

**CALIFORNIA ALTERNATIVE ENERGY AND
ADVANCED TRANSPORTATION FINANCING AUTHORITY**
Meeting Date: June 19, 2012

***Request for Amendment to Tesla's STE Resolution (Resolution No 09-003) to expand
CAEATFA's Authorized Signatories for Administrative Purposes***

Prepared By: *Heather Williams*

Summary. Staff requests approval to amend Tesla Motors Inc.'s ("Tesla") Sales Tax Exclusion ("STE") Resolution No. 09-003 ("Resolution") under the Zero Emission Vehicle ("ZEV") Policy (Pre-SB 71 Program) to expand CAEATFA's Authorized Signatories for administrative purposes.

Background. On October 28, 2009, the CAEATFA Board approved an STE in the amount of \$320,000,000 in Qualified Property for Tesla under the ZEV Policy prior to the establishment of the SB 71 Program (see Attachment A). The resolution currently solely authorizes CAEATFA's Executive Director as the "Authorized Signatory" on legal documents and other ministerial acts between Tesla and the Authority. It does not include the Deputy Executive Director or Chair as Authorized Signatories, which is consistent with CAEATFA's other resolutions, including resolutions for the SB 71 Program.

The limited number of Authorized Signatories could lead to administrative delays in executing Conveyance and Reconveyance Agreements ("Transaction Agreements") between Tesla and CAEATFA. CAEATFA has 10 calendar days to execute a Transaction Agreement for Tesla from the time it receives a completed agreement and the document must be signed by an Authorized Signatory. This could lead to administrative problems if the Executive Director is out of the office for more than a week at a time.

Staff Recommendation. Staff recommends approval of the attached Resolution adding the Deputy Executive Director and Chair to those considered Authorized Signatories.

**A RESOLUTION OF
CALIFORNIA ALTERNATIVE ENERGY AND ADVANCED TRANSPORTATION
FINANCING AUTHORITY APPROVING AN AMENDMENT TO RESOLUTION NO.
09-003 OF OCTOBER 28, 2009 TO REFLECT EXPANDING THE AUTHORIZED
SIGNATORIES**

June 19, 2012

WHEREAS, on October 28, 2009 the California Alternative Energy and Advanced Transportation Financing Authority (the “CAEATFA”), a public instrumentality of the State of California, approved a Sales Tax Exclusion (“STE”) in the amount of \$320,000,000 of Qualified Property for **Tesla Motors, Inc.** (the “Applicant”); and

WHEREAS, the Project has not been modified since the Authority approved Financial Assistance for the Applicant in October 2009 (“the Resolution”); and

WHEREAS, CAEATFA’s Authorized Signatories are limited to only the Executive Director in the original resolution dated October 28, 2009; and

WHEREAS, CAEATFA’s standard business practice is to identify the Executive Director, Deputy Executive Director, and CAEATFA Chair as Authorized Signatories; and

WHEREAS, it is necessary to expand the Authorized Signatories beyond the Executive Director to include the Deputy Executive Director and CAEATFA Chair to ensure the timely execution of legal agreements and other ministerial duties under the Resolution; and

WHEREAS, approval for amending the Resolution is sought.

NOW THEREFORE BE IT RESOLVED by the California Alternative Energy and Advanced Transportation Financing Authority as follows:

Section 1. The October 28, 2009 Tesla Motors, Inc. Resolution # 09-003 is amended to add the Deputy Executive Director and the CAEATFA Chair as Authorized Signatories.

Section 2. Except as specifically amended in Section 1 hereof, all provisions and conditions of the October 28, 2009 Tesla Motors, Inc. Resolution shall remain unchanged and in full force and effect. This resolution shall take effect immediately upon its passage.

ATTACHMENT A

**CALIFORNIA ALTERNATIVE ENERGY & ADVANCED TRANSPORTATION
FINANCING AUTHORITY
BOND FINANCING PROGRAM**

Meeting Date: October 28, 2009

***Request for Resolution Approving and Authorizing the Executive Director to Execute a Title
Conveyance Agreement with Tesla Motors, Inc.***

Prepared by: *Brian Gorban*

Applicant:	Tesla Motors, Inc.	Amount Requested:	\$320,000,000
Project	1. 3500 Deer Creek Road, Palo Alto,	Application No.:	09-003
Locations:	Santa Clara County	Resolution No.:	09-003
	2. To Be Decided – Model S production facility, currently targeting Southern California locations		

Summary. Tesla Motors, Inc. (“Tesla” or the “Company”) requests approval of a resolution to enter into a Title Conveyance Agreement for an amount not to exceed \$320,000,000 for the purchase of zero-emission vehicle manufacturing equipment. The Company requests that the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) enter into a Title Conveyance Agreement under which the Company will convey title of equipment, tooling and other manufacturing equipment purchased directly from vendors to CAEATFA and CAEATFA will re-convey title of same back to the Company. The Company believes the conveyance/reconveyance arrangement will enable it to avail itself of the benefits of the sales and use tax exclusion provided by California Revenue and Taxation Code Section 6010.8.

Tesla develops and manufacturers both high-performance all-electric powertrain components for automotive applications and fully-electric automobiles which fall under the classification of ZEV. The Company plans to make significant capital investments for four project components: \$238 million worth of equipment to establish California-based production of the Tesla Model S, \$59 million worth of equipment to establish an advanced electric powertrain components manufacturing plant, \$18 million will go under as unbudgeted equipment purchases, and \$5 million worth of equipment that the Company is considering for expanded California-based assembly of Tesla Roadsters.

Applicant. Tesla develops and manufacturers both high-performance all-electric powertrain components for automotive applications and fully-electric automobiles. Its first product is the Tesla Roadster which is capable of traveling 244 miles on a single charge, while also accelerating from 0-60 mph in 3.7 seconds, and achieving a top speed of approximately 120 mph. The Roadster also consumes only a few pennies worth of electricity per mile, as opposed to its gasoline-powered competitors which can generate more than 15 cents per mile in fuel costs alone. The Roadster has been successfully commercialized, with over 800 units delivered to customers around the world.

Tesla plans to introduce the Model S, a \$50,000 sport sedan, by late 2011. Additionally, the Company is actively deploying its technology in others applications, such as a commercial agreement with Daimler A.G. to supply electric battery packs for the electric version of Daimler’s Smart fortwo.

Tesla was incorporated in Delaware in July 2003.

The following individuals and entities own 3% or greater of the capital stock of the Company¹:

- Elon Musk Trust
- Valor Equity Partners L.P.
- VantagePoint Venture Partners IV, L.P.
- Draper Fisher Jurveston Partners VIII, LLC
- Bay Area Equity Fund I, L.P.
- Technology Partners Fund VIII, LP
- Blackstar Investco LLC

Legal Questionnaire. Staff has reviewed the Company’s responses to the questions contained in the Legal Status portion of the Application. No information was disclosed that raises questions concerning the financial viability or legal integrity of this applicant.

Project Description. The Company will be making significant capital investments for four project components. The first and largest being approximately \$238 million worth of equipment to establish California-based production of the Tesla Model S at a run-rate of 20,000 units per year. The second component is approximately \$59 million worth of equipment to establish an advanced electric powertrain components manufacturing plant in Palo Alto. The third component is approximately \$5 million worth of equipment that the Company is considering for expanded California-based assembly of Tesla Roadsters. The fourth component is \$18 million for unbudgeted equipment purchases.

Tesla aims to produce powertrains for more than 40,000 vehicles per year, including the Model S, by 2013.

Volume assumptions	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Model S	0	1,000	10,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Other Tesla Powertrains	2,650	7,300	17,300	22,000	22,300	22,500	23,000	23,500	24,000	24,000	24,000
Total EVs produced	2,650	8,300	27,300	42,000	42,300	42,500	43,000	43,500	44,000	44,000	44,000
Cumulative ICE vehicles replaced	2,650	10,950	38,250	80,250	122,550	165,050	208,050	251,550	295,550	339,550	383,550

¹ Not exhaustive due to existing confidential agreements.

The anticipated project and sales tax savings are listed below:

Project Component	Purchase Price (MMs)	Tax Rate	Sales Tax Savings
Tesla model S Production	\$238,000,000	9.75%	\$ 23,200,000
Powertrain Manufacturing Facility	59,000,000	9.25%	5,500,000
Expansion of Tesla Roadster Final Assembly	5,000,000	9.25%	500,000
Unbudgeted Equipment Purchases	18,000,000	9.25%	1,665,000
Total	<u>\$320,000,000</u>		<u>\$30,865,000</u>

Note: The Project costs reported in the application and shown here in staff's report are estimated costs. At the termination of the conveyance/reconveyance agreement a finalized project equipment list will be prepared detailing the value of the project equipment conveyed and reconveyed and detailing the actual tax benefit realized pursuant to Revenue and Tax Code Section 6010.8. Variations from the costs shown in the application and in this report may occur prior to the closing due to increased costs of certain components of the Project from original estimates, and other reasons. In addition, such costs may vary after closing due also to increased costs, as well as common design and equipment modifications during construction, differences in equipment due to future changes in law or regulation or for other reasons.

Anticipated Timeline. The Tesla Model S is expected to go into production in late 2011. The equipment purchases, totaling \$320 million, are currently scheduled for \$12 million in 2009, \$208 million in 2010, and \$100 million in 2011.

Job Creation and/or Green Energy Benefits. The Company represents the Project will generate the pollution control and environmental benefits described below.

Job Creation. It is estimated that these three projects will together create approximately 1,400 full time jobs.

Project	Estimated full-time jobs created (ongoing production)
Model S Production	980
Powertrain Production	410
Expanded Roadster Production	<u>10</u>
Total	<u>1400</u>

In addition, incremental job creation will stem from the full-time resources needed for a one-time facility upgrade and fit-out. The Company estimates that at least 260 full-time employees will be needed for six months for the Model S Program, and at least 40 full time resources will be needed for two to three months for the Powertrain Production. The detail regarding job creation is provided below at the project level.

Most of the job creation will occur in three categories: Powertrain Production, Model S Production, and incremental Roadster Assembly. The Powertrain Production facility upgrade timeline is three months, during which an average of ten local construction tradesmen will be

required daily on two shifts. After the facility upgrades, the automation installation timeline is two months, during which time at least ten local tradesmen will be required on two shifts. Once the facility becomes operational, assembly operations will proceed in two shifts. Each shift will employ approximately 135 production workers, 20 facilities personnel, and approximately 50 personnel in back office operations, totaling approximately 205 employees per shift. This site is located in Palo Alto, CA.

The Model S Production facility upgrade will have a timeline of six months, during which an average of 40 local construction workers will be required daily on two shifts. After the facility upgrade, there will be a need for automation installation which also has a timelines of approximately six months, during which an average of 70 local tradesmen will be required daily on two shifts. Once the facility becomes operational, assembly operations will proceed in two shifts. Each shift will employ approximately 300 production workers consisting of approximately 60 facilities personnel, and a maximum of 130 personnel in back office operations.

The final site has not yet been selected. Two potential locations are in the area of Long Beach or Downey, CA.

Finally, the Roadster is already in production, with final assembly currently occurring in Menlo Park, CA. As the Company expands its retail footprint into new markets (both within the U.S. and abroad), they will increase domestic manufacturing activity to keep pace with demand. As a result, Tesla will expand and improve current California-based final assembly operations, contributing to at least ten incremental full time hires. These hires will range from vehicle technicians to factory managers.

Air Quality. The Company's goal is to be a "green," no-waste company, and reuse and recycling are existing company policies. The manufacturing facility intends to incorporate LEED sustainable design principles in the retrofit of the existing building. In addition, mitigation measures will be incorporated into the project to the greatest extent possible to address potential environmental impacts. Such mitigation measures may include scheduling start and end times for the work shifts for off-peak hours, to avoid traffic impacts on local streets and freeways. Also, the Company is identifying the best opportunities to minimize emissions and waste as part of a comprehensive pollution prevention approach, including a life-cycle assessment of the facility's physical plant, production processes and products. In addition the Company will also use an innovative "powder painting" process at the facility that will be one of the most eco-friendly systems in the world. Compared to a conventional automobile painting process, it will provide extensive environmental benefits, such as significant reductions in volatile organic compounds, greenhouse gas emissions, and the generation of hazardous wastes.

Energy Efficiency. Since the Tesla Model S is an all-electric vehicle, its MPG estimate is based on AC Watt Hours per Mile, which is then converted to a Miles-per-Gallon Equivalent. Using the Company's proprietary electric vehicle model, the Model S sedan is predicted to achieve a 255 MPG equivalent, which provides an 867% improvement over the 29.4 MPG efficiency achieved by the Model Year 2005 Midsize Sedan class of vehicles.

Climate Change. This project has the potential to abate over 5 billion kg of CO2 emissions cumulatively to 2020, with even further potential in the future years.

The calculation on the next page assumes that the average vehicle is driven 15,000 miles per year and achieves 25 miles per gallon on average. Based on an estimated 260 g/km CO2 emitted for a gasoline-powered vehicle, an average of 109 g/km CO2 for a typical electric car (based on McKinsey research and IEA data on the global electricity generation mix by fuel), and the assumption that all vehicles (growing from current volumes of 1,000 to 40,000 per year at scale) produced with Tesla powertrains are used for at least 10 years.

Universal assumptions										
Average miles driven per year per vehicle converted to km	15,000 miles 24,140 km									
Electric vehicles built using Tesla Powertrain (including Model S)										
Annual volume at full-scale	2010	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total EVs in fleet/ICE vehicles replaced	2,850	8,300	27,300	42,000	42,300	42,500	43,000	43,500	44,000	44,000
	2,850	10,950	38,250	80,250	122,550	165,050	208,050	251,550	295,550	339,550
CO2 emissions reduction										
Assumed CO ₂ per km, gasoline (g)	260		Source McKinsey & Co. Research							
Assumed CO ₂ per km, electricity (by fuel)										
Fuel	g CO ₂ per km (by fuel)	Approx. mix*								
Coal	202	41%	McKinsey & Co. Research, IEA estimates							
Oil	146	6%	McKinsey & Co. Research, IEA estimates							
Natural Gas	90	20%	McKinsey & Co. Research, IEA estimates							
Nuclear	0	15%	McKinsey & Co. Research, IEA estimates							
Hydro	0	16%	McKinsey & Co. Research, IEA estimates							
Other renewable	0	2%	McKinsey & Co. Research, IEA estimates							
Assumed CO ₂ per km, electric (average)	109									
Abated CO ₂ emissions per km (g)	151									
Abated CO₂ emissions (millions kg)	2010	2012	2013	2014	2015	2016	2017	2018	2019	2020
	10	40	139	292	446	600	756	915	1,075	1,235

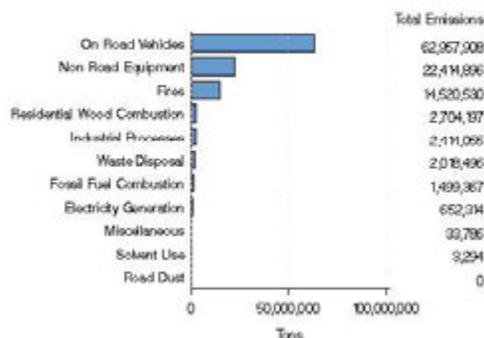
*Generation mix by fuel provided for global electricity generation from IEA Outlook, 2008

The result of the calculation shows that the annual CO2 emissions reduction surpasses half of a billion kg annually by 2016. Cumulatively, from 2010 to 2020, an estimated 5.5 billion kg of CO2 emissions is abated.

Also, Criteria pollutants will be significantly reduced through the proliferation of Tesla electric vehicles, especially carbon monoxide (“CO”) and nitrogen oxide (“NOx”).

As the EPA reports, the largest source of CO emissions is On Road Vehicles, which accounted for almost 60% of all national CO emissions in 2002. By contrast, electricity generation for the entire country accounted for only 1% of the national emissions:

National Carbon Monoxide Emissions by Source Sector
in 2002



It is clear from this data that electricity generation emits a negligible amount of CO. Therefore, it is safe to assume at the highest level that replacing an internal combustion engine with an electric powertrain eliminates the CO emissions associated with the original vehicle.

In 2002, based on the assumption that the U.S. vehicle fleet was 200M vehicles, the estimated emissions of CO per vehicle was over 0.3 tons per year:

Carbon Monoxide Emissions (tons)	62,957,908
National vehicle fleet	200,000,000
Estimated emissions per vehicle (tons)	0.31

Using previous volume assumptions, the estimated reduction in CO emissions is almost one-half of a million tons cumulatively through 2020:

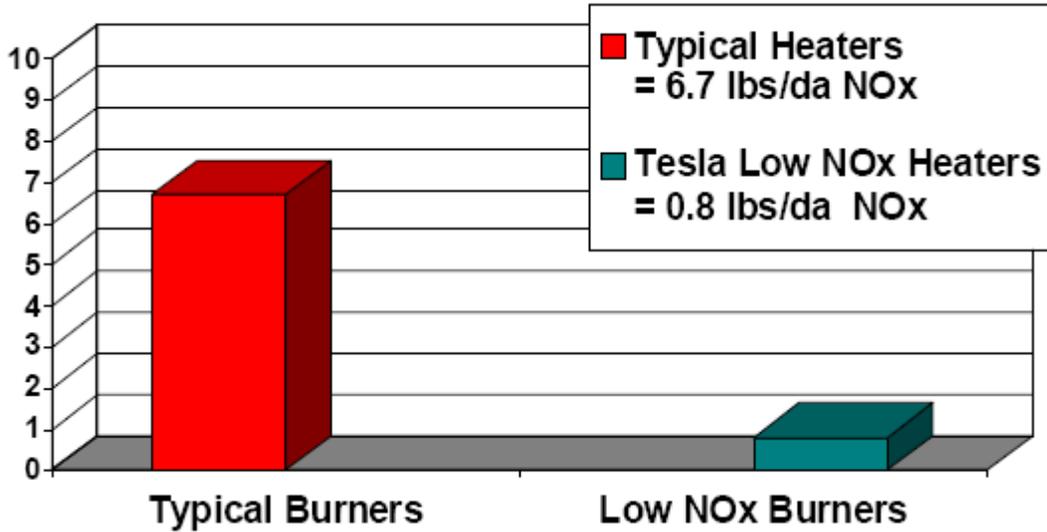
	2010	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total EVs in fleet/ICE vehicles replaced	2,650	10,950	38,250	80,250	122,550	165,050	208,050	251,550	295,550	339,550
Abated CO emissions (millions kg)	834	3,447	12,041	25,262	38,577	51,956	65,492	79,185	93,036	106,887

Tesla vehicles will also greatly reduce NOx emissions as, according to the Company, the EPA has found that the annual NOx savings using electric vehicles compared to gasoline-powered ones are .03 tons of NOx per vehicle. Looking at the table below, we see the abated NOx emissions would reach almost 50,000 tons cumulatively over the next 10 years:

	2010	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total EVs in fleet/ICE vehicles replaced	2,650	10,950	38,250	80,250	122,550	165,050	208,050	251,550	295,550	339,550
Abated NOx emissions (tons)	86	356	1,243	2,608	3,982	5,363	6,760	8,173	9,603	11,033

In addition, the criteria pollutants emissions abatement extends beyond use of Tesla’s vehicles to its actual manufacturing process. Tesla’s planned production facility will also significantly reduce NOx emissions relative to current vehicle manufacturing plants. These emissions come primarily from the gas burners needed in the paint process. Tesla plans on using an innovative “powder paint” process that has a much lower environmental impact than typical automobile manufacturing.

Specifically, under the assumption that the plant produces 20,000 units per year production of the Tesla Model S would emit 6 fewer pounds per day of NOx emission than a typical automobile manufacturing plant, eliminating almost 90% of associated emissions.



Permitting and Environmental Approvals. While the final site selection for the Model S is still underway, the Company’s application to the Department of Energy referred to a proposed facility in Long Beach, CA as the site of record. This site is still under active consideration. By the terms of the Title Conveyance Agreement, Tesla will be required to install, maintain and operate all Project equipment in compliance with all applicable local, state and federal laws and regulations.

In regard to the Powertrain production facility, the site is designated for industrial use in Palo Alto, CA. Neither a zoning change, nor amendment to the General Plan, is required. The Expanded assembly of the Tesla Roadster is a very low-impact project from an environmental perspective. Therefore, the Company will be able to comply with all environmental requirements whether this assembly takes place at its current location in Menlo Park or if it is relocated.

Staff Recommendation. Staff recommends approval of Resolution No. 09-003 and for an amount not to exceed \$320,000,000 for Tesla Motors, Inc.

***Resolution Approving and Authorizing the Executive Director
to Execute a Title Conveyance Agreement With Tesla Motors, Inc.***

WHEREAS, the California Alternative Energy and Advanced Transportation Financing Authority (the “Authority”) has received the application of Tesla Motors, Inc., a Delaware Corporation (the “Corporation”), for financial assistance in the form of a conveyance/reconveyance of title agreement (the “Agreement”) regarding equipment, tooling and other manufacturing for the design, manufacture, technology transfer, production, assembly, distribution or service of zero emission vehicles in California and as more particularly described as the project in the Term Sheet attached hereto as Exhibit A and incorporated herein (the “Term Sheet”) (collectively, the “Project”); and

WHEREAS, the Corporation has requested the Authority to enter into the Agreement transferring title of Project equipment with an estimated cost not to exceed \$320 million over a period of three years; and

WHEREAS, the Agreement will provide that the Corporation will, prior to any use of the Project Equipment transfer title at no cost to the Authority from time to time as purchases of Project Equipment are made and the Authority will then transfer title back to the Corporation without having taken possession of the Project equipment; and

WHEREAS, the Corporation believes that this form of financial assistance will enable it to avail itself of the benefits of an exclusion from sales and use taxes relative to the Project Equipment pursuant to California Revenue and Taxation Code Section 6010.8; and

WHEREAS, due to confidentiality agreements, the Corporation is unable at this time to provide CAEATFA with a complete list of entities with three percent or more ownership interest and has committed to staff to continue to work to provide a complete list; and

WHEREAS, approval of the terms of the Agreement and authority for the Executive Director to execute the necessary documents to effectuate the Agreement is now sought;

NOW, THEREFORE, BE IT RESOLVED by the California Alternative Energy and Advanced Transportation Financing Authority, as follows:

Section 1. The Project constitutes a “project” within the meaning of Public Resources Code Section 26003(g).

Section 2. The requested conveyance agreement constitutes “financial assistance” within the meaning of Public Resources Code Section 26003(e)(2).

Section 3. The Corporation is a “participating party” within the meaning of Public Resources Code Section 26003(f)(1).

Section 4. The proposed form of the Agreement between the Corporation and the Authority, as filed with the Authority prior to this meeting, is hereby approved. The Executive

Director of the Authority (the “Authorized Signatory”) is hereby authorized and directed, for and on behalf and in the name of the Authority, to execute, acknowledge and deliver to the Corporation the Agreement in substantially the form filed with or approved by the Authority, with such insertions, deletions or changes therein as the officer executing the same, may require or approve, and with particular information inserted therein in substantial conformance with the Term Sheet, such approval to be conclusively evidenced by the execution and delivery thereof. The Authority understands and agrees that pursuant to the terms of the Agreement, the obligations of the Corporation may, under some circumstances be carried out or assumed by a successor or assignee entity, or by an affiliate of the Corporation. For purposes of this Resolution, an “Affiliate” means any person or entity which meets the definition of “Participating Party in the Act and controls, is controlled by or is under common control with, the Corporation, as shown by the possession, directly or indirectly, of the power to direct or cause the direction of its management or policies, whether through majority equity ownership, contract or otherwise.

Section 5. Each of the Authorized Signatories, acting alone, is hereby authorized and directed to do any and all ministerial acts, including (without limitation) the execution and delivery of any and all documents and certificates they may deem necessary or advisable in order to consummate the Agreement and otherwise effectuate the purposes of this resolution.

Section 6. The Corporation shall assure CAEATFA that all Project equipment conveyance pursuant to the Agreement shall be installed, maintained and operated in compliance with all applicable local, state and federal laws.

Section 7. The Agreement shall only apply to Project equipment that Corporation certifies will be installed, maintained and operated at facilities within the State of California.

Section 8. This Resolution is contingent upon provision of a complete list of entities with ownership interest of three percent or greater. The adoption by the Authority of this Resolution for the Corporation shall not be referred to in any application before any governmental agency as evidence of the feasibility, practicality or suitability of the Project or in any application for any required permission or authority to acquire, construct or operate the project.

TESLA MOTORS INFORMATION REQUEST: EXHIBIT A

TESLA TERM SHEET FOR CONVEYANCE AND RECONVEYANCE OF SPECIFIED ZEV MANUFACTURING EQUIPMENT

Tesla is seeking financial assistance for the purchase of manufacturing equipment and tooling related to the production of electric vehicles and electric vehicle powertrain components. This project has three main categories of equipment purchases, which total to approximately \$320 million as set forth below:

Project Component	Purchase Price (MMs)
Tesla Model S Production	\$ 238
Powertrain Manufacturing Facility	59
Expansion of Tesla Roadster Final Assembly	5
Unbudgeted Equipment Purchases	18
	<u>\$ 320</u>

All costs shown are based on Tesla’s best estimates based on conversations with suppliers and bids received from them. To accommodate for variances in costs, each cost category contains a contingency. Tesla anticipates updating these prices and the equipment categories during the course of the project.

Equipment List by Project

Tesla Model S Production

Tesla plans to spend \$238 million for tooling, manufacturing equipment and manufacturing facility improvements for the production of the Tesla Model S. Approximately \$104M will be spent on Supplier Tooling, \$38M on Manufacturing Facility Capital, and \$95M on Manufacturing Tooling and Equipment:

MODEL S EQUIPMENT LIST

SUPPLIER TOOLING

- Body
- Interior
- Chassis
- Electrical
- Thermal
- Powertrain
- EU Requirements

MANUFACTURING FACILITY CAPITAL

- Body - Upgrade
- Paint - New
- Final - Upgrade
- Powertrain - Upgrade
- General - Upgrade

MANUFACTURING TOOLING & EQUIPMENT

- Body
- Paint (powder coat)
- Final Assembly
- Powertrain Production
- Updated Product Investment

TESLA MOTORS INFORMATION REQUEST: EXHIBIT A

Powertrain Production Factory

Tesla plans to invest \$59 million into the production of the Daimler Smart EV (\$27M), production equipment and tooling for the production of the main battery pack and motor (\$18M), and general equipment and facility fit-up (\$14M) for the powertrain facility located in Palo Alto, CA:

POWERTRAIN EQUIPMENT LIST
PRODUCTION EQUIPMENT FOR DAIMLER SMART CAR
Pilot Fixtures Pilot Modules Pilot Enclosures Pilot Factory Capital Equipment Production Metro Module Line Production Metro Pack Line Production A/B Class Pack Line
MAIN BATTERY PACK & MOTOR PRODUCTION EQUIPMENT
Class 10,000 Clean Room for Wire Bonding Facility Outfitting (HVAC, central vapor collection, configurable overhead power and air) Fully outfitted QA lab MES System + WIP Tracking + SPC Software Material handling ESS Storage Tower (FIFO assurance, SOC control, FGI stays at factory, JIT to vehicle build) Conveyors Sheet Carrier Cleaner Hipot Test Cooling Tube Fully Auto Cell Handling Loading Fully Automated Stycast Mix/Dispense/Sheet Closure Accelerated curing rack Stycast Accelerated curing rack Fuse Side Potting Accelerated curing rack Sheet Mounts Cell Polarity Machine Vision Inspection New Stycast Inspection System with proper machine vision Fully Automated Collector Plate Bonding Line (potentially cure both sides at once) Improved Fuse Side Potting Station Fully Automated Sheet Mount Bonder with closed loop positioning Fully Automated Wire Bonding with custom (H&K, Orthodyne) machines (no "zones") Flying Probe (or simply fully automated) Wire Bond Inspection MT30 LOAD TESTER at Sheet Test (Include Hipot test) Ancillary Components Installation Station TESTER at ESS Conn/ISO/Sheetless Test (adding Hipot Test) Automated Pneumatic Assist Sheet Loader – primarily to protect wire bonds Intelligent Torque Tooling (Atlas Copco) Automated E-Connector Installation ABC150 LOAD TESTER at ESS Final Test Automated Leak and Flow Testing Templates or Laser Guides for ESS Label Placement Packout Station Plastic Wrap Turntable at Packout Core Making Rotor Core Cast Rotor Grinding Slot insulating Winding Insertion Coil Drifting and Spiking End Turn Forming / Blocking Lacing Tests Varnishing Bake Oven Finish Press-Fitting Press-Assy Press-Assy Balancing Alignment and Closing Wire Terminals Fastening Testing Dressing Packaging Material Handling Material Handling Material Storage M.E.S.
GENERAL CAPITAL EQUIPMENT
Other OEM Business, Initial Tooling & Equipment General Production Equipment (MHE, MES, Racks) General Facility Improvements and Contingency Powertrain Research Equipment (Lab)

Expansion of Tesla Roadster Final Assembly

Tesla Motors intends on investing \$5 million in equipment to improve the final assembly process of the Tesla Roadster, which currently occurs in Menlo Park, California:

ROADSTER EQUIPMENT LIST
Manufacturing Capital
Manufacturing Test Equipment
Road Dynamometer
Additional Manufacturing Capital
Production Metro Module Line
Supplier Tooling
Body & Interior Tooling
Tooling (Vehicle harness)
Tooling (Roadster chassis)