0%***	***7.6%***	***12.7%***	***16.0%***	***18.9%***	***20.9%***	***22.1%***	***22.9%***
ICE as % of global production	***99.4%***	***98.8%***	***98.3%***	***95.9%***	***92.4%***	***87.2%***	***83.7%***	***80.6%***	***78.6%***	***77.3%***	***76.5%***

Source: CSM Auto (Global Insight).

The Uniqueness of Tesla's Battery Pack

Key engineering differences between Tesla's power-train and that of other EVs/PHEVs is in battery *cell form factor* (shape) and the thermal management of the individual cells. Tesla uses traditional small cylindrical lithium ion battery cells, the type widely used in today's laptops, instead of the newer generation, large format prismatic (i.e., flat) lithium ion batteries. In addition, Tesla uses active liquid thermal control of the pack to individually control the temperature of each cell (the Nissan Leaf, for example, does not use liquid thermal control).

Tesla's IP seems to primarily lie in the effective management of the battery pack, and the company is agnostic to battery chemistry (Roadster uses lithium Cobalt Oxide, and Model-S will use lithium Nickel-Cobalt-Aluminum). Further, although 18650 form-factor cylindrical batteries offer significant cost advantages, Tesla could adopt, albeit with some costs, prismatic battery cells if such cells eventually prove cost competitive, although we sense the company does not see this as likely for at least five years.

The pack that will be used in the Model S is expected to have a roughly 90 kWh energy density (for the 300 mile range variant). It will likely interlink over 10,000 individual lithium NCA cells (initially manufacturing by Panasonic), and will use liquid thermal controls. The pack is expected to retain 60% of its capacity up to 10 years. The pack's capacity deterioration curve is quite flat / shallow in year 1-5, and then sees a steeper fall between years 6 and 8.

Small Cylindrical vs. Large Format Prismatic Batteries

Each Tesla (Roaster) battery pack links together 6,831 individual cylindrical cells. Daimler, via its usage of Tesla-sourced *smart* EV battery packs, Toyota with its agreement to develop an electric RAV4 with Tesla, BMW, via its Mini E model, which will have 5,088 individual cylindrical cells, are the only other carmakers we know of that appear to have seen the virtues of small cylindrical cell based battery packs. Electric power-trains being developed by most other carmakers generally plan to employ a far fewer amount of the (much larger) prismatic form factor cells.

In general, small cylindrical battery cells are considered a more established technology, but many auto industry players we have spoken to appear to be convinced that the future of electric vehicle power-trains lies with prismatic cells. Tesla seems open to battery form factor changes in the future, but simply believes that cylindrical cells offer the best value proposition for several years to come.

While prismatic cells result in better space utilization due to their flat structure, we think small cylindrical cells may have future converts. In addition to cylindrical's sizable cost advantage today (and we believe likely for at least another 3-5 years), as a pack's energy density rating rises (presumably all OEMs will seek greater range over time), cell management challenges grow in a non-linear manner – smaller cells are easier to control individually than larger cells (ie, fire propagation risk is reduced).

The major supposed disadvantage of Tesla's battery pack is that it employs many more individual parts than that which would result from the usage of large format prismatic batteries, and therefore Tesla's pack is presumably more suspect to quality/performance issues. We do not agree with this assessment, and believe Tesla's engineering, with its non-automotive mindset, has perhaps been more open to investing in refining its more complex design, which we believe provides superior value overall.

We believe there are several advantages to Tesla's battery pack design of multiple small cylindrical cells (over prismatic cells), which we outline below.

- **Cost –** Unlike prismatic batteries, 18650 form factor (cylindrical) lithium cells are a largely commoditized product with a very large installed manufacturing base, primarily in Asia. This allows Tesla's batteries to be highly cost competitive relative to the performance they provide. Tesla has not revealed the precise cost of its battery pack. Tesla expects Model S pack cost to be about 35-40% below the pack cost for Roadster 2.0. Roadster 2.0's pack cost has not been revealed but Tesla has in the past said (prior to Roadster 2.0 being launched) that Roadster pack total costs were ~$36k, implying $679/kWh. However, we think Roadster 2.0 pack costs have been improved since that statement was made, and its cost currently is perhaps around ~$550/kWh. We think TSLA will likely achieve another 45% cost reduction (ie, to ~$300/kWh) for Model S pack (we note CEO Musk has publicly stated that Model S pack costs will be well below Nissan Leaf's supposed $350/kWh). While these anticipated cost reductions by TSLA would exceed the pace of cost reductions expected from lithium prismatic battery makers (from $750-1000/kWh today to $375-500/kWh by mid-decade), it would be reasonable to assume that the rate of cost reduction *beyond 2012* for Tesla (assuming it continues to use cylindrical packs) will probably not be as much as that of the less mature prismatic cells.

- **Energy Density / Power Density –** Cylindrical form factor batteries tend to have better gravimetric energy density or specific energy (Wh/kg), but prismatic form factors tend to have better power density (W/kg). We believe one explanation for why many other carmakers have tended to favor prismatic form factors is that they are not primarily focused on pure EVs. Energy density is directly linked to vehicle range, while power density primarily influences acceleration. As such, carmakers focused primarily on HEV/PHEV applications seem to have an understandable bias toward prismatic batteries, while the more range-sensitive pure EV manufacturers such as Tesla perhaps have found cylindrical designs more valuable.

- **Safety / Abuse Tolerance –** Tesla believes cylindrical form batteries are inherently safer than larger prismatic batteries because each failure (thermal runaway or fire) can be confined to a relatively small (cylindrical) cell. This, of course, assumes fires are prevented from propagating from one cell to adjacent cells, a technology focus area in which Tesla has apparently made substantial progress, according to battery vendors such as Sanyo. It is worth noting that of the multiple Tesla Roadster crashes that have occurred so far, none has resulted in fires (even though some of the crashes were extremely severe). A Designnews.com (July 30, 2009) article quoted CTO J.B. Straubel saying that Tesla's cooling system uses a manifold and cooling tubes to run an even mix of water and glycol through the pack, drawing heat away from the batteries. As a result, the possibility of a cell sparking and setting fire propagation is reduced.

- **Redundancy –** Using multiple small cells allows a configuration in which many parallel cell arrays can be employed, meaning the loss of any single cell in an array minimizes the amount of total reduction in battery pack power. Tesla's battery pack is configured as 69 parallel cell arrays with each array holding a series/group of 99 individual cells (69 x 99 = 6,831 total cells). Some competitors, for example, that use large prismatic batteries configure the pack as 2 arrays with each array holding a series/group of 100 individual cells. Said differently, the loss of a single cell, which would result in the loss of that entire array given its serial, Christmas tree light-like, formation, means that Tesla loses only 1/69th (1.5%) of its battery power.

- **Manufacturing Yield –** Tesla believes the manufacturing process of cylindrical cells is inherently more efficient and less prone to errors, which in turn partly explains why cylindrical cells are lower cost. Tesla believes battery manufacturing yield is related to total surface area of the electrode – the smaller the electrode (as in cylindrical cells), the better the yields.

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Earnings Outlook

This section discusses summary financials for overall Tesla, comparative operating margin analysis, free cash flow, and capital structure. For detailed revenue expectations for the Model S, Roadster, Gen-III vehicle, and the Powertrain business, please refer to Detailed Revenue and Profit by Model section on page 22.

Summary Earnings Outlook

Table 4: Summary Earnings Outlook

	FY09	FY10E	FY11E	FY12E	FY13E	FY14E	FY15E	FY16E	FY17E	FY18E	FY19E	FY20E
Total Revenues	**112**	**109**	**147**	**628**	**1,846**	**2,173**	**3,672**	**4,971**	**6,590**	**7,209**	**8,346**	**8,420**
Total COGS	102	84	115	520	1,397	1,654	2,828	3,919	5,308	5,879	6,834	6,927
Total Gross Profit	**10**	**25**	**32**	**108**	**449**	**519**	**844**	**1,052**	**1,282**	**1,330**	**1,511**	**1,493**
Gross Margin	8.9%	23.2%	21.8%	17.2%	24.3%	23.9%	23.0%	21.2%	19.5%	18.5%	18.1%	17.7%
Research and Development	20	80	139	150	161	267	177	172	228	303	305	305
% of sales	17.9%	73.1%	94.6%	23.9%	8.7%	12.3%	4.8%	3.5%	3.5%	4.2%	3.7%	3.6%
SG&A	41	90	91	112	135	148	240	320	419	458	507	490
% of sales	36.6%	82.2%	61.9%	17.8%	7.3%	6.8%	6.5%	6.4%	6.4%	6.3%	6.1%	5.8%
Operating Income (loss)	**(51)**	**(145)**	**(198)**	**(154)**	**153**	**104**	**427**	**560**	**636**	**569**	**699**	**698**
Operating Margin	-45.5%	-132.1%	-134.8%	-24.6%	8.3%	4.8%	11.6%	11.3%	9.6%	7.9%	8.4%	8.3%
Interest Income (expense)	(2)	(3)	(10)	(14)	(13)	(10)	(9)	(7)	(6)	0	0	0
Other (loss) gain	-1.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pre-tax Income (Loss)	**(54)**	**(158)**	**(208)**	**(168)**	**140**	**93**	**418**	**553**	**630**	**569**	**699**	**698**
Taxes	0	0	0	0	0	0	100	133	151	137	168	167
Memo: Tax Rate	0%	0%	0%	0%	0%	0%	24%	24%	24%	24%	24%	24%
GAAP Net Income (Loss)	**(54)**	**(158)**	**(208)**	**(168)**	**140**	**93**	**318**	**420**	**479**	**433**	**531**	**530**
Add: change in fair value of warranty liabilities												
Add: Non-cash Stock Based compensation		17	14	16	19	20	17	18	20	21	23	23
Non-GAAP Net Income		**(141)**	**(194)**	**(152)**	**159**	**113**	**334**	**438**	**499**	**454**	**554**	**553**
Weighted average number of shares -- Diluted		102.0	103.0	104.1	105.1	106.1	107.2	108.3	109.4	110.5	111.6	112.7
Non-GAAP Diluted EPS		**$ (1.38)**	**$ (1.88)**	**$ (1.46)**	**$ 1.51**	**$ 1.07**	**$ 3.12**	**$ 4.05**	**$ 4.56**	**$ 4.11**	**$ 4.97**	**$ 4.91**

Source: Company reports and J.P. Morgan estimates.

Revenues

The first year of meaningful revenue generation would be 2013, as this would be when both Next-Generation Roadster and Model-S show for the first time on a full year basis. We estimate Tesla to generate $1.8B of revenues in 2013, which should grow to $2.2B in 2014 and $3.7B in 2015. Our revenue estimates are based on 20K unit sales (1.5K Roadster + 18.5K Model-S) in 2013, 24K (1.75K Roadster + 22.0K Model-S) in 2014 and 45K (1.95K Roadster + 37.5K Model-S + 6K Gen-III) in 2015. We expect Model-S vehicles to be the biggest revenue and volume drivers for Tesla until the launch of “Gen-III” cars in 2015.

Operating Margin

We believe that Tesla could post higher operating margins than traditional luxury carmakers at least for the next few years given lesser competition in the EV market right now and Tesla’s cost advantage over its competitors; we nevertheless model conservatively and assume margins similar to the peers. We expect Tesla to record operating profits of $153MM (8.3% margin) in 2013, $104MM (4.8% margin) in 2014 and $427MM (11.6% margin) in 2015. While our margin assumptions are roughly consistent with 5-9% operating margins posted by traditional luxury OEMs like BMW, Mercedes, Audi, etc., they are notably below the long-term operating margin guidance of 14-16%. We think that margin assumptions in our model could prove to be conservative and sense that Tesla could make higher operating margins than peers at least for the next few years.

EPS

Our model assumes Tesla to post losses for the next three years before turning positive in 2013. Based on the assumptions discussed below, we project non-GAAP EPS of -$1.38 in 2010, -$1.88 in 2011 and -$1.46 in 2012. As Model-S volumes start appearing fully in 2013 after the model's potential launch in late 2012, we expect Tesla to report its first profitable year in 2013 with an EPS of $1.51 ($1.15 assuming normalized 24% tax rate), which falls to $1.07 in 2014 ($0.81 assuming normalized 24% tax rate) due to higher SG&A and R&D costs prior to launch of the "Gen-III" car in 2015. We expect EPS in 2015, however, to jump sharply to $3.12, as SG&A and R&D costs moderate and revenues from "Gen-III" vehicles kick in. We also assume 2015 to be the first year Tesla will be paying normalized taxes — an estimated 24% on a blended basis.

Our 2013 EPS would be $0.18 higher should the 2013 operating margin be 100 bps higher. Also, we estimate that each 5K additional model-S vehicles would provide a $1.00 uplift to our 2013 EPS estimate. Therefore, we estimate that 25K model-S vehicles (vs. 18.5K in our model) and 15% operating margin (vs. 8.3% in our model) would yield an EPS of $3.51 in 2013 (vs. $1.51 in our model).

Free Cash Flow

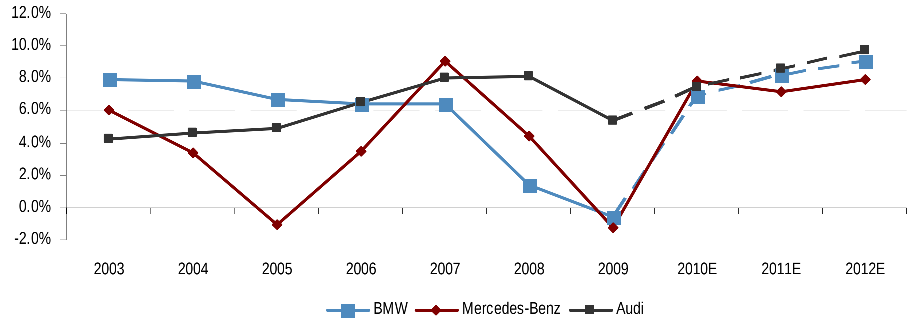
The estimated negative spread between D&A (depreciation and amortization) and capital expenditure, coupled with roughly neutral working capital, should result in significant free cash outflow for the next few years for the company. We expect capital expenditure to be substantially higher for the next few years as Tesla invests in development of Model-S (and derivatives) and Gen-III cars. We estimate $195MM of free cash outflow (vs. -$141 net loss) in 2010, $297MM of free cash outflow (vs. -$194 net loss) in 2011, $175MM of free cash outflow (vs. -$152MM net loss) in 2012 and $153MM of free cash flow generation (vs. $159MM net income) in 2013.

The timely launch of Model-S becomes more necessary, in our view, as the cash on the balance sheet should fall significantly to $44MM in 2012 (even after fully utilizing DOE loans and IPO proceeds) due to the above discussed free cash outflows. Our model, as such, suggests that Tesla could do a small-size capital market transaction sometime in future to fund its future investments.

Tesla's Operating Margins vs. Peers

We expect Tesla to report positive operating income for the first time in 2013 after the launch of Model-S in late 2012, and expect the company to generate $153MM of operating profit in the year. While the company guides to 14-16% operating margins long term, we model more conservatively and assume an 8.3% operating margin in 2013, which, we believe, is more analogous to the 5-10% normalized margins posted by traditional luxury automakers such as BMW, Mercedes, Audi, etc.

Figure 1: Operating Margins 2003-2012E for Luxury OEMs



Source: Company reports and J.P. Morgan estimates. Operating margin estimates for future years are the published estimates of J.P. Morgan's European Auto Analyst.

Tesla could make a higher operating margin than traditional luxury carmakers, at least for the initial few years. As more and more electric vehicles come to the market, and automakers start competing neck and neck in EVs (eg, Audi E-tron is expected in 2012/2013), operating margins could decline but we believe would likely remain higher than the luxury automakers, given the cost advantage and several other strategic initiatives taken by the company, as mentioned below.

- **Tesla claims to be able to develop vehicles at a significantly lower cost than the peers:** Tesla developed Roadster with just $100MM, though it does not include development of assembly lines, etc., as Tesla gets Current Generation Roadster assembled by a third party vendor in UK — Lotus Cars Limited. Moreover, operating income from Roadster vehicles turned positive in 1Q:10, even at today's lower volumes, which we believe likely denotes a significant cost advantage that Tesla has over its peers. Tesla expects Model-S development costs, including development of assembly lines, to equate to ~$400MM — substantially lower than what other automakers usually need to develop a new model like this. This makes us believe that the company would likely be able to develop and build future vehicles (Model-S and its derivatives, Gen-III cars etc.) at a lower overall costs than other automakers.

- **Tesla owns its dealerships:** Tesla, unlike other automakers, would run the dealerships on its own, which should help the company to manage its inventories in a better fashion. We believe this would likely help Tesla to post higher operating margins than would the traditional automakers as Tesla would likely capture the operating margins dealers usually make from selling new vehicles (publicly listed dealers typically make 3-4% operating margin, on a normalized basis).

- **Powertrain development is singularly focused:** Tesla invests only in electric vehicles. Most other global carmakers are simultaneously investing in gas, diesel, HEVs, PHEVs, and EVs (some are also investing in fuel cells and CNG). The narrower focus of Tesla's powertrain plans by itself could suggest lower research and development costs.

…Though R&D costs and SG&A expenses are expected to be abnormally higher for the next few years: On Research and Development (R&D), we expect Tesla to spend of $80MM in 2010, $139MM in 2011, $150MM in 2012 and

$161MM in 2013. For the next three years, we expect Tesla to invest more in R&D to develop "Gen-III" cars, which we assume will be launched in late 2015. In subsequent years, we expect R&D costs to be in the range of 3.5% to 4.0% of revenues. We expect SG&A expenses to be $90MM in 2010, $91MM in 2011, $112MM in 2012 and $135MM in 2013. It is worth noting that non-cash stock based compensation is included in the SG&A number mentioned above. In future years, we expect SG&A costs (excluding stock-based compensation) to be ~6% of total revenues, in line with Tesla's long-term SG&A guidance.

Non-GAAP EPS

Walking from GAAP net-income to non-GAAP net-income: In its future earnings releases, Tesla will add back the following two items to its reported GAAP net-income number to calculate non-GAAP net income: **(1)** Stock-based compensation, which would be included mainly in the reported SG&A and a smaller amount in R&D; **(2)** Gains or losses associated with marking-to-market DOE warrant. We adopt the same methodology, and add back non-cash stock based compensation to our net income estimates before calculating EPS for the company. Also, for simplicity purposes, we assume no gains (losses) from marking-to-market (MTM) the DOE warrants.

Free Cash Flow Consideration

We estimate that Tesla will not generate meaningful free cash flow until 2016, as Tesla would need to have significant capital expenditures for the next several years related to various items like development and expansion of production capacity, opening new stores, etc.

Expansion of vehicle assembly capacity for Gen-III would require Tesla to make higher capital investments for the next few years: We estimate that Tesla will need to make $465MM of capital investment in the period 2013-2015 to expand the vehicle assembly capacity for the production of lower-priced (and likely higher volume) Gen-III cars. However, we believe that investment in the NUMMI plant would significantly lower the cost to expand vehicle assembly capacity given the NUMMI plant produced roughly 450K vehicles at its peak. Further, we estimate Tesla will make $50MM investment every year (beginning 2014) toward top-hat development.

We expect the company’s estimated negative spread between D&A (depreciation and amortization) and capital expenditure, coupled with roughly neutral working capital, to result in significant free cash outflow for the next few years. We expect capital expenditure to be substantially higher for the next few years as Tesla invests in development of the Model-S and its derivatives and Gen-III cars.

Table 5: Summary of Free Cash Flows

	2010E	2011E	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E
GAAP Net Income (loss)	-158	-208	-168	140	93	318	420	479	433	531	530
Depreciation & Amortization	10	16	35	43	45	45	50	50	50	50	50
Stock-based compensation	17	14	16	19	20	22	24	26	28	30	30
Change in Working Capital	36	17	25	87	35	101	96	117	59	91	27
Cash flow from operations	**-95**	**-162**	**-93**	**289**	**193**	**486**	**590**	**672**	**570**	**702**	**638**
Capital Expenditure	-100	-136	-83	-136	-180	-360	-100	-138	-158	-195	-213
Free Cash Flow (FCF)	**-195**	**-297**	**-175**	**153**	**13**	**126**	**490**	**534**	**412**	**507**	**425**

Source: Company reports and J.P. Morgan estimates.

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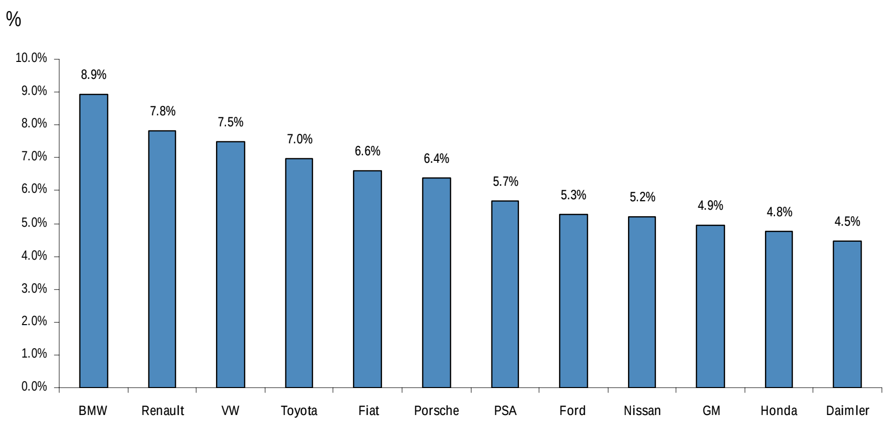
Table 6: Capital Expenditure Build

	FY10E	FY11E	FY12E	FY13E	FY14E	FY15E	FY16E	FY17E	FY18E	FY19E	FY20E
Store Count	18	29	44	65	75	85	105	140	175	225	250
Memo: Vehicles Sold per year per Store	30	19	133	408	317	535	710	801	770	688	640
Capital Required to Open One Store	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Incremental Capital Required to Open Stores	4.0	5.5	7.5	10.5	5.0	5.0	10.0	17.5	17.5	25.0	12.5
Total Volume (Incl. Powertrain)	1,731	4,060	11,270	32,400	33,150	56,260	87,441	126,230	150,792	172,396	179,151
Total Powertrain Capacity	30,000	30,000	30,000	30,000	30,000	60,000	60,000	90,000	120,000	180,000	180,000
Capital Required to Build 10K Additional Capacity	10	10	10	10	10	10	10	10	10	10	10
Incremental Capital Required to Increase powertrain production capacity	0	0	0	0	0	30	0	30	30	60	0
Total Vehicle Assembly Capacity	30,000	30,000	30,000	30,000	50,000	50,000	150,000	250,000	250,000	250,000	250,000
Incremental Capital Required to Expand Vehicle Assembly Capacity	0	0	0	105	105	255	0	0	0	0	0
Incremental Capital Required to Develop Top-Hat (capex only)	0	0	0	0	50	50	50	50	50	50	50
Total Incremental Capital Required	4	6	8	116	160	340	60	98	98	135	63
Maintenance Capex	96	130	75	20	20	20	40	40	60	60	150
Total Capital Expenditure	**100**	**136**	**83**	**136**	**180**	**360**	**100**	**138**	**158**	**195**	**213**
% of total revenues	*104.9%*	*99.0%*	*13.6%*	*5.8%*	*8.4%*	*9.9%*	*2.0%*	*2.1%*	*2.2%*	*2.4%*	*2.6%*

Source: Company Reports, J.P. Morgan Estimates

Figure 2: Automotive Capex (2000-2009 average) as % of Sales for Global Automakers



Source: Company reports.

DOE Loan and Capital Structure Outlook

Background of DOE loans: The Department of Energy (DOE) will extend a total of $465MM loans at a 3% interest rate to Tesla to develop and build electric cars. Tesla is under contractual obligation to pay down the loans fully by Dec-2018, failing which DOE warrants (issued by the company to the DOE in exchange for the loans) would convert into equity. Tesla also needs to pay down $13MM of the DOE loans every quarter beginning 4Q:2012.

Tesla intends to fund all of its future investments to develop, build and expand vehicle production capacities through a combination of DOE loans (total amount available is $465MM) and IPO proceeds (net proceeds from the IPO were $184MM).

As our model assumes the company to start generating its first significant free cash flow in 2016, and given that Tesla needs to pay down $13MM of DOE loan every quarter beginning 4Q:2012, we see a possibility of small-size capital market transactions by the company in the medium term. However, we note that our FCF forecasts are based on conservative Model-S operating margin estimates; our 8.6% operating margin estimate in 2013 compares with the 14-16% long-term margin guidance provided by the company. We believe that if Model-S volumes ramp up at a pace faster than we forecast and margins come in better, Tesla should potentially be able to fund all of its capital requirements entirely through incremental FCF generation vs. our model. Long term, we expect Tesla to be able to fully pay down the outstanding amount of DOE loans by the required timeframe, and therefore expect DOE warrants to expire and to not convert into equity.

Table 7: Summary of Balance Sheet Data

	2010E	2011E	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E
Free Cash Flow (FCF)	**-195**	**-297**	**-175**	**153**	**13**	**126**	**490**	**534**	**412**	**507**	**425**
Gross Debt	159	372	452	400	348	296	244	192	0	0	0
Gross Cash	223	139	44	145	106	180	619	1,101	1,321	1,828	2,253
Net Debt	-64	233	408	255	242	116	-375	-909	-1,321	-1,828	-2,253

Source: Company reports and J.P. Morgan estimates.

Valuation

Our Dec-2011 price target is $25: We forecast revenue of $109MM in 2010, $1.8B in 2013 (assumes 18.5k Model S volumes), and ~$5B by 2016 (includes planned 3-series competitor). In 2013, we see EBIT margin of 8.3%, in line with German luxury OEM historical ranges, and EPS of $1.51 ($1.15 using normalized tax rate). We get to $25 using both a DCF (11.7% discount rate, 4% terminal growth, inclusive of 2011 burn) and price/sales (1.4x which is the 1.5x average 2012 p/sales of A123, Ener1, BYD discounted one year as we apply it to Tesla's 2013 sales). Our $25 price target implies a somewhat lofty 27x P/E on tax rate adjusted 2013 EPS, although implied P/E is 22x if 10% EBIT margin is used (our margin forecast may be conservative at least in the initial years (guidance is 14-16%).

We triangulate at this target using multiple approaches, and take the average of the DCF based and price/sales based valuations to arrive at our price target of $24.

We believe there are no great comps for Tesla, but BYD, A123 and Ener-1 are somewhat appropriate (latter two are Li-ion battery manufacturers). BYD is trading at 1.4x Bloomberg consensus 2012 sales estimate; while A123 and Ener-1 are trading at 1.7x and 1.4x, respectively, based on consensus 2012 estimates. We apply the average 2012 price/sales of these peers, discounted by one year, to Tesla's 2013 revenues (its first full year of Model S revenues).

Table 8: Valuation Summary

Equity value		
	$MM	**Share Price**
DCF (inclusive of 2011 cash burn)*	2,489	24.40
P/Sales (1.5x peer avg on 2013 sales, discounted)	2,558	25.08
Average	**2,524**	**24.74**
Implied:		
P/E (27x, on tax-effected 2013 EPS, discounted 1 yr)	2,567	25

* Excluding the 2011 cash burn, DCF would be $27

Source: Company reports, Bloomberg and J.P. Morgan estimates; Note

Table 9: Global Electric-Car/Battery Maker Valuation Comp Sheet

In MM local currency

	Ticker	Price	Market Cap	P/E				P/Sales			
In Local Currency				**2010E**	**2011E**	**2012E**	**2013E**	**2010E**	**2011E**	**2012E**	**2013E**
A123 Systems Inc	AONE US	10.7	1,114	NM	NM	NM	22.1x	8.2x	3.9x	1.7x	0.9x
Ener1 Inc	HEV US	3.3	481	NM	NM	NM	332.0x	5.3x	2.1x	1.5x	0.9x
Byd Co Ltd-H	1211 HK	52.1	118,419	22.2x	18.1x	15.5x	NA	2.2x	1.7x	1.4x	NM
Average EV names				**22.2x**	**18.1x**	**15.5x**	**177.1x**	**5.2x**	**2.6x**	**1.5x**	**0.9x**

Source: Company reports, Bloomberg and J.P. Morgan estimates. Priced as of August 6, 2010.

Table 10: DCF Based Valuation

	2009	2010E	2011E	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E
Revenues	112	109	147	628	1,846	2,173	3,672	4,971	6,590	7,209	8,346	8,420
EBITDA	-46	-135	-182	-119	196	149	472	610	686	619	749	748
Less: D&A	-5	-10	-16	-35	-43	-45	-45	-50	-50	-50	-50	-50
EBIT	-51	-145	-198	-154	153	104	427	560	636	569	699	698
Interest Expense	-2	-3	-10	-14	-13	-10	-9	-7	-6	0	0	0
Taxes	0	0	0	0	0	0	-100	-133	-151	-137	-168	-167
Net Income	**-54**	**-148**	**-208**	**-168**	**140**	**93**	**318**	**420**	**479**	**433**	**531**	**530**
Add: D&A	+5	+10	+16	+35	+43	+45	+45	+50	+50	+50	+50	+50
Add: Stock based compensation		+17	+14	+16	+19	+20	+22	+24	+26	+28	+30	+30
Change in Working Capital	0	18	2	9	68	15	85	78	97	37	68	4
Capital Expenditure	-68	-100	-136	-83	-136	-180	-360	-100	-138	-158	-195	-213
Free Cash Flow to Equity	**-117**	**-202**	**-311**	**-191**	**134**	**-7**	**109**	**472**	**515**	**390**	**485**	**402**
PV of FCF to Equity		-202	-279	-153	96	-5	63	243	238	161	180	133
Terminal Value												5,458
Implied Terminal Growth rate												14x
PV of Terminal Value												1,811

DCF Assumptions		**Comments**
(1) Risk-free rate*	2.854%	
(2) Beta	1.0	
(3) Risk Premium**	8.5%	
(1)+ (2)*(3) = Cost of Equity	11.7%	
LT Growth Rate	4.0%	

* US 10-yr Treasury yield

** Source: Bloomberg's US Country Risk Premium

Equity Value Calculation	
PV of FCFs	679
PV of Terminal Value	1,811
Equity Value (fully distributed)	**2,489**
Implied Stock Price	**24**

Source: Company reports, Bloomberg, and J.P. Morgan estimates

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Detailed Revenue & Profit by Model

For summary financials for overall Tesla, please refer to Earnings Outlook.

Model-S Revenue and Gross Profit Outlook

Model-S vehicles would be the biggest volume driver for the company beginning 2012: Tesla intends to start manufacturing Model-S vehicles (sedans in the price range of the likes of BMW 5-Series, Audi A6 and Mercedes E-Class; and with a seating space for 5 adults and 2 children) from 2H:2012 and the company anticipates to build 7K vehicles in 2012 and 20K vehicles in 2013. Though Tesla states that investment in the NUMMI facility has significantly de-risked the launch of Model-S and expresses its confidence in being able to launch Model-S by the aforementioned timeline, we nonetheless model somewhat more conservatively to account for a potential delay in vehicle launch timing and assume 5.5K unit sales in 2012 and 18.5K unit sales in 2013. We anticipate Model-S (and top-hat derivatives) shipments to increase from 18.5K in 2013 to 22.0K in 2014, 37.5K in 2015, 42.5K in 2016 and 47.5K in 2017 before a potential overhaul of the model in 2018. Significant volume ramp-up from 2014 to 2015 is driven by our assumption (supported by company guidance) that Tesla would launch variants of Model-S (CUV, MPV etc.) in mid-2014.

Model-S volume forecasts in the context of global luxury production volumes: We note that our 2013 Model-S shipment forecast (18.5K units) is *just* 0.3% of luxury badge production globally, 1.3% of luxury vehicles (sedans + SUVs) within the price bracket of $50-70K and ~2% of competing luxury sedans (BMW 5-series, Audi A-6 etc.).

Table 11: Production Volumes of Vehicles in the Price-Band of $50-70K vs. Model-S Sales Forecasts

Production Volume of Vehicles in the Price-Band: $50-70K	Price	CY2009	CY2010E	CY2011E	CY2012E	CY2013E	CY2014E	CY2015E	CY2016E
Acura RL	$ 48,640	2,117	3,016	5,338	8,486	7,399	8,677	9,437	9,889
Acura MDX	$ 47,993	32,784	58,712	61,843	67,515	71,018	71,331	70,059	67,088
BMW 5-Series	$ 54,925	158,080	241,320	271,563	266,428	252,166	245,753	238,304	261,885
BMW X6	$ 72,750	44,445	37,393	27,120	25,792	27,277	26,466	39,191	43,170
BMW Z4	$ 53,525	28,902	28,692	25,846	22,230	21,071	19,990	31,336	32,260
BMW X5	$ 66,450	80,500	91,382	106,092	107,096	113,476	115,466	114,349	111,891
Audi Q7	$ 53,950	27,929	29,773	28,393	27,339	27,451	42,121	48,311	47,676
Audi A6	$ 53,075	178,951	173,054	218,511	270,974	266,554	252,531	241,230	244,541
Cadillac CTS	$ 45,175	36,606	52,499	63,240	71,974	67,125	61,481	58,838	58,458
Infiniti M-Series	$ 57,550	11,333	15,715	19,656	22,236	21,836	25,256	28,416	29,144
Jaguar XF	$ 65,150	27,236	41,894	41,069	35,154	20,040	28,561	49,040	50,318
Lexus GS460	$ 54,070	11,565	18,117	27,589	30,218	30,210	31,984	33,448	32,147
Lexus GX460	$ 51,970	8,524	17,578	21,227	22,649	24,682	26,079	25,654	24,804
Mercedes-Benz ML-Class	$ 68,375	61,028	66,899	95,242	105,404	106,264	107,812	106,923	103,514
Mercedes-Benz E-Class	$ 66,900	210,976	276,747	291,480	275,935	260,192	245,090	221,873	208,330
Mercedes-Benz R-Class	$ 50,050	10,206	10,111	13,664	12,992	10,506	0	0	0
Porsche Cayman	$ 56,450	6,242	5,926	6,040	6,329	9,987	10,057	9,615	9,557
Porsche Cayenne		29,186	35,174	40,992	38,155	37,300	38,132	38,843	38,121
Porsche Boxster	$ 52,800	7,634	5,411	8,599	10,212	10,575	10,499	10,338	10,348
Total Production		**974,244**	**1,209,413**	**1,373,504**	**1,427,118**	**1,385,129**	**1,367,286**	**1,375,205**	**1,383,141**
JPM Tesla Model-S Forecast					**5,500**	**18,500**	**22,000**	**37,500**	**42,500**
% of Competing Vehicles					*0.4%*	*1.3%*	*1.6%*	*2.7%*	*3.1%*

Source: CSM Auto and J.P. Morgan estimates.

Table 12: Production Volumes of Sedans Competing with Model-S vs. Model-S Sales Forecasts

	CY2009	CY2010E	CY2011E	CY2012E	CY2013E	CY2014E	CY2015E	CY2016E
Acura RL	2,117	3,016	5,338	8,486	7,399	8,677	9,437	9,889
BMW 5-Series	158,080	241,320	271,563	266,428	252,166	245,753	238,304	261,885
Audi A6	178,951	173,054	218,511	270,974	266,554	252,531	241,230	244,541
Cadillac CTS	36,606	52,499	63,240	71,974	67,125	61,481	58,838	58,458
Infiniti M-Series	11,333	15,715	19,656	22,236	21,836	25,256	28,416	29,144
Lexus GS460	11,565	18,117	27,589	30,218	30,210	31,984	33,448	32,147
Mercedes-Benz E-Class	210,976	276,747	291,480	275,935	260,192	245,090	221,873	208,330
Total Model-S competing Sedans	**609,628**	**780,468**	**897,377**	**946,251**	**905,482**	**870,772**	**831,546**	**844,394**
JPM Tesla Model-S Forecast				5,500	18,500	22,000	37,500	42,500
% of Competing Sedans				***0.6%***	***2.0%***	***2.5%***	***4.5%***	***5.0%***

Source: CSM Auto and J.P. Morgan estimates.

Further, Tesla has indicated that it would make Model-S available in three ranges (160 miles, 230 miles and 300 miles), but has disclosed the base price of the 160 mile version only — $49.5K excluding ZEV (zero emission vehicle) credits. We assume the price of the 230 mile range ($61.6K) Model-S to be ~20% higher than the 160 miles version, and assume the price of the 300 mile range ($69.5K) Model-S to be ~10% higher than the 230 miles variant. As guided by the company, we assume 20% of Model-S vehicles to be 160 miles variant, 60% to be 230 miles variant and the remaining 20% to be 300 miles variant.

Tesla, being a pure Zero Emission Vehicle (ZEV) manufacturer, sells ZEV credits to the automakers not able to fully comply with the low-emission regulation requirements in several states. These states require a portion of the vehicles sold by the automakers in the state during each model year to be ZEVs. While Tesla currently generates significant revenues (~6% of the average selling price in the US is related to ZEV credit) from selling these credits to other automakers, we expect revenues related to ZEV credits to decline sequentially as electric vehicle penetration increases and more and more electric vehicles come to the market.

Model-S Revenue Outlook: Our model assumes Tesla will generate $1.8B of revenues from Model-S vehicles in 2013, $2.2B in 2014 and, post launch of Model-S derivatives in mid-2014 a significantly higher $3.7B in 2015. We expect revenues, thereafter, to grow steadily.

Model-S Gross Profit Outlook: We assume Model-S in the US will generate ~19% (excluding ZEV credits) gross margin per vehicle sold in the US in all the years beginning 2013 — lower than the ~27% gross margin (excl. ZEV credits) forecast for higher ASP Roadster vehicles. For Model-S vehicles sold outside the US (Europe and Rest of the World), we expect gross margin to be 25% in all the years — compared to 32.5% gross margin per vehicle assumed for off-shore Roadster volumes.

Cutting Cost of Model S Battery Pack

A key enabler to maintaining healthy gross margins on the Model S despite a lower selling price and larger pack because of a 35-40% expected drop in battery pack cost per unit of energy stored ($/kWh), say from roughly $550/kWh on the current Roadster to ~$300/kWh on the Model S. Key drivers behind Roadster to Model S battery cost saves (in rough order of magnitude):

1. **Pack level improvements** – For example, we expect packaging density of the Model S battery pack cells will be ~44% improved versus the Roadster's.

2. **Economies of scale –** Tesla expects Model S to have more than 30x the annual volumes of Roadster.

3. **Cell level improvements** -- Given changes to cell chemistry, many of them specifically suited to automotive applications, the cells for the Model S should have 15% higher energy density than those currently used in the Roadster (Panasonic is the initial provider of Model S cells; Sanyo is currently the Roadster's cell provider).

4. **Cell chemistry changes** – The cell cathode in the Roadster cells employ lithium cobalt (LCO) chemistry, while Model S cell cathodes will use nickel cobalt aluminum (NCA), resulting in a 2/3 reduction in the amount of Cobalt used per cell. Cobalt is relatively more expensive than aluminum and nickel.

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Table 13: Model-S: Volume and Revenue Build-Up

	FY12E	FY13E	FY14E	FY15E	FY16E	FY17E	FY18E	FY19E	FY20E
US									
Average Selling Price ($)									
Base Price -- 160 mile range	57,400	57,400	57,400	55,400	52,630	51,051	48,499	49,954	49,954
Base Price -- 230 mile range	69,500	69,500	69,500	67,500	64,125	62,201	59,091	60,864	60,864
Base Price -- 300 mile range	77,400	77,400	77,400	75,400	71,630	69,481	66,007	67,987	67,987
Penetration rate -- 160 mile range	20%	20%	20%	20%	20%	20%	20%	20%	20%
Penetration rate -- 230 mile range	50%	50%	60%	60%	60%	60%	60%	50%	60%
Penetration rate -- 300 mile range	30%	30%	20%	20%	20%	20%	20%	30%	20%
Base Price - Blended	69,450	69,450	68,660	66,660	63,327	61,427	58,356	60,819	60,107
D&D (Delivery & Destination)	975	975	975	975	975	975	975	975	975
Options	8,000	8,000	7,909	7,679	7,295	7,076	6,722	7,006	6,924
ZEV Credit	5,000	4,000	3,000	2,000	1,000	1,000	500	500	500
Total Average Selling Price ($)	**83,425**	**82,425**	**80,544**	**77,314**	**72,597**	**70,478**	**66,553**	**69,300**	**68,505**
Cost of Goods Sold per Unit ($)	77,500	63,403	62,733	61,038	57,993	56,277	53,503	55,728	55,084
Gross Profit per Unit ($)	5,925	19,022	17,811	16,275	14,603	14,201	13,050	13,572	13,421
Volume	3,000	11,000	12,000	20,000	22,500	25,000	20,000	27,500	25,000
Revenues ($ MM)	**250**	**907**	**967**	**1546**	**1633**	**1762**	**1331**	**1906**	**1713**
Cost of Goods Sold ($ MM)	233	697	753	1221	1305	1407	1070	1533	1377
Gross Profit ($ MM)	18	209	214	326	329	355	261	373	336
Gross Margin	7.1%	23.1%	22.1%	21.1%	20.1%	20.1%	19.6%	19.6%	19.6%
Gross Margin less ZEV Credits	1.2%	19.2%	19.1%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%
Europe & RoW									
USD/EUR	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
Average Selling Price ($)									
Base Price -- 160 mile range	66,430	66,430	66,430	64,115	60,910	59,082	56,128	57,812	57,812
Base Price -- 230 mile range	80,434	80,434	80,434	78,119	74,213	71,987	68,387	70,439	70,439
Base Price -- 300 mile range	89,576	89,576	89,576	87,262	82,899	80,412	76,391	78,683	78,683
Penetration rate -- 160 mile range	20%	20%	20%	20%	20%	20%	20%	20%	20%
Penetration rate -- 230 mile range	50%	50%	60%	60%	60%	60%	60%	50%	60%
Penetration rate -- 300 mile range	30%	30%	20%	20%	20%	20%	20%	30%	20%
Base Price - Blended	80,376	80,376	79,461	77,147	73,289	71,091	67,536	70,387	69,562
D&D (Delivery & Destination)	1,430	1,430	1,430	1,430	1,430	1,430	1,430	1,430	1,430
Options	11,700	11,700	11,567	11,230	10,668	10,348	9,831	10,246	10,126
ZEV Credit	0	0	0	0	0	0	0	0	0
Total Average Selling Price ($)	**93,506**	**93,506**	**92,458**	**89,807**	**85,388**	**82,869**	**78,797**	**82,063**	**81,118**
Cost of Goods Sold per Unit ($)	70,129	70,129	69,344	67,355	64,041	62,152	59,098	61,547	60,839
Gross Profit Per Unit ($)	23,376	23,376	23,115	22,452	21,347	20,717	19,699	20,516	20,280
Volume	2,500	7,500	10,000	17,500	20,000	22,500	25,000	25,000	25,000
Revenues ($ MM)	**234**	**701**	**925**	**1572**	**1708**	**1865**	**1970**	**2052**	**2028**
Cost of Goods Sold ($ MM)	175	526	693	1179	1281	1398	1477	1539	1521
Gross Profit ($ MM)	58	175	231	393	427	466	492	513	507
Gross Margin	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**
Global Model S (and CUV/MPV) Program									
Volume									
160 mile range	1,100	3,700	4,400	7,500	8,500	9,500	9,000	10,500	10,000
230 mile range	2,750	9,250	13,200	22,500	25,500	28,500	27,000	26,250	30,000
300 mile range	1,650	5,550	4,400	7,500	8,500	9,500	9,000	15,750	10,000
Volume	5,500	18,500	22,000	37,500	42,500	47,500	45,000	52,500	50,000
ASP ($)	88,007	86,917	85,960	83,144	78,616	76,348	73,355	75,377	74,812
Cost of Goods Sold per Unit ($)	74,150	66,130	65,738	63,986	60,839	59,060	56,611	58,499	57,961
Gross Profit per Unit ($)	13,857	20,787	20,221	19,158	17,777	17,288	16,744	16,878	16,850
Revenues ($ MM)	484	1608	1891	3118	3341	3627	3301	3957	3741
Cost of Goods Sold ($ MM)	408	1223	1446	2399	2586	2805	2548	3071	2898
Gross Profit ($ MM)	76	385	445	718	756	821	753	886	843
Gross Margin	**15.7%**	**23.9%**	**23.5%**	**23.0%**	**22.6%**	**22.6%**	**22.8%**	**22.4%**	**22.5%**

Source: Company reports and J.P. Morgan estimates.

Roadster Revenue and Gross Profit Outlook

Small volume expected from "Current-Generation" Roadsters: For Current-Generation Roadster vehicles, Tesla relies on Lotus Cars Limited in Hethel, England, for the assembly of body and chassis systems (gliders) and is in contractual agreement to get the first 1,700 assembled Roadster gliders from Lotus by March 2011; our model assumes Tesla easily meets the contractual obligation.

We expect Tesla to sell roughly half of the Current-Generation Roadster sales outside the US. The base price of the (Current-Generation) Roadster is $109K (excluding ZEV credits of $8.5K and options of $26K) and is expected to remain the same until 2012.

Next-Generation Roadster to be launched in 2013 likely with a lower ASP would have larger volumes: Beginning 2013, we expect Tesla to start building and assembling the lower price Next-Generation Roadster at its facility in California. We forecast Tesla to sell 1.5K Next-Generation Roadster globally in 2013 (in line with guidance). In subsequent years, however, we expect Roadster unit sales to grow to 1.75K in 2014, 1.95K in 2015, and increase 1K units each year thereafter. While the base price of Roadster vehicles currently on road is ~$109K (excluding ZEV credits and options), we anticipate the base price of Next-Generation Roadster at ~$75K, lower than company guidance of $100K. Lower base price estimate vs. company guidance is reflective of our assumption that Current-Generation Roadster's hefty price reflects a novelty factor (of being the only high range EV) that eventually fade, particularly after the Model-S launch in 2012. Further, we expect ZEV credits to decrease in the long term, as several automakers start building electric cars, which should be more popular by then. Our model assumes ZEV credit to decline from 4.0K in 2013, to 3.0K in 2014, 2.0K in 2015, 1.0K in 2016, and stable thereafter.

Tesla Roadster Revenue Outlook: Correspondingly, our model assumes revenues from Current-Generation Roadster vehicles to be $81MM in 2010, $80MM in 2011 and $53MM in 2012. After that, Tesla would launch Next-Generation Roadster vehicles in 2013 which is expected to generate $148MM of revenues in 2013, $171MM in 2014 and $184MM in 2015.

Tesla Roadster Gross Profit Outlook: As guided by the company, we assume that each Roadster vehicle sold in the US has an average cost of goods sold (COGS) of $120K in 2010, $115K in 2011 and $112K in 2012, and arrive at 12% overall gross margin (excl. ZEV credits) per vehicle in the US from Roadster vehicles in 2010, 16% and 18% (excl. ZEV credits) in 2011 and 2012, respectively. In subsequent years, however, we apply a constant ~27% gross margin (excl. ZEV credits) per Roadster vehicle sold in the US. For Roadster vehicles sold outside the US (in Europe and Rest of the World), we assume average cost of goods sold of $118K in 2010, $113K in 2011 and $110K in 2012 and arrive at 18/20/22% gross margins in 2010/2011/2012. In future years beyond 2012, we apply a constant 32.5% gross margin per Roadster vehicle sold outside the US.

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Table 14: Roadster Volume and Revenue Build-Up

	FY09	FY10E	FY11E	FY12E	FY13E	FY14E	FY15E	FY16E	FY17E	FY18E	FY19E	FY20E
US												
Average Selling Price ($)												
Base Price	109,000	109,000	109,000	109,000	75,000	75,000	72,750	70,568	68,450	66,397	66,397	66,397
D&D (destination & delivery)	1,950	1,950	1,950	1,950	1,950	1,950	1,950	1,950	1,950	1,950	1,950	1,950
Options	26,000	26,000	26,000	26,000	17,890	17,890	17,353	16,833	16,328	15,838	15,838	15,838
ZEV Credit	9,000	8,500	7,500	5,000	4,000	3,000	2,000	1,000	1,000	500	500	500
ASP - $	**145,950**	**145,450**	**144,450**	**141,950**	**98,840**	**97,840**	**94,053**	**90,350**	**87,728**	**84,685**	**84,685**	**84,685**
Cost of Goods Sold per Unit ($)	116,000	120,000	115,000	112,000	69,233	69,233	67,225	65,226	63,312	61,455	61,455	61,455
Gross Profit per Unit ($)	29,950	25,450	29,450	29,950	29,607	28,607	26,828	25,125	24,417	23,230	23,230	23,230
Volume	630	308	280	278	750	875	1,050	1,100	1,150	1,200	1,250	1,300
Revenues ($ MM)	**92**	**45**	**40**	**39**	**74**	**86**	**99**	**99**	**101**	**102**	**106**	**110**
Cost of Goods Sold ($ MM)	73	37	32	31	52	61	71	72	73	74	77	80
Gross Profit ($ MM)	19	8	8	8	22	25	28	28	28	28	29	30
Gross Margin on ASP	20.5%	17.5%	20.4%	21.1%	30.0%	29.2%	28.5%	27.8%	27.8%	27.4%	27.4%	27.4%
Gross Margin on ASP less ZEV Credits revenue		**12.4%**	**16.0%**	**18.2%**	**27.0%**	**27.0%**	**27.0%**	**27.0%**	**27.0%**	**27.0%**	**27.0%**	**27.0%**
Europe & RoW												
Average Selling Price												
Base Price - Euros	89,000	89,000	89,000	89,000	61,239	61,239	59,401	57,619	55,891	54,214	54,214	54,214
D&D (Delivery & Destination)- Euros	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Options - Euros	19,000	19,000	19,000	19,000	13,073	13,073	12,681	12,301	11,932	11,574	11,574	11,574
ASP - Euros	109,100	109,100	109,100	109,100	75,412	75,412	73,183	71,020	68,922	66,888	66,888	66,888
Memo: USD/EUR	1.39	1.32	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
ASP - $	**151,769**	**144,012**	**141,830**	**141,830**	**98,036**	**98,036**	**95,137**	**92,326**	**89,599**	**86,954**	**86,954**	**86,954**
Cost of Goods Sold per Unit ($)	106,000	118,000	113,083	110,133	66,174	66,174	64,218	62,320	60,479	58,694	58,694	58,694
Gross Profit per Unit ($)	45,769	26,012	28,747	31,697	31,862	31,862	30,920	30,006	29,120	28,260	28,260	28,260
Volume	200	252	280	93	750	875	900	950	1000	1050	1100	1150
Revenues ($ MM)	**30**	**36**	**40**	**13**	**74**	**86**	**86**	**88**	**90**	**91**	**96**	**100**
Cost of Goods Sold ($ MM)	21	30	32	10	50	58	58	59	60	62	65	67
Gross Profit ($ MM)	9	7	8	3	24	28	28	29	29	30	31	32
Gross Margin	**30.2%**	**18.1%**	**20.3%**	**22.3%**	**32.5%**	**32.5%**	**32.5%**	**32.5%**	**32.5%**	**32.5%**	**32.5%**	**32.5%**
Global Roadster Program												
ASP ($)	147,352	144,803	143,140	141,920	98,438	97,938	94,554	91,266	88,598	85,744	85,747	85,750
Cost of Goods Sold per Unit ($)	113,590	119,100	114,042	111,533	67,704	67,704	65,837	63,879	61,994	60,166	60,163	60,159
Gross Profit Per Unit ($)	33,762	25,703	29,098	30,387	30,734	30,234	28,716	27,387	26,604	25,577	25,584	25,591
Volume	830	560	560	370	1,500	1,750	1,950	2,050	2,150	2,250	2,350	2,450
% growth	*493%*	*-33%*	*0%*	*-34%*	*305%*	*17%*	*11%*	*5%*	*5%*	*5%*	*4%*	*4%*
Revenues ($ MM)	**122**	**81**	**80**	**53**	**148**	**171**	**184**	**187**	**190**	**193**	**202**	**210**
Cost of Goods Sold ($ MM)	94	67	64	41	102	118	128	131	133	135	141	147
Gross Profit ($ MM)	28	14	16	11	46	53	56	56	57	58	60	63
Gross Margin	**22.9%**	**17.8%**	**20.3%**	**21.4%**	**31.2%**	**30.9%**	**30.4%**	**30.0%**	**30.0%**	**29.8%**	**29.8%**	**29.8%**

Source: Company reports and J.P. Morgan estimates.

“Gen-III” Car Revenue and Gross Profit Outlook

The “Gen-III” Car is expected to be launched in 2015 and would likely compete with “mass-market” luxury vehicles such as the BMW 3-series: We expect Tesla to launch "Gen-III" cars in late-2015 with a base price in the vicinity of $35K, designed to compete with the likes of the BMW 3-Series. We project the volumes of mass-market cars to grow from 6K units in 2016 to 30K units in 2017, 63K in 2017, 88K in 2018, 100K units in 2019 and 108K units in 2020.

“Gen-III” Cars would likely yield nearly half of revenues eventually: We estimate revenues from “Gen-III” cars will be $1.3B in 2016, $2.6B in 2017, $3.5B in 2018, $4.0B in 2019 and $4.2B in 2020. We would expect the "Gen-III" cars to eventually be the biggest driver of volumes and revenues for the company. By our estimates, “Gen-III” cars would generate 50% of total revenues for Tesla in 2020.

“Gen-III” Car Gross-Profit Outlook: For “Gen-III” cars sold in the US, we assume 20% gross margin in 2015. In future years, we expect the margins to decline from this level to 13% in 2020 due to smaller ZEV credits, a lower base price partially offset by lower COGS (driven by lower battery costs). For the vehicles sold outside the US, we assume 15.0% gross margin in 2015, declining to 13.5% in 2020 due to similar reasons discussed above.

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Table 15: Generation III Car: Volumes and Revenue Build-Up

	FY15E	FY16E	FY17E	FY18E	FY19E	FY20E
US						
Average Selling Price ($)						
Base Price	32,500	32,500	32,500	31,525	31,210	30,898
D&D	975	975	975	975	975	975
Options	4,000	4,000	4,000	4,000	4,000	4,000
ZEV Credit	4,000	3,000	2,000	2,000	2,000	2,000
Total Average Selling Price ($)	**41,475**	**40,475**	**39,475**	**38,500**	**38,185**	**37,873**
Cost of Goods Sold per Unit ($)	33,180	33,380	33,753	33,112	33,031	32,951
Gross Profit per Unit ($)	8,295	7,095	5,722	5,388	5,153	4,922
Volume	5,000	20,000	45,000	65,000	75,000	80,000
Revenues ($ MM)	**207**	**810**	**1776**	**2503**	**2864**	**3030**
Cost of Goods Sold ($ MM)	166	668	1519	2152	2477	2636
Gross Profit ($ MM)	41	142	258	350	387	394
Gross Margin	20.0%	17.5%	14.5%	14.0%	13.5%	13.0%
Gross Margin excl. ZEV credits	**11.5%**	**10.9%**	**9.9%**	**9.3%**	**8.7%**	**8.1%**
Europe & RoW						
Average Selling Price ($)						
Base Price	42,250	42,250	42,250	40,983	40,573	40,167
D&D	1,463	1,463	1,463	1,463	1,463	1,463
Options	5,200	5,200	5,200	5,200	5,200	5,200
ZEV Credit	0	0	0	0	0	0
Total Average Selling Price ($)	**48,913**	**48,913**	**48,913**	**47,645**	**47,235**	**46,829**
Memo: USD/EUR	1.30	1.30	1.30	1.30	1.30	1.30
Cost of Goods Sold per Unit ($)	41,576	41,576	41,820	40,975	40,858	40,507
Gross Profit per Unit ($)	7,337	7,337	7,092	6,670	6,377	6,322
Volume	1,000	10,000	17,500	22,500	25,000	27,500
Revenues ($ MM)	**49**	**489**	**856**	**1072**	**1181**	**1288**
Cost of Goods Sold ($ MM)	42	416	732	922	1021	1114
Gross Profit ($ MM)	7	73	124	150	159	174
Gross Margin	**15.0%**	**15.0%**	**14.5%**	**14.0%**	**13.5%**	**13.5%**
Global Gen III Car Program						
Global ASP ($)	42,715	43,288	42,118	40,852	40,447	40,164
Cost of Goods Sold per Unit ($)	34,579	36,112	36,012	35,133	34,988	34,884
Gross Profit per Unit ($)	8,135	7,176	6,106	5,718	5,459	5,280
Volume	6,000	30,000	62,500	87,500	100,000	107,500
Revenues ($ MM)	256	1299	2632	3575	4045	4318
Cost of Goods Sold ($ MM)	207	1083	2251	3074	3499	3750
Gross Profit ($ MM)	49	215	382	500	546	568
Gross Margin	**19.0%**	**16.6%**	**14.5%**	**14.0%**	**13.5%**	**13.1%**

Source: Company reports and J.P. Morgan estimates.

Power-train Revenue and Gross Profit Outlook

Tesla supplies battery pack to Daimler for the smart and Class-A vehicles: In addition to manufacturing Roadster and Model-S vehicles, Tesla also supplies battery packs to Daimler. Daimler also made ~10% equity investment in Tesla. In addition, Toyota has recently announced $50MM of equity investment in Tesla.

We believe that intent of Toyota's investment is to facilitate a supplier-vendor relationship with Tesla, and we estimate that Toyota would potentially source power-trains from Tesla. Also, Toyota and Tesla recently agreed to develop an EV version of the RAV4 compact SUV that may go on sale in 2012. Toyota aims to test an electric variant of the Corolla sedan (and likely Lexus RX luxury SUV) as well.

“Consumer Vehicle” power-train volume assumptions in our model account for only the power trains supplied to Daimler and Toyota.

We expect Tesla to supply power-train modules to commercial vehicles beginning 2016. While the size of the addressable market of the commercial trucks is said to be $25B annually, we estimate Tesla to generate just $32MM of revenues every year beginning 2016 from this business.

We expect 25% gross margin from the power-train business in the next few years, and expect the gross margin to decline thereafter as battery prices decline and automakers likely start building power trains in-house, which may be dependent on the outlook of penetration of EVs. We believe higher penetration of EVs would make a stronger case for automakers to think about building power-trains by themselves. We model 25% gross margins in each of the years 2010-2011, and then expect margins to decline to 23% in 2012, 20% in 2013, 19% in 2014 and 17% in 2015.

Table 16: Power-train Business: Revenue and Volume Outlook

	FY09	FY10E	FY11E	FY12E	FY13E	FY14E	FY15E	FY16E	FY17E	FY18E	FY19E	FY20E
Consumer Vehicles												
Consumer Volume	30	855	2,750	4,700	5,300	8,900	10,065	11,072	12,179	14,005	15,406	16,947
ASP	20,000	18,000	17,000	15,000	13,000	10,000	9,000	8,000	7,000	6,000	5,500	5,500
Revenues	0.6	15.4	46.8	70.5	68.9	89.0	90.6	88.6	85.3	84.0	84.7	93.2
Commercial Vehicles												
Volume								1,000	1,000	1,000	1,000	1,000
ASP				40,000	38,000	36,000	34,000	32,000	32,000	32,000	32,000	32,000
Revenues								32	32	32	32	32
Total Power-Train Business												
Revenues	0.6	15.4	46.8	70.5	68.9	89.0	90.6	120.6	117.3	116.0	116.7	125.2
COGS	0.5	11.5	35.1	54.3	55.1	72.1	74.3	100.1	99.7	102.1	102.7	110.2
Gross Profit	0.2	3.8	11.7	16.2	13.8	16.9	16.3	20.5	17.6	13.9	14.0	15.0
Gross Margin	25.0%	25.0%	25.0%	23.0%	20.0%	19.0%	18.0%	17.0%	15.0%	12.0%	12.0%	12.0%

Source: Company reports and J.P. Morgan estimates.

Management

Tesla's management is led by Elon Musk (39). Today, Mr. Musk is chairman, product architect, and CEO (CEO responsibilities came in 2008) of Tesla, and he also serves as CEO and CTO of SpaceX. He is also chairman of Solar City.

Mr. Musk holds a physics degree from the University of Pennsylvania and a business degree from Wharton. Mr. Musk seems to be a serial entrepreneur, having been or still is involved in a total of five major enterprises. He sold his first company Zip2, an internet software firm, to Compaq in the late-90s for $307MM. He then co-founded PayPal, which he later sold in October 2002 for $1.5B to eBay. His PayPal proceeds were used to fund SpaceX, which launched in 2002. He co-founded Tesla in 2003. He is also involved in Solar City, started in 2006.

One concern for investors over time may be that Elon Musk may eventually become stretched too thin.

Elon Musk seems passionate about electrified vehicles (or, more broadly, about the clean energy space) in general, an engineer at heart, and he is deeply involved in Tesla today. As many successful visionaries do, he has had some setbacks, but generally these are more around timeframe, not technological feasibility. One concern we see for investors over time may be that Mr. Musk may eventually become stretched too thin -- he seems to be handling his dual CEO responsibilities (for Tesla and SpaceX) relatively well so far, but as each organization grows, this may become more challenging.

In addition to Mr. Musk, we think JB Straubel, Tesla's CTO, plays a critical role in the company's success. Mr. Straubel has a masters degree in energy engineering from Stanford. Mr. Straubel is also a Tesla co-founder, and he currently oversees the technical and engineering design of the vehicles, focusing primarily on the battery, motor, power electronics, and software sub-systems. Prior to Tesla, he was co-founder and CTO of Volacom, an aerospace firm.

The manufacturing head is ex-Toyota, the retail distribution head is ex-Apple/Gap, and the HR head is ex-Google.

While Tesla's culture is centered around hard engineering, the company has realized the need to bring in strong non-engineering skills in select verticals. Most executives who come to Tesla seem to have been high achievers in prior roles in often eclectic industries. For example, the manufacturing head is ex-Toyota, the retail distribution head is ex-Apple/Gap, and the HR head is ex-Google. We believe this wide net of industry expertise is likely to form a strong management team that takes the best disciplines from multiple industries.

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Appendix: Summary Financial Statements

Table 17: Summary Income Statement

	FY09	FY10E	FY11E	FY12E	FY13E	FY14E	FY15E
Total Revenues	**112**	**109**	**147**	**628**	**1,846**	**2,173**	**3,672**
Total COGS	102	84	115	520	1,397	1,654	2,828
Total Gross Profit	**10**	**25**	**32**	**108**	**449**	**519**	**844**
Gross Margin	8.9%	23.2%	21.8%	17.2%	24.3%	23.9%	23.0%
Research and Development	20	80	139	150	161	267	177
% of sales	17.9%	73.1%	94.6%	23.9%	8.7%	12.3%	4.8%
SG&A	41	90	91	112	135	148	240
% of sales	36.6%	82.2%	61.9%	17.8%	7.3%	6.8%	6.5%
Operating Income (loss)	**(51)**	**(145)**	**(198)**	**(154)**	**153**	**104**	**427**
Operating Margin	-45.5%	-132.1%	-134.8%	-24.6%	8.3%	4.8%	11.6%
Interest Income (expense)	(2)	(3)	(10)	(14)	(13)	(10)	(9)
Other (loss) gain	-1.0	-10.0	0.0	0.0	0.0	0.0	0.0
Pre-tax Income (Loss)	**(54)**	**(158)**	**(208)**	**(168)**	**140**	**93**	**418**
Taxes	0	0	0	0	0	0	100
Memo: Tax Rate	0%	0%	0%	0%	0%	0%	24%
GAAP Net Income (Loss)	**(54)**	**(158)**	**(208)**	**(168)**	**140**	**93**	**318**
Add: change in fair value of warranty liabilities							
Add: Non-cash Stock Based compensation		17	14	16	19	20	17
Non-GAAP Net Income		**(141)**	**(194)**	**(152)**	**159**	**113**	**334**
Weighted average number of shares -- Diluted		102.0	103.0	104.1	105.1	106.1	107.2
Non-GAAP Diluted EPS		**$ (1.38)**	**$ (1.88)**	**$ (1.46)**	**$ 1.51**	**$ 1.07**	**$ 3.12**

Source: Company reports and J.P. Morgan estimates

Summary Balance Sheet

	2010E	2011E	2012E	2013E	2014E	2015E
Assets						
Cash and cash equivalents	223	139	44	145	106	180
Account Receivable, net	5	7	31	92	109	184
Inventory, net	15	21	88	258	304	514
Prepaid expenses and other current assets	7	9	38	111	130	220
Total Current Assets	251	176	201	607	650	1,098
Property and equipement, net	114	233	281	373	508	823
Restricted cash	4	4	4	4	4	4
Other Assets	3	4	19	55	65	110
Total Assets	**371**	**417**	**504**	**1,039**	**1,226**	**2,035**
Liabilities & Equity						
Accounts Payable	19	25	107	314	369	624
Accrued Liabilities	19	25	107	314	369	624
Deferred development compensation	0	0	0	0	0	0
Deferred revenue	0	0	0	0	0	0
Capital lease obligations, current portion	0	0	0	0	0	0
Refundable reservation payments	35	35	15	10	5	0
Total Current Liabilities	73	85	229	638	744	1,249
Convertible preferred stock warrant liability	2	2	2	2	2	2
Common stock warrant liability	6	6	6	6	6	6
Capital lease obligations, less current portion	1	1	1	1	1	1
Convertible notes payable	0	0	0	0	0	0
Deferred revenue, less current portion	1	1	1	1	1	1
Long-Term debt (DOE loans)	159	372	452	400	348	296
Other long-term liabilities	3	3	3	3	3	3
Total Liabilities	**245**	**471**	**694**	**1,051**	**1,106**	**1,558**
Preferred Stock	319	319	319	319	319	319
Common Stock	201	215	231	250	270	292
Additional paid-in capital	7	7	7	7	7	7
Retained earnings (deficit)	-401	-595	-747	-589	-476	-141
Total Equity	**126**	**-54**	**-190**	**-12**	**121**	**477**
Total Liabilities & Equity	**371**	**417**	**504**	**1,039**	**1,226**	**2,035**

Source: Company reports and J.P. Morgan estimates.

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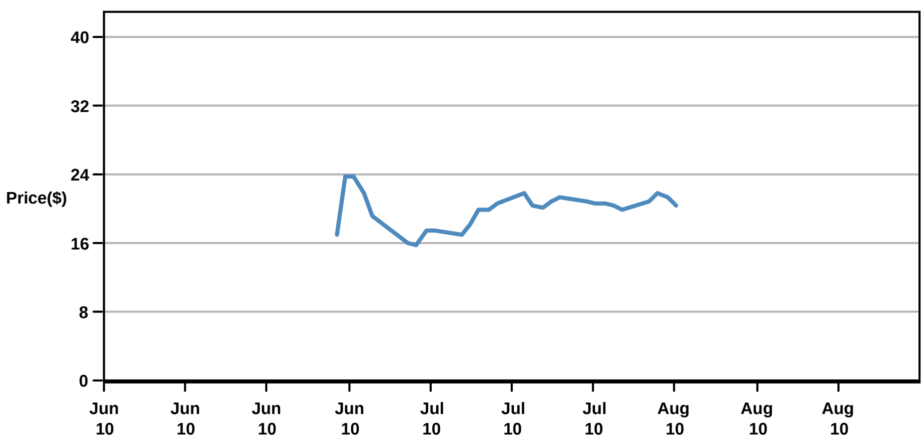

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